

PROJECT MANUAL
INCLUDING SPECIFICATIONS
FOR CONSTRUCTION OF

WELLS FARGO BANK N.A.
1130 East Post Road
Mamaroneck, NY 10022

PREPARED BY:

Longo Architects & Associates, LLC
36 South Street
New Providence, NJ 07974

PROJECT NUMBER
2174

ISSUE DATE
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END OF SECTION 00 01 10



SECTION 00 01 15 – LIST OF DRAWINGS

The following drawings are issued as a part of the Contract Documents and are incorporated into this Project Manual by reference:

DRAWING NUMBER TITLE

ARCHITECTURAL

T-001.00	TITLE SHEET & NOTES
DM-101.00	PARTIAL SITE & FIRST FLOOR DEMOLITION PLAN
DM-102.00	FIRST FLOOR DEMOLITION REFLECTED CEILING PLAN
A-100.00	CELLAR CONSTRUCTION FLOOR PLAN
A-101.00	PARTIAL SITE & FIRST FLOOR CONSTRUCTION PLAN
A-102.00	FIRST FLOOR CONSTRUCTION REFLECTED CEILING PLAN
A-103.00	FIRST FLOOR & PARTIAL CELLAR FINISH & FURNITURE PLAN
A-104.00	FINISH SCHEDULE
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A-401.00	ENLARGED TELLER LINE PLAN & ELEVATIONS
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A-404.00	INTERIOR ELEVATIONS
A-501.00	MILLWORK DETAILS
A-601.00	DOOR SCHEDULE & DETAILS

STRUCTURAL

S-000	STRUCTURAL LEAD SHEET
S-100	PARTIAL FOUNDATION PLAN & FIRST FLOOR FRAMING PLAN
S-101	ROOF FRAMING PLAN
S-200	SECTIONS & DETAILS

FIRE PROTECTION

SP001.00	SPRINKLER GENERAL INFORMATION SHEET
SP100.00	SPRINKLER BUILDING ELEVATION

PLUMBING

P001.00	PLUMBING GENERAL INFORMATION
P002.00	PLUMBING SPECIFICATIONS SHEET 1
P003.00	PLUMBING SPECIFICATIONS SHEET 2
P100.00	PLUMBING BASEMENT PLAN
P101.00	PLUMBING FIRST FLOOR PLAN
P200.00	PLUMBING RISER & DETAILS

MECHANICAL

M001.00	MECHANICAL GENERAL INFORMATION
M002.00	MECHANICAL SPECIFICATIONS
M003.00	MECHANICAL BMS NOTES
M100.00	MECHANICAL DEMOLITION PLAN
M200.00	MECHANICAL FIRST FLOOR PLAN
M300.00	MECHANICAL SCHEDULES
M400.00	MECHANICAL DETAILS

ELECTRICAL

E001.00	ELECTRICAL GENERAL INFORMATION
E002.00	ELECTRICAL SPECIFICATIONS SHEET
E100.00	CELLAR ELECTRICAL PLAN
E101.00	FIRST FLOOR ELECTRICAL PLAN
E200.00	ELECTRICAL SCHEDULES AND SCHEDULES

END OF SECTION 00 01 15

SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Related Documents: Conditions of the Contract, Division 01 - General Requirements, and Drawings apply to Work of this Section.

1.2 DEFINITIONS

- A. All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, latest edition, are applicable to these Instructions to Bidders.
- B. Bidding documents include the Advertisement for Bid, Instructions to Bidders, the bid forms, and the proposed Contract Documents including any Addenda issued prior to receipt of Bids.
- C. Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.
- D. **Longo Architects & Associates, LLC** will be hereafter referred to in this specifications as "Architect" and all correspondence shall be addressed to:

36 South Street, New Providence NJ 07974
- E. A Bid is a complete and properly signed proposal to do the Work for designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- F. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.
- G. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid in the corresponding change in the Work, as described in the Bidding Documents or in the proposed Contract Documents.
- H. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or service as described in the Bidding Documents or in the proposed Contract Documents.
- I. A Bidder is a person or entity who submits a Bid.
- J. A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials or labor for a portion of the Work.

1.3 TIME OF COMPLETION

- A. Time of completion of this Contract is of importance to the Owner and may be considered in the award of the Contract. Payments on the Contract shall be made as provided by the Contract.

1.4 EXAMINATION OF DOCUMENTS AND SITE

- A. Each Bidder, by making his Bid, represents that he has read and understands the Bidding Documents.
- B. The location and elevations of the various utilities and pipe work included within the scope of the work are offered as a general guide only, without guarantee as to accuracy. The Contractor shall verify and investigate to his own satisfaction the location and elevation of all utilities, pipe work, and the like and shall adequately inform himself of their relation to the work before submitting a proposal.
- C. Each Bidder by making his Bid represents that his Bid is based upon the materials, systems and equipment required by the Bidding Documents without exception.

1.5 BIDDING PROCEDURES

- A. Prepare Bids on forms provided by Owner and submitted in accordance with these Instructions to Bidders. The Architect will furnish Bidders with Bid Forms which will provide for the following Bid Items:
 - 1. A single contract price for each Bid Item as detailed and described in these Specifications.
 - 2. Acknowledgment of Addenda.
 - 3. Number of calendar days to complete project.
 - 4. List of proposed subcontractors.
 - 5. Alternate Bids.
 - 6. Unit Prices.
- B. A Bid is invalid if it has not been deposited at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids, or prior to any extension thereof issued to the Bidders.
- C. Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his Bid or any part thereof for 30 days after the time designated for the receipt of Bids in the Advertisement for Bids.
- D. Prior to the receipt of Bids, Addenda will be mailed or delivered to each person or firm recorded by the Architect as having received the Bidding Documents and will be available for inspection wherever the Bidding Documents are kept available for that purpose. Addenda issued after receipt of Bids will be mailed or delivered only to the selected Bidder.
- E. Bids shall not contain any recapitulation of the Work to be done and no oral or telephone proposals or modifications will be considered.
- F. Make no additional stipulations on the Bid Form nor limit or qualify Bid in any other manner. Bids so qualified will be subject to disqualification.

- G. Only written instructions will be binding. The Architect will not be responsible for any oral, telegraphic or telephonic instructions.
- H. Submit for approval by the Architect names of Subcontractors and material suppliers proposed to be employed before they are employed. Subcontractors and material suppliers must be known to perform work of a high standard in their respective trades. If the Architect has reasonable objection to any such proposed person or entity, and notifies the Bidder in writing of such objection, the Bidder shall provide an acceptable substitute person or entity in accordance with the General Conditions.

1.6 DISCREPANCIES AND AMBIGUITIES

- A. Each Bidder shall examine the Bidding Documents carefully and, not later than 10 days prior to the date for receipt of Bids, shall make written request to the Architect for interpretations or correction of any ambiguity, inconsistency or error therein which he may discover. Any interpretation or correction will be issued as an Addendum by the Architect. Only a written interpretation or correction by Addendum shall be binding. No Bidder shall rely upon any interpretation or correction given by any other method.

1.7 SUBSTITUTIONS

- A. Each Bidder represents that his Bid is based upon the materials and equipment described in the Bidding Documents.
- B. No substitution will be considered unless written request has been submitted to the Architect for approval at least 7 days prior to the date for receipt of Bids. Refer to Section Product Requirements.
- C. If the Architect approves a proposed substitution, such approval will be set forth in an Addendum or letter of approval.
- D. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.

1.8 BASIS OF BID

- A. Include unit cost items and alternates shown on the Bid Form; failure to comply may be cause for rejection. No segregated Bids or assignments will be considered.

1.9 PREPARATION OF BID

- A. Submit Bid on forms furnished by Architect. Correctly fill in blank spaces on forms and state prices, written in words and in figures.
- B. Where there is discrepancy between the price written in words and the price written in figures, the price written in words shall govern.
- C. If Bid is submitted by an individual, his name must be signed by him or his duly authorized agency. If the Bid is submitted by a firm, association or partnership, the name and address of each member must be given, and the Bid must be signed by an official or duly

authorized agent. Powers of attorney authorizing agents or others to sign Bids must be properly certified and must be in writing and submitted with the Bid.

1.10 FILING BID

- A. No Bid will be considered unless it is filed with the Owner within the time limit for receiving Bids as stated in the Advertisement.

1.11 MODIFICATION AND WITHDRAWAL OF BID

- A. Bid may not be modified after submittal. Bidders may withdraw at any time before opening, but may not resubmit them.
- B. No Bid may be withdrawn or modified after the Bid opening except where the award of the Contract has been delayed beyond 30 days after date of Bid.
- C. If written confirmation of the modified or withdrawn bid received by telegram is not received within two days from the closing time, no consideration shall be given to the telegram.

1.12 OPENING BID

- A. The Bids submitted will be opened at the time stated in the Advertisement for Bids, privately opened, and shall thereafter remain on file with the Owner.

1.13 IRREGULAR BID

- A. Bids will not be considered if they show any omissions, alterations of form, additions, or conditions not requested, unauthorized alternate Bids or irregularities of any kind.
- B. However, the Owner reserves the right to waive any irregularities and to make the award in the best interest of the Owner.

1.14 REJECTION OF BID

- A. The Bidder acknowledges the right of the Owner to reject any or all Bids and to waive any informality or irregularity in any Bid received.
- B. In addition, the Bidder recognizes the right of the Owner to reject a Bid if the Bidder failed to furnish any required Bid security, or to submit the data required by the Bidding Documents, or if the Bid is any way incomplete or irregular.

1.15 SUBMISSION OF POST-BID INFORMATION

- A. The selected Bidder shall, within 7 calendar days thereafter submit the following:
 - 1. A statement of cost for each major item of Work included in the Bid.
 - 2. A designation of the Work to be performed by the Bidder with his own forces.
 - 3. List of anticipated subcontractors.

1.16 AWARD OF CONTRACT

- A. After Bids are opened, the Bids will be tabulated for comparison on the basis of the Bid prices and quantities shown in the Bids. The Owner reserves the right to withhold the award of the Contract for a period of 30 days from the date of opening Bids and no award will be made until the Owner is satisfied as to the responsibilities of the low Bidders. Until final award of the Contract, the Owner reserves the right to reject any or all Bids or proceed to do the work otherwise in the best interest of the Owner.
- B. Upon notification by Owner and prior to award of Contract, Contractor will provide Contractor's Qualifications Statement (AIA Document A 305, 1986 edition), and insurance certificate within three (3) working days. Contractor will authorize Owner or Owner Representative to inquire, of any reference, with regard to Contractor's credentials and qualifications in performing the work.

1.17 EXECUTION OF CONTRACT

- A. The person or persons, partnership, company, firm, association or corporation to whom a contract is awarded shall within 10 days after such award, sign the necessary agreements entering into the required Contract with the Owner.
- B. No contract shall be binding on the Owner until it has been executed by the Owner or his duly authorized representative, and delivered to the Contractor.

END OF SECTION 00 21 13



SECTION 00 65 36 – CONTRACTOR’S GENERAL WARRANTY

WELLS FARGO
1130 EAST POST ROAD
MAMARONECK, NY 10022

The undersigned Contractor hereby warrants, in accordance with the applicable provisions and terms set forth in the Contract Documents, all materials and workmanship incorporated in Wells Fargo, NA 1130 EAST POST ROAD, MAMARONECK NY 10022 against any and all defects due to faulty materials or workmanship or negligence for a period of 12 months, or such longer periods as set forth in the Contract Documents, from the effective date of Substantial Completion. This Contractor further warrants all work incorporated in this project to remain leakproof and watertight at all points for a period of 60 months from the effective date of Substantial Completion.

This Warranty shall be binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God or other casualty beyond the control of the Contractor.

This Warranty shall be in addition to other warranties and guarantees set forth in the Contract Documents, and shall not act to constitute a waiver of additional protection of the Owner afforded, where applicable, by consumer protection and product liability provisions of law, and these stipulations shall not constitute waiver of any additional rights or remedies available to the Owner under the law.

Signed: _____

Name: _____

Title: _____

Date: _____

(Corporate Seal)

Subscribed and sworn before me this
_____ day of _____, 20____.

(Notary Public)

END OF SECTION 00 65 36



SECTION 00 65 37 – ASBESTOS-FREE WARRANTY

WELLS FARGO
1130 EAST POST ROAD
MAMARONECK, NY 10022

The undersigned Contractor hereby warrants that no asbestos-containing materials of any kind were used in the construction of Wells Fargo, 1130 EAST POST ROAD, MAMARONECK NY 10022.

Signed:

Name: _____

Title: _____

Date: _____

(Corporate Seal)

Subscribed and sworn before me this

_____ day of _____, 20_____.

(Notary Public)

END OF SECTION 00 65 37



SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

GENERAL

The following supplements modify the “General Conditions of the Contract for Construction,” AIA Document A201 – 2007 and are, by reference, hereby made a part of the Contract Documents the same as if included in full herein. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1; GENERAL PROVISIONS

1.1 The Contract

Delete subparagraph 1.1.3 and substitute the following:

1.1.3 The Work

the term “Work” means the construction and services required by or inferable from the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or of the Project.

1.2 Correlation and Intent of the Contract Document

Add the following to subparagraph 1.2.1

In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities.

- .1 The Owner-Contractor 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 no clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect’s interpretation.

Add the following subparagraph:

1.2.5 References in these Contract Documents to standards including trade associations, federal and military specifications, technical societies, organizations, and associations, codes and government authorities whether specific or by implication shall refer to the latest issue or edition in effect 30 days, prior to date of receipt of Bids or date of the Agreement, if there were no Bids. The provisions of referenced standards shall not change the duties and responsibilities of the Owner, the Contractor, or the Architect or any of their consultants, agents or employees.

1.2.6 Compute dimensions; do not obtain by scaling drawings. In case of any discrepancy between Drawings and Specifications, consult Architect before proceeding with the work.

ARTICLE 2; OWNER

Delete subparagraph 2.2.1.

Delete subparagraph 2.2.5 and substitute the following:

2.2.5 The Contractor will be furnished free of charge 3 copies of Drawings and Project Manuals. Additional sets will be furnished at the cost of reproduction, postage and handling.

ARTICLE 3; CONTRACTOR

3.2 Review of Contract Documents and Field Conditions by Contractor

Add the following subparagraphs 3.2.5 and 3.2.6

3.2.5 The contractor shall have a continuing duty to read, carefully study and compare each of the Contract documents, the shop drawings and the product data and shall give written notice to the Architect and Owner of any inconsistency, ambiguity, error and omission which the Contractor may discover, or should discover with reasonable diligence, with respect to these documents before proceeding with the affecting Work. The issuance, or the express or implied approval by the Owner or Architect of the Contract Documents, shop drawings, or project data shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with the Contract. The Owner has requested the Architect to only prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated, and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATIONS OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. By the execution of the Agreement, the Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction and that the Contractor has not, does not, and will not rely upon any representation or warranty by the Owner concerning such documents as no such representation or warranty has been or is hereby made.

3.2.6 The Contractor shall perform no part of the Work at any time without adequate Contract Documents or, as appropriate, approved shop drawings, product data or samples for such portion of the Work. If the Contractor performs any of the Work knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect and Owner, the Contractor shall bear responsibility for such performance and shall bear the cost of correction.

3.3 Supervision and Construction Procedures

Add the following subparagraph 3.3.4.

3.3.4 The Contractor shall perform the Work strictly in accordance with the Contract Documents.

3.4 Labor and Materials

Add the following subparagraphs 3.4.4, 3.4.5, 3.4.6 and 3.4.7 to 3.4:

3.4.4 After the Contract has been executed, the Owner and the Architect may 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 01 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 including any additional architects design costs, and waives all claims for additional costs related to the substitute 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.

3.4.6 When a material, equipment, or system is specified by the name of one or more manufacturers, such material, equipment, or system shall for the basis of the Contract. If the Contractor desires to use another material, equipment, or system in lieu thereof, he shall request approval in writing and shall submit samples and data as required for Architect's consideration. Any reasonable request for substitution will be considered by the Architect. If, in the opinion of the Architect, such material, equipment, or system is equal to the material specified and is entirely satisfactory for use in the Project, then the Architect will approve such substitutions. However, the Architect will be the sole judge of the above requirements. Any use as a basis for bidding of a material, equipment, or system other than that specified unless such material, equipment, or system has been approved by the Architect before submission of General Contractor's Bid to Owner, will be made at Bidder's risk. No substitutions shall be made without authority in writing from the Architect.

3.4.7 General Contractor shall disclose the existence and extent of financial interests, whether direct or indirect, he has in subcontractors and material suppliers which he may propose for this Project.

3.7 Permits, Fees and Notices and Compliance with Laws

Delete subparagraph 3.7.4 and substitute the following:

3.7.6 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations (including the Americans with Disabilities Act) without such notice to the Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the cost attributable to correction.

3.10 Contractor's Construction Schedules

Delete subparagraph 3.10.1 and substitute the following:

3.10.1 The Contractors, promptly after being awarded the Contract, shall prepare and submit for the Owner's and the Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised no less frequently than monthly and at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. Each such revision shall be furnished to the Owner and the Architect. Failure by the Contractor to strictly comply with the provisions of this Paragraph shall constitute a material breach of the Contract.

3.14 Cutting and Patching

Add the following subparagraph 3.14.3:

3.14.3 Contractor further agrees that if the work or a portion thereof is performed adjacent to or in the vicinity of facilities that are used for Owner's financial services operations, the Contractor shall comply with any instructions by Owner with respect to storage, access to and from site, and measures required to reduce noise levels, dust and debris.

3.15 Clearing Up

Delete subparagraph 3.15.1 and substitute the following:

3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operation under the contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials and the site shall be left in "broom clean" condition.

3.18 Indemnification

Delete subparagraph 3.18.1 and substitute the following:

3.18.1 To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by Project Management Protective Liability insurance purchased by the Contractor in accordance with Paragraph 11.3, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the breach of Contract Documents or by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this paragraph 3.18.

Add the following subparagraph 3.18.3

3.18.3 For ten dollars (\$10), acknowledge to be included and paid for by the Owner in the Contract Sum, and other good and valuable consideration, the Contractor agrees to indemnify and hold harmless the Owner and his agents and employees in accordance with the provisions of this Paragraph 3.18 and of Paragraph 3.17. For ten dollars, and other good and valuable consideration, to be paid to the Contractor by the Architect after execution of the Agreement by the Contractor and the Owner, the Contractor also agrees to indemnify and hold harmless the Architect and his agents, employees, consultants, officers, directors and stockholders in accordance with the provisions of this Paragraph 3.18.

Add the following paragraph 3.19

3.19 No Third Party Beneficiary

3.19.1 It is especially agreed between the parties executing this Contract that it is not intended by any of the provisions of any part of the Contract to create the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a part of this Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the parties to this Contract with respect to third parties shall remain as imposed by law.

ARTICLE 4; ARCHITECT

4.1 General

Delete subparagraph 4.1.3 and substitute the following:

4.1.3 If the employment of the Architect is terminated, the Owner shall employ a new Architect whose status under the Contract Documents shall be that of the former Architect.

4.2 Administration of the Contract

Delete subparagraph 4.2.4 and substitute the following:

4.2.4 Communications Facilitating Contract Administration. The Owner and Contractor may communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications

by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

ARTICLE 5; SUBCONTRACTORS

5.2 Award of Subcontractors and Other Contractors for Portions of the Work

Add the following sub-subparagraph 5.2.1.1 to 5.2.1:

5.2.1.1 Not later than three (3) days after the judgement of apparent low bidder, the Contractor shall furnish in writing to the Owner through the Architect the names of persons or entities proposed as manufacturers for each of the products identified in the General Requirements (Division 1 of the Specifications) and, where applicable, the name of the installing Subcontractor.

ARTICLE 6; NO CHANGES

ARTICLE 7 CHANGES IN THE WORK

7.2 Change Orders

Add the following subparagraph 7.2.2

7.2.2 No change shall be made to the Contract Sum or Contract Time except pursuant to a prior written Change Order.

ARTICLE 8; NO CHANGES

ARTICLE 9; PAYMENTS AND COMPLETION

9.3 Applications for Payment

Delete subparagraph 9.3.1 and substitute the following:

9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, as well as lien releases and reflecting retainage if provided for in the Contract Documents. The form of Application for Payment shall be notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet (1992 Edition, ORIGINALS ONLY). Payments will be held if required LEED progress documentation and requirements are not provided.

Add the following subparagraphs 9.3.1.3 and 9.3.1.4 to 9.3.1:

9.3.1.3 Until Substantial Completion, the Owner shall pay ninety (90) percent of the amount due the Contractor on account of progress payments.

9.3.1.4 The Contractor's second application for payment shall not be honored until all shop drawings, product data and samples, including approved wood finish sample, have been received by the Architect.

Delete subparagraph 9.3.3 and substitute the following:

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been issued and payments received

from the Owner shall, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, material and equipment relating to the Work.

9.6 Progress Payments

Delete subparagraph 9.6.4 and substitute the following:

9.6.4 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law. The Owner may pay Subcontractors or Material Suppliers directly.

Add the following paragraph 9.11 ARTICLE 9:

9.11 Liquidated Damages

9.11.1 The Contractor and the Contractor's surety, if any, shall be liable for and shall pay the Owner the sums hereinafter stipulated as liquidated damages for each calendar day of delay until the Work is substantially complete _____ Dollars (\$ _____), not to exceed \$ _____.

ARTICLE 10; PROTECTION OF PERSONS AND PROPERTY

10.2 Safety of Persons and Property

Add the following sub-subparagraph 10.2.4.1 to 10.2.4:

10.2.4.1 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner reasonable advance notice.

ARTICLE 11; INSURANCE AND BONDS

11.1 Contractor's Liability Insurance

11.1.1.1 Delete the semicolon at the end of Clause 11.1.1.1 and add:

including private entities performing Work at the site and exempt from the coverage on account of number of employees or occupation, which entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project;

11.1.1.2 Delete the semicolon at the end of Clause 11.1.1.2 and add:

or persons or entities excluded by statute from the requirements of Clause 11.1.1.1 but required by the Contract Documents to provide the insurance required by that Clause;

Add the following sub-subparagraphs 11.1.1.9 and 11.1.1.10 to 11.1.1:

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

- 1. Premises Operations (including X, C and U coverage's as applicable).
- 2. Independent Contractors' Protective.
- 3. Products and Completed Operations.
- 4. Personal Injury Liability with Employment Exclusion deleted.
- 5. Contractual, including specified provision for Contractor's obligation under Paragraph 3.18.
- 6. Owned, non-owned and hired motor vehicles.
- 7. Broad Form Property Damage including Completed Operations.

11.1.1.10 If the General Liability coverage's are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination date of the policy or applicable extended reporting period shall be no earlier than the termination date of coverage's required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

Add the following sub-subparagraph 11.1.2.1 and 11.1.2.2 to 11.1.2:

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

- 1. Workers' Compensation:
 - (a) State: Statutory
 - (b) Applicable Federal
(e.g., Longshoremen's): Statutory
 - (c) Employer's Liability: \$100,000 per Accident

- 2. Comprehensive or Commercial General Liability (including Premises-operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):
 - (a) Bodily Injury

\$2,000,000	Each Occurrence
\$2,000,000	Aggregate

 - (b) Property Damage:

\$2,000,000	Each Occurrence
\$2,000,000	Aggregate

 - (c) Products and Completed Operations to be maintained for 10 years after final payment:
 - (d) Property Damage Liability Insurance shall provide X, C and U coverage.
 - (e) Broad Form Property Damage Coverage shall include Completed Operations.

- 3. Contractual Liability:
 - (a) Bodily Injury:

\$2,000,000	Each Occurrence
\$2,000,000	Aggregate

 - (b) Property Damage:

\$2,000,000	Each Occurrence
\$2,000,000	Aggregate

- 4. Personal Injury, with Employment Exclusion deleted:

\$2,000,000	Aggregate
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- 5. Business Auto Liability (including owned, non-owned and hired vehicles):
 - (a) Bodily Injury:

\$2,000,000	Each Person
\$2,000,000	Each Occurrence

(b) Property Damage:

\$2,000,000	Each Occurrence
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6. Excess Liability Policy:

\$5,000,000	Limit
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7. Additional Insured: Except for workers compensation and employers liability coverage, all liability policies required shall be endorsed to name the following as Additional Insured: PROJECT NAME, its board members, officers, employees, agents, successors and assigns.

11.1.2.2 Add the following sentence to Subparagraph 11.1.3:

If this insurance is written on the Comprehensive General Liability policy form, the Certificates shall be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACORD form 25S will be acceptable.

11.3 Property Insurance

11.3.1 Modify the first sentence of subparagraph 11.3.1 as follows: Delete "Unless otherwise provided, the Owner" and substitute "The Contractor." Add the following sentences:

The form of policy for this coverage shall be Completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, the Contractor shall bear all reasonable costs properly attributable thereto.

11.3.1.2 Delete sub-subparagraph 11.3.1.2.

11.3.1.3 Delete sub-subparagraph 11.3.1.3.

11.3.4 Delete subparagraph 11.4.4.

11.3.6 Delete subparagraph 11.4.6 and substitute the following:

Before an exposure to loss may occur, the Contractor shall file with the Owner two certified copies of the policy or policies providing this Property Insurance coverage, each containing those endorsements specifically related to the Project. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Contractor.

11.3.7 Modify subparagraph 11.3.7 by substituting "Contractor" for "Owner" at the end of the first sentence.

11.3.8 Modify subparagraph 11.3.8 by substituting "Contractor" for "Owner" as fiduciary; except that at the first reference to "Owner" in the first sentence, the word "this" should be substituted for "Owner's".

11.4.9 Modify Subparagraph 11.4.9 by substituting "Contractor" for "Owner" each time the latter word appears.

11.4.10 Modify Subparagraph 11.4.10 by substituting "Contractor" for "Owner" each time the latter word appears.

11.4 Performance Bond and Payment Bond

11.4.1 Delete Subparagraph 11.4.1 and substitute the following:

The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

Add the following sub-subparagraphs 11.4.1.1 and 11.4.1.2 to 11.4.1:

11.4.1.1 The Contractor shall deliver the required bonds to the Owner not later than seven calendar days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

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

ARTICLE 12 AND 13; NO CHANGES

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 Termination by the Contractor

Delete subparagraph 14.1.1.4

Delete subparagraph 14.1.3 and substitute the following:

14.1.3 If one of the reasons described in Subparagraph 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery.

14.2 Termination by the Owner for Cause

Delete the first sentence from subparagraph 14.2.2 and substitute the following sentence:

14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:...

14.4 Termination by the Owner for Convenience

Delete subparagraph 14.4.3 and substitute the following:

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, cost incurred by reason of such termination, along with reasonable overhead and profit on the Work completed but not on uncompleted Work.

ARTICLE 15; NO CHANGES

END OF SECTION 00 73 00



SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Retail Banking Store.
 - 1. Project Location: 1130 Post Road, Mamaroneck NY 10022
- B. Owner: Wells Fargo, NA
- C. Architect: Longo Architects & Associates, LLC; 36 South Street, New Providence NJ 07974
- D. The Work consists of the following:
 - a. The Work includes interior alterations of a 2,682 sf existing building space.
- E. Comply with Wells Fargo LEED v3 for Retail: Commercial Interiors.
- F. Project will be constructed under a single prime contract.

1.2 LEED REQUIREMENTS

- A. This Project has been designated to achieve LEED certification in accordance to the Wells Fargo Volume Certification Program. Provide services, documentation, and materials to obtain the required certification.

1.3 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner has awarded separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. This work includes the following:
 - 1. Bank Equipment: Installation of the following items:
 - a. TTW WU ATM & surround.
 - b. TCR (located in the teller line – station #2).
 - c. Coin locker pedestals.
 - d. TL-30 cash safe.
 - e. Secure bin.
 - f. Coin cage.
 - g. Under counter teller line steel (station #1).
 - 2. Telecommunications Contract.

3. Sign Branding Contract (Exterior Wall Signage).
4. Security System Contract.
5. Audio and Visual Equipment Contract (including the fixture teller back wall monitor & conference room monitor).
6. Furnishings Contract (desks, files, seating, tables, conference room, break room).
7. Marketing Contract (including artwork, marketing fixtures, hello tiles).
8. Bullet Resistant Glass, Deal Trays, BR Panels for Walls, and BR Door.
9. Lynxspring system.

1.4 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.5 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Procedures for processing Change Orders.

1.2 SUBMITTALS

- A. Submit name of individual authorized to accept changes, and to be responsible for informing others in Contractor's employ of changes in the Work.
- B. Submit names of individuals responsible for informing Contractor's employees and affected subcontractors of Contract clarifications and modifications.
- C. Change Order Forms: AIA G701 Change Order.
- D. Substantiate LEED compliance when item(s) for which substitute is being offered is specified to meet LEED requirements.

1.3 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
 - 1. Quantities of products, labor, and equipment.
 - 2. Taxes, insurance and bonds.
 - 3. Overhead and profit.
 - 4. Justification for any change in Contract Time.
 - 5. Credit for deletions from Contract, similarly documented.

- D. Support each claim for additional costs, and for work done on a time and material basis, with additional information
1. Origin and date of claim.
 2. Dates and times work was performed, and by whom.
 3. Time records and wage rates paid.
 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.4 CHANGE PROCEDURES

A. Minor Changes in Work:

1. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 1997 Edition, Paragraph 7.4 by issuing supplemental instructions on AIA Form G710, Architect's Supplemental Instructions, 1992 Edition.
2. Procedure: Document is prepared and signed by Architect and distributed to Owner, and Contractor. Architect's Supplemental Instructions are effective upon receipt.

B. Proposal Request:

1. Form: AIA Document G709, Proposal Request.
2. Description: Written proposed change of Work within Contract scope consisting of additions, deletions, and other revisions. Proposal Request is for information only and does not authorize changes in Contract Sum or Contract Time. Contractor evaluates proposal for pricing and scheduling impact.
3. Procedure:
 - a. Document is prepared and signed by Project Manager. Send electronic PDF form to Owner and Architect with hard copy to follow.
 - b. Contractor shall review Proposal Request and submit Change Order Request and Proposal Worksheet Detail and Summary Forms with proposed changes in Contract Sum and Contract Time.
 - c. Prepare and submit Change Order Request and Proposal Worksheet Detail and Summary Forms to Architect within 20 days of Proposal Request receipt. Proposed Contract Sum and Contract Time changes quoted by Contractor shall remain valid for 30 days from receipt by Owner.

C. Change Order Request:

1. Form of Request:
 - a. Change Order Request: Describes and summarizes Contractor's proposed changes. Indicates changes in Contract Sum and Contract Time.
 - b. Proposal Worksheet Summary: Summarizes labor, materials, overhead and profit, bonds, and insurance of proposed Contract additions and deductions.
 - c. Proposal Worksheet Detail: Summarizes labor and material costs of each subcontractor involved in proposed change.

2. Description: Written proposed change of Work consisting of additions, deletions, and other revisions. Submit Change Order Request to Architect for conditions which require Contract Document modifications. Include proposed changes in Contract Sum and Contract Time.
 3. Procedure:
 - a. Proposed changes are documented by Contractor on Change Order Request, Proposal Worksheet Summary, and Proposal Worksheet Detail forms. Documents include description of proposed changes and summary of changes in Contract Sum and Contract Time are prepared and signed by Contractor. Submit copies to Architect.
 - b. Comply with requirements of Section Project Requirements for proposed changes in Work that includes products or systems not contained in Contract Documents.
 - c. Architect and Owner will review Change Order Request and evaluate proposed changes. Architect and Owner may accept or reject Change Order Request. Upon acceptance, Architect will prepare Change Order to document Contract change.
- D. Change Order:
1. Form: Change Order, AIA Document G701, 1987 Edition.
 2. Description: Written change of Work within Contract scope consisting of additions, deletions, and other revisions, including proposed basis for adjustment to Contract Sum and Contract Time. Change Orders are signed by Owner, Contractor, and Architect. Owner's signature authorizes change.
 3. Procedure: Document is prepared by Architect and signed by Architect; sent to Contractor for acceptance and signature; approved and signed by Owner; distributed to Architect, and Contractor. Contractor shall perform changes upon receipt.
- E. Construction Change Directive:
1. Form: AIA Document G714, Construction Change Directive, 1987 Edition.
 2. Description: Written change of Work within Contract scope consisting of additions, deletions, and other revisions, including a proposed basis for adjustment to Contract Sum and Contract Time. Document is used in absence of agreement on terms of Change Orders.
 3. Procedure:
 - a. Document is prepared by Architect and signed by Architect and Owner. Contractor shall perform changes upon receipt.
 - b. Adjustments to Contract Sum should be per contract.
 - c. Architect will determine proposed method, time, and amount of Contract adjustment based on reasonable expenditures, and allowance for overhead, profit, and time.
 - d. Contractor's signing of Construction Change Directive acknowledges agreement with proposed method for adjusting Contract Sum and Contract Time and is recorded as Change Order.
 - e. Contractor disagreement or no response to proposed method for adjusting Contract Sum or Contract Time does not relieve Contractor from responsibility to perform Work.
 - f. Payment for Construction Change Directives will be made in accordance with AIA Document A201 Subparagraph 9.3.1.1.

1.5 LUMP SUM CHANGE ORDER

- A. Based on Proposal Request and Contractor's sum quotation, or Contractor's request for Change Order as approved by Architect.

1.6 UNIT PRICE CHANGE ORDER

- A. For predetermined unit prices and quantities, Change Order will be executed on a lump sum basis.
- B. For unit costs or quantities of units of work which are not predetermined, execute Work and utilize standard Public Works prices. Changes in Contract Sum or Contract Time will be computed as specified for time and material Change Order.

1.7 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum as shown on Change Order.
- B. 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.
- C. Promptly enter changes in Project Record Documents.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Procedures for preparation and submittal of Applications for Payment.
 - 2. Procedures for preparation and submittal of the Schedule of Values.

1.2 APPLICATION FOR PAYMENT

- A. General:
 - 1. Maintain consistency with previous applications for payments as certified by Architect and paid by Owner.
 - 2. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
 - 3. Payment Application Times: Each progress payment date is as indicated in Agreement. Work covered by each Application for Payment is period indicated in Agreement.
 - 4. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 5. Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values. Schedule Updating: List Change Orders as a separate line item when Change Orders or Construction Change Directives result in a change in the Contract Sum.
- B. Format:
 - 1. AIA G702 - Application and Certificate for Payment.
 - 2. AIA G703 - Continuation Sheet.
- C. Preparation of Applications:
 - 1. Type required information or use media-driven printout.
 - 2. Execute certification by signature of authorized officer.

3. Use data on accepted Schedule of Values. Provide dollar value in each column for each line item for portion of Work performed and for stored products.
 4. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.
 5. Prepare Initial Application for Payment and Application for Payment at time of Substantial Completion as specified below.
 6. Prepare Application for Final Payment as specified below and in Section Closeout Submittals.
- D. Submittal Procedures:
1. Submit three original copies of each Application for Payment to Architect at times stipulated in Agreement ensuring receipt within 24 hours.
 2. Submit required LEED documentation to Owner.
 3. Include waivers of lien and similar attachments with one copy to Architect.
 4. Submit under transmittal letter specified in Section Submittal Procedures.
 5. Payment Period: Submit at intervals stipulated in the Agreement.
 6. Submit waivers and release of liens when directed by Owner.
- E. Waivers of Mechanics Lien:
1. With each Application for Payment submit waivers of mechanics liens from subcontractors and suppliers for construction period covered by previous application.
 2. Submit partial waivers on each item for amount requested, prior to deduction for retainage, on each item.
 3. When application shows completion of item, submit final or full waivers.
 4. Owner reserves right to designate which entities involved in Work must submit waivers.
 5. Waiver Forms: Submit waivers of lien on properly executed AIA Document G706A, Contractor's Affidavit of Release of Liens, or forms included in the Agreement.
- F. Other Attachments: Along with each application for payment, attach the following other documents:
1. Invoices for stored materials for which payment is being requested.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Construction Progress Schedule (preliminary if not final).
 5. Schedule of principal products.
 6. Schedule of unit prices.
 7. Submittal schedule.
 8. LEED requirements submittal schedule.
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from governing authorities for performance of Work.
 13. Initial progress report.
 14. Report of preconstruction meeting.

15. Certificates of insurance and insurance policies.
 16. Partial release of liens.
- H. Progress Payment Application:
1. An updated CPM schedule shall be submitted with or prior to the submission of each month's progress payment application.
 - a. The Owner, prior to the progress payment being approved, must approve the CPM schedule.
 - b. If the updated CPM schedule is not approved, the Owner, reserves the right to withhold release of the monthly progress payment, until the CPM schedule has been approved.
 2. An updated LEED documentation responsibility checklist is to be submitted along with each application, documenting progress made since last application on collecting LEED submission documentation. Failure to make progress in collecting LEED documentation may subject the application to reduction in approval amount.
- I. Application for Payment at Substantial Completion:
1. Following issuance of Certificate of Substantial Completion, submit Application for Payment reflecting Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of Work.
 2. Required administrative actions and submittals that precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties and maintenance agreements (dated to commence on date of Substantial Completion).
 - c. Test/adjust/balance records.
 - d. Maintenance instructions.
 - e. Meter readings.
 - f. Start-up performance reports.
 - g. Change-over information related to Owner's occupancy, use, operation and maintenance.
 - h. Advice on shifting insurance coverages.
 - i. Final progress photographs, including required LEED photographs.
 - j. Comprehensive list of incomplete or non-complying Work (initial punch list).
 - k. Partial release of liens.
- J. Final Payment Application: Required administrative actions and submittals which precede or coincide with submittal of final payment Application for Payment include following:
1. Completion of Project Closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Assurance that unsettled claims will be settled.
 4. Assurance that Work not complete and accepted will be completed without undue delay.
 5. Final cleaning.
 6. Transmittal of required Project construction records to Owner.
 7. Certified property survey.
 8. Proof that taxes, fees and similar obligations have been paid.
 9. Removal of temporary facilities and services.

10. Removal of surplus materials, rubbish and similar elements.
11. Change of door locks to Owner's access.
12. Consent of Surety to Final Payment.
13. Final release of liens.
14. Verification that Owner has received required LEED documentation to proceed with certification.

1.3 SCHEDULE OF VALUES

A. Format:

1. Type Schedule on AIA Document G703 - Continuation Sheet for Application and Certificate for Payment, or use media driven printout upon prior approval.
2. Follow Table of Contents of Project Manual for listing component parts. Identify each line item by number and title of major Specifications section.

B. Content:

1. List installed value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments. Round off values to nearest dollar.
2. For each major subcontract, list products and operations of that subcontract as separate line items.
3. List allowances in the specified monetary amount for each allowance.
4. Coordinate listings with Progress Schedule.
5. Include a directly proportional amount of Contractor's general office overhead and profit for each component listing. Use separate line for bonds, insurance, temporary facilities and controls, and superintendence.
6. Sum of values listed equals total Contract Sum.

C. Submittal:

1. Submit electronic copy of Schedule 10 days prior to first Application for Payment.
2. Transmit under Architect accepted form transmittal letter. Identify Project by title and number.

1.4 SUBSTANTIATING DATA

- A. When Architect requires substantiating information, submit data justifying line item amounts in question.
- B. On allowance items, submit actual invoice from supplier of product or service.
- C. 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Coordination of Work of the Contract.
 - 2. Preconstruction conferences.
 - 3. Scheduling and administration of progress meetings.
 - 4. Pre-installation conferences.

1.2 DESCRIPTION

- A. Coordinate scheduling, submittals, and work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.
- B. Coordinate sequence of Work to accommodate Owner occupancy as specified in Section Summary.

1.3 GENERAL COORDINATION PROVISIONS

- A. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect of any error, inconsistency, omission, or apparent discrepancy discovered.
- B. Coordinate LEED training with Wells Fargo Project Manager.
- C. Allot time in construction scheduling for liaison with Architect, establish procedures for handling queries and clarifications.
- D. If Architect is able to respond to a request for interpretation by making specific reference to Drawing sheet or Specification Section, Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for performing review services for the Contractor.
- E. In addition to meetings specified herein, hold coordination meetings and conferences with personnel and subcontractors to ensure coordination of Work.

- F. Coordinate scheduling, submittals, and Work of various Specification sections to avoid conflicts and ensure efficient and orderly sequence of installation of interdependent construction elements.
- G. Coordinate Work of various Specification sections having interdependent responsibilities for installation, connection, and operation.
- H. Verify that characteristics of operating equipment are compatible with building utilities and services.
- I. Except as otherwise indicated, conceal pipes, ducts, conduit and wiring in construction. Coordinate locations of fixtures and outlets with finish elements.
- J. Make provision to accommodate items scheduled for later installation.
- K. Salvage materials and equipment involved in performance of, but not actually incorporated into the Work. Refer to other sections for disposition of salvaged materials that are designated on the Drawings.
- L. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- M. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- N. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- O. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- P. Recheck measurements and dimensions, before starting each installation.
- Q. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- R. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- S. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- T. Cleaning and Protection:
 - 1. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
 - 2. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

3. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - a. Excessive static or dynamic loading.
 - b. Excessive internal or external pressures.
 - c. Excessively high or low temperatures.
 - d. Thermal shock.
 - e. Excessively high or low humidity.
 - f. Air contamination or pollution.
 - g. Water or ice.
 - h. Solvents.
 - i. Chemicals.
 - j. Light.
 - k. Radiation.
 - l. Puncture.
 - m. Abrasion.
 - n. Heavy traffic.
 - o. Soiling, staining and corrosion.
 - p. Bacteria.
 - q. Rodent and insect infestation.
 - r. Combustion.
 - s. Electrical current.
 - t. High speed operation,
 - u. Improper lubrication,
 - v. Unusual wear or other misuse.
 - w. Contact between incompatible materials.
 - x. Destructive testing.
 - y. Misalignment.
 - z. Excessive weathering.
 - aa. Unprotected storage.
 - bb. Improper shipping or handling.
 - cc. Theft.
 - dd. Vandalism.
4. Provide photographs of cleaning and protection effort, especially with regards to systems equipment.

1.4 COORDINATION DRAWINGS AND LAYOUTS

A. General:

1. Coordination drawings are not shop drawings and are not to be submitted to Architect for approval.
2. Coordination drawings show relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in space provided or to function as intended.
3. Prepare composite coordination drawings to scale of 1:50 (1/4"=1'-0") or larger; detailing major elements, components, and systems of architectural, structural, mechanical, and electrical equipment and materials in relationship with each other, installations, and building components. Include dimensions.
4. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to efficient flow of Work affecting one or more trades.

5. Indicate scheduling, sequencing, movement, and positioning of large equipment into building during construction.
 6. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.
 7. Prepare reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communications systems components, sprinklers, and other ceiling-mounted devices.
 8. Show interrelationship of components to be shown on separate Shop Drawings.
 9. Indicate required installation sequences.
- B. Structural Systems: Include, but do not necessarily limit to following:
1. Structural frame showing interface with exterior cladding.
 2. Location of openings in relation to structure.
 3. Show attachments to decking, structural elements, and other systems.
- C. Mechanical Systems: Include, but do not necessarily limit to following:
1. Proposed locations of piping, ductwork, equipment, and materials.
 2. Proposed locations for access panels and doors.
 3. Clearances for installing and maintaining insulation.
 4. Clearances for servicing and maintaining equipment, including tube removal, filter removal, and space for equipment disassembly required for periodic maintenance. Show access locations.
 5. Equipment connections and support details.
 6. Exterior wall and foundation penetrations.
 7. Fire-rated wall and floor penetrations.
 8. Sizes and location of required concrete pads and bases.
 9. Valve stem movement.
- D. Electrical Systems: Include, but do not necessarily limit to following:
1. Proposed locations of major raceway systems, equipment, and materials.
 2. Clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance. Show access locations.
 3. Exterior wall and foundation penetrations.
 4. Fire-rated wall and floor penetrations.
 5. Equipment connections and support details.
 6. Sizes and location of required concrete pads and bases.
- E. Coordinate in field with affected trades for proper relationship to Work based on Project conditions.
- F. Notify Architect of conflicts and other coordination issues requiring resolution prior to commencing construction in each affected area.
- G. Submit Contractor's certification to Architect that coordination documents have been completed and coordination issues have been identified and resolved prior to commencing construction in each affected area.
- H. Make coordination documents available in field office for review by Architect and Owner during entire period of construction.

1.5 MEETINGS

- A. In addition to progress meetings, hold coordination meetings and pre-installation conferences with personnel and subcontractors to assure coordination of Work.

1.6 COORDINATION OF SUBMITTALS

- A. Schedule and coordinate submittals specified in Section Submittal Procedures.
- B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

1.7 COORDINATION OF SPACE

- A. Coordinate use of Project space and sequence of installation of mechanical, and electrical work which is indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- B. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- C. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- D. Layout of plumbing, fire protection, mechanical, and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on Drawings is diagrammatic. Variations in alignment, elevation, and details required to avoid interferences and satisfy architectural and structural limitations are not necessarily shown.
- E. Prior to installation of material and equipment, review and coordinate Work with Architectural and Structural Drawings to establish exact space conditions. Where available space is inadequate or where reasonable modifications are not possible, request information from Architect before proceeding.
- F. Coordinate installation to prevent conflicts and cooperate in making, without extra charge, reasonable modifications in layout as needed.
- G. Provide clear access to control points, valves, strainers, control devices, and specialty items of every nature related to such systems and equipment to obtain maximum head room. Provide adequate clearances as necessary for operation and maintenance.

1.8 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion of portions of Work designated for Owner partial occupancy.

- B. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section Closeout Submittals.

1.9 PRECONSTRUCTION CONFERENCE

- A. Architect will schedule conference within 15 days after notice of award.
- B. Attendance: Owner, Architect, Contractor and representatives of major subcontractors, and others as appropriate.
- C. Architect presides over meeting and is responsible for recording and distributing minutes.
- D. Agenda
 - 1. Submittal of executed bonds and insurance certificates.
 - 2. Execution of Owner-Contractor Agreement.
 - 3. Distribution of Contract Documents.
 - 4. Submittal of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of responsible personnel. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the LEED AP or GA, Superintendent, and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.
 - 6. Procedures, processing, and formats for field decisions, submittals, substitutions, applications for payments, proposal requests, change orders, and Contract closeout procedures. Formats used by Architect and Contractor must be submitted to Architect and Owner at this time and must conform to Owner requirements.
 - 7. Scheduling.
 - 8. Use of premises by Owner and Contractor.
 - 9. Owner's requirements and occupancy.
 - 10. Installation and removal of temporary facilities.
 - 11. Survey and building layout.
 - 12. Security, safety, and housekeeping procedures.
 - 13. Schedules and sequencing.
 - 14. Procedures for testing.
 - 15. Procedures for maintaining record documents.
 - 16. Requirements for startup and delivery of equipment.
 - 17. Inspection and acceptance of equipment put into service during construction period.
 - 18. Responsibilities for collecting LEED submission documentation.

1.10 PROGRESS MEETINGS

- A. Schedule and administer construction progress meetings, throughout progress of Work.
 - 1. Prepare agenda and distribute notice of each meeting to participants.
 - 2. Make physical arrangements.
 - 3. Preside at meetings, record minutes, and distribute copies after meeting to participants, and to entities affected by decisions at meetings.

4. Distribute PDF of minutes to Architect and one to Owner.
 5. Maintain in field office one copy of agenda and minutes for each conference and meeting.
- B. Location of Meetings: Contractor's field office.
- C. Attendance: Contractor, job superintendent, subcontractors, and suppliers as appropriate to agenda; Owner, Architect, and professional consultants as appropriate.
- D. Anticipated Agenda
1. Approval of minutes of previous meeting.
 2. Work progress since previous meeting:
 - a. Current activities.
 - b. Critical activities.
 - c. Deviations from schedule.
 3. Field observations, problems, conflicts, and decisions.
 4. Deficiencies:
 - a. Identification of items.
 - b. Status of correction.
 5. Requests for Interpretations (RFIs):
 - a. Status of clarification.
 - b. Status of proposal requests.
 6. Changes and Modifications:
 - a. Status of change orders.
 - b. Pending changes.
 - c. Pending claims and disputes.
 - d. Clarification decisions of Architect or Owner.
 7. Problems and conflicts which impede planned progress.
 8. Construction Progress and Submittal Schedules:
 - a. Off-site fabrication and delivery schedules.
 - b. Effect of proposed changes on construction progress schedule and coordination.
 - c. Submittal schedules, status of submittals, and effect on construction progress schedule.
 - d. Corrective measures to regain projected schedule.
 9. Planned progress during succeeding Work period.
 10. Adequacy of work forces.
 11. Coordination between elements of Work.
 12. Maintenance of Project Record Documents.
 13. LEED documentation progress, issued, questions.
 14. Other business relating to progress of Work.
- E. Meeting Minutes:

1. Include column to indicate who is required to take action and date action is to be completed. Each of these items requiring action will be carried in subsequent minutes of meeting as "old business" until noted as "resolved."
2. As minimum, separate into following categories:
 - a. Old business.
 - b. New business.
 - c. Work progress.
 - d. Deficiencies.
 - e. RFIs.
 - f. Proposed changes.
 - g. Schedules.
 - h. Submittals.
 - i. Other business, including events to be accomplished by next meeting.

1.11 PRE-INSTALLATION CONFERENCES

- A. Schedule pre-installation conferences required in individual Specification sections. Convene at Project site prior to commencing Work of the section.
- B. Attendees:
 1. Project superintendent; presides over meeting and is responsible for minutes.
 2. Subcontractor (installer, applicator, or erector).
 3. Material or equipment supplier.
 4. Manufacturers' representative.
 5. Others directly affecting, or affected by the work.
 6. Testing agency (if necessary).
 7. Subcontractors, as appropriate.
 8. Owner, as appropriate, Architect, and professional consultants may attend as appropriate.
 9. Others as appropriate to agenda.
- C. Notify Architect and Owner minimum 4 days in advance of meeting date.
- D. Minimum Agenda:
 1. Access to work and conditions of proper installation.
 2. Conditions of installation, such as substrates, existing and surrounding conditions, and environmental conditions.
 3. Conditions detrimental to installation.
 4. Preparation procedures, including protection of adjacent work.
 5. Verify installers' receipt and understanding of installation instructions.
 6. Review submittals, installation procedures, and sequence.
 7. Review coordination with other work.
 8. Evaluate delivery schedule and Construction Progress Schedule.
 9. Observe sample installation.
 10. Required protection procedures.
 11. Change order procedures.
 12. Safety.
 13. Inspection and testing.
 14. Required performance results.
 15. Recording requirements.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.12 CLOSEOUT CONFERENCE

- A. Schedule Project Closeout conference prior to requesting Substantial Completion.
- B. Attendees:
 - 1. Contractor; presides over meeting and is responsible for minutes.
 - 2. Major subcontractors.
 - 3. Owner, Architect, and professional consultants may attend as appropriate.
 - 4. Others as appropriate to agenda.
- C. Minimum Agenda:
 - 1. Start-up of facilities and systems.
 - 2. Testing, adjusting, and balancing.
 - 3. System demonstration and observation.
 - 4. Operation and maintenance instructions for the owner's personnel.
 - 5. Contractor's inspection of work.
 - 6. Contractor's preparation of an initial "punch list."
 - 7. Procedure to request Architect and Owner inspection to determine date of substantial completion.
 - 8. Completion time for correcting deficiencies.
 - 9. Inspections by authorities having jurisdiction.
 - 10. Certificate of occupancy and transfer of insurance responsibilities.
 - 11. Partial release of retainage.
 - 12. Preparation for final inspection.
 - 13. Closeout submittals:
 - a. Project Record Documents.
 - b. LEED Required Documentation.
 - c. Operating and maintenance documents.
 - d. Operating and maintenance materials.
 - e. Warranties and bonds.
 - f. Affidavits.
 - 14. Final application for payment.
 - 15. Final cleaning.
 - 16. Contractor's demobilization of site.
 - 17. Maintenance.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 31 00



SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Procedures for preparation and submittal of construction Progress Schedules and periodical updating.
 - 2. Construction photography.

1.2 PROGRESS SCHEDULES

- A. Format:
 - 1. Submit a computer generated schedule. Submit in electronic form.
- B. Sequence of Listings: The chronological order of the start of each item of Work.
- C. Scale and Spacing: To provide space for notations and revisions.
- D. Sheet Size: Minimum 11 by 17 inches.
- E. Content:
 - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
 - 2. Identify each item by major Specification section number.
 - 3. Indicate the early and late start, early and late finish, float dates, and duration.
 - 4. Identify work of separate stages, if applicable, and other logically grouped activities.
 - 5. Provide sub-schedules for each stage of Work identified in Section Summary.
 - 6. Provide sub-schedules to define critical portions of entire Schedule.
 - 7. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
 - 8. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances. Show decision dates for selection of finishes.
 - 9. LEED documentation events such as those related to Commissioning, Indoor Air Quality Management, Erosion and Sediment Controls Measures, Site cleanliness, installed landscaping and irrigation equipment, and installed bike racks.
 - 10. Show delivery dates for Owner furnished products and products specified under Allowances, if applicable.
 - 11. Coordinate content Schedule of Values specified in Section Payment Procedures.

- F. Revisions to Schedules:
1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
 3. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, proposed, and its effect.
- G. Distribution:
1. Distribute electronic copies of reviewed Schedules to job site file, subcontractors, suppliers, and other concerned entities.
 2. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in Schedules.
 3. Submit copies in electronic form.

1.3 CONSTRUCTION PHOTOGRAPHS

- A. Provide digital photographs of site and construction throughout progress of Work.
- B. Take photographs on cutoff date for each Application for Payment, and delivery electronically to Architect and Owner via email.
- C. Take a minimum of 20 photographs at maximum two week intervals throughout the progress of the work, and shall contain, as a minimum, the following elements.
1. Stud framing.
 2. Electrical and plumbing rough-in.
 3. Ductwork install.
 4. Structural framing.
 5. Finishes.
 6. Protection of materials, including ducts for IAQ credits (a minimum of 18 photographs required).
 7. Site cleanliness.
 8. Final completion.
- D. Medium:
1. Full color, digital format.
 2. Identify each photo electronically by listing name of project, phase, orientation of view, date, and time of view.
- E. Technique:
1. Provide factual presentation.
 2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- F. Views:
1. Provide non-aerial photographs from a sufficient number of views at each specified time in order to sufficiently document the progress of the work, until Date of Substantial Completion.
 2. Consult with Architect for instructions on views required.

1.4 SUBMITTALS

A. Progress Schedule:

1. Submit initial Schedules electronically within 15 days from Notice to Proceed. After review, resubmit required revised data within 15 days.
2. Submit electronically revised Progress Schedules with each Application for Payment.
3. Submit electronic reproductions.
4. Submit under transmittal letter specified in Section Submittal Procedures.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 32 00



SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section
- C. Section Includes:
 - 1. Submittal procedures.
 - 2. Proposed products list.
 - 3. Shop drawings.
 - 4. Product data.
 - 5. Samples.
 - 6. Manufacturers' instructions.
 - 7. Manufacturers' certificates.
 - 8. Schedule of submittals.
 - 9. LEED requirement data.

1.2 DEFINITIONS

- A. Shop Drawings: Include drawings, diagrams, schedules and other data specially prepared for the Work by Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. Product Data: Include illustrations, standard schedules, performance charts, instructions, brochures, diagrams, test data and other information furnished by Contractor to illustrate material, product or system for some portion of the Work.
- C. Samples: Physical examples illustrating materials, equipment or workmanship and establish standards by which the Work will be judged. Samples include field samples.
- D. Quality Control Submittals: Pertain to quality control and Owner information which do not require review and approval by Architect and are to be retained for project file only. If reviewed, project information will be reviewed for compliance with the Contract Documents only. The review will not constitute a detailed review of adequacy of submitted design calculations. The appropriateness and accuracy of calculations is the responsibility of the submitting Contractor (and Contractor's professional engineer when such calculations are required to be professionally sealed). Examples of quality control submittals:
 - 1. Design data and calculations.
 - 2. Test reports.
 - 3. Certifications.
 - 4. Manufacturer's installation instructions.

5. Manufacturer's field reports.
- E. Contract Closeout Submittals: Pertain to contract closeout related information which do not require review and approval by the Architect and are to be retained for project file only. Examples of contract closeout submittals:
1. Project record information.
 2. Warranties.
 3. Operation and maintenance data.
 4. Owner instruction reports.
- F. Administrative Submittals: Refer to General and Special Conditions for requirements for administrative submittals. Such submittals include, but are not limited to:
1. Permits.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. List of Subcontractors.
 6. Schedule of Values.

1.3 GENERAL REQUIREMENTS

- A. Provide submittals in PDF electronic format with electronic signatures and stamps.
- B. Submit PDF of product data and manufacturer's instructions to Architect and Owner.
- C. Submit under Architect accepted form transmittal PDF letter. Identify Project by title and number. Identify Work and product by Specification section and Article number.
- D. Provide complete submittals for each specified product, system or equipment. Partial or incomplete submittals will be returned, without review, for re-submission.
- E. Schedule submittals to expedite Project in accordance with approved Construction Progress Schedules and in such sequence as to cause no delay in the Work or in the activities of Owner or of separate contractors. No extension of contract time will be authorized due to failure to transmit submittals in sufficient advance of the Work to permit processing.
- F. Email PDF submittals to Architect. Submittals accepted only from Contractor.
- G. Submit product data, shop drawings, samples, calculations, certificates, manufacturer's instructions, and other items requested within each specification section.
- H. Number submittals using Specification section number. Indicate reference number of previous submission for resubmittals. For example, Specification Section – 08 71 00; Reference Number - 02; previous Reference Number - 01.
- I. Identify Project, Contractor, subcontractor or supplier, pertinent Drawing sheets and detail numbers, and Specification section number, as appropriate.
- J. Apply Contractor's stamp, sign or initial and date certifying that review, verification of products, field dimensions, adjacent construction Work, and coordination of information, is in accordance with requirements of Work and Contract Documents.

- K. Submittals will be returned without processing if they have not been reviewed and stamped by Contractor for coordination of work and conformance with the Drawings and Specifications prior to submission to Architect, if they are not electronically initialed or signed by authorized person, if they are not dated, or if it becomes evident that they have not been properly reviewed. Delays resulting therefrom are not responsibility of Architect.
- L. Clearly identify on submittals, or in writing at time of submission, deviations in submittals from requirements of Contract Documents.
- M. Do not perform Work on any element requiring submittal and review of shop drawings, product data, samples, or other similar submittals until respective submittal has been approved by Architect.
- N. Maintain in field office a copy of submittal schedule and log of submittals indicating current status of each item.
- O. Prepare submittals using the same units of measurement system (metric or inch-pound) in compliance with requirements stated in Section References. Use ASTM E 380 and E 621 for establishing metric measurements used in submittals.

1.4 PROPOSED PRODUCTS LIST

- A. Refer to Section Product Requirements.

1.5 SHOP DRAWINGS

- A. Transmittal:
 - 1. Submit PDF in accordance with approved Progress Schedule and in such sequence to avoid delay in the Work or work of other contracts.
 - 2. Submit each PDF with form attached.
 - 3. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
 - 4. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
 - 5. Provide 8 by 4 inch blank space on each submittal for Architect stamp and Engineer's stamp as applicable.
 - 6. Submit PDF.
- B. Schedule submittals to expedite the Project, and e-mail to Architect.
- C. Coordinate submittals into logical groupings to facilitate interrelation of the several items.
 - 1. Finishes which involve Architect selection of colors, textures, or patterns.
 - 2. Associated items which require correlation for efficient function or for installation.
- D. Present in a clear and thorough manner original drawings which illustrate the portion of the work showing fabrication, layout, setting, or erection details, prepared by a qualified detailer. Title each drawing with Project and Contract name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

- E. Check and coordinate shop drawings of any section or trade with requirements of other sections or trades and as necessary for proper coordination and complete installation of Work.
- F. Do not use Contract Drawings for shop drawings. Provide original shop drawings with changes from Contract Drawings clearly indicated.
- G. Show layout, details, materials, dimensions, thicknesses, methods of assembly, attachments, relation to adjoining Work, wiring diagrams, rough-in requirements, and other pertinent data and information. Submit detail drawings of special accessory components not included in manufacturer's product data.
- H. Identify field dimensions; show relation to adjacent or critical features of Work or products.
- I. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- J. Existing Conditions:
 - 1. Show locations of existing conditions which affect installation of new Work.
 - 2. Show details of existing conditions and proposed modifications as requested by Architect.
- K. Revise and resubmit PDF submittals as required, identify all changes made since previous submittal.
- L. Distribute PDF of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.6 CHANGED CONDITION DRAWINGS

- A. When specified in individual Sections, submit changed condition drawings in same quantities as for shop drawings.
- B. Where conditions differ from Contract Documents or shop drawings and remedial work is necessary, submit drawing showing changes.
- C. Submit PDF drawing bearing seal and signature of professional engineer responsible for design.
- D. Indicate differing condition and required work caused by differing condition.

1.7 CALCULATIONS

- A. When specified in individual Sections, submit calculations.
- B. Submit engineering calculations for component sizes, deflections, and connections.
- C. Submit calculations bearing seal and signature of registered professional engineer responsible for design.

1.8 PRODUCT DATA

- A. Transmittal:
 - 1. Submit under Architect accepted form electronic transmittal letter. Identify Project by title and number. Identify Work and product by Specification section and Article number.
 - 2. Submit PDF to Architect.
- B. Submit only pages which are pertinent.
 - 1. Mark each PDF of standard printed data to identify pertinent products, models, options, and other data referenced to Specification Section and Article number.
 - 2. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
 - 3. Modify manufacturer's standard data, schematic drawings, and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- C. After review, distribute copies of reviewed product data to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.9 SAMPLES

- A. Transmittal:
 - 1. Label each sample with identification required for electronic transmittal letter with full Project information.
 - 2. Submit the number or samples specified in individual specification Sections; one of which will be retained by Architect.
- B. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- C. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect selection.
- D. Where custom colors are specified, submit samples illustrating colors, textures, patterns, and finishes for Architect's review. Architect will advise colors required or furnish samples for color matching.
- E. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- F. Provide field samples of finishes at Project, at location acceptable to Architect, as required by individual Specifications section and in accordance with Section Quality Control. Install each sample complete and finished.
- G. Approved samples which may be used in the Work are indicated in individual specification Sections.
 - 1. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

2. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

1.10 INFORMATIONAL SUBMITTALS

- A. Informational PDF submittals upon which Architect is not expected to take responsive action may be so identified in Contract Documents. When professional certification of performance criteria of materials, systems, or equipment is required by Contract Documents, Architect shall be entitled to rely upon accuracy and completeness of such certifications.
- B. Types of Informational Submittals:
 1. Format: PDF.
 2. Design data: Submit with shop drawings.
 3. Test reports: Submit within two weeks of testing.
 4. Certifications:
 - a. Submit certifications when specified in individual Specification sections.
 - b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - c. Certifications may be recent or previous test results on material or product, but must be acceptable to Architect.
 - d. Submit welder certifications two weeks prior to commencement of welding operations.
 - e. Submit manufacturer or fabricator certifications with product data.
 - f. Submit certificates of compliance within two weeks following approval or acceptance by authority having jurisdiction.
 - g. Submit installation certifications within two weeks following completion of product installation.
 5. Engineering Certifications:
 - a. Submit certificated statement, signed and sealed by professional engineer responsible for design attesting to the following:
 - 1) Conformity to applicable governing codes.
 - 2) Conformity to criteria in Contract Documents.
 - 3) Component parts were designed or selected for locale and application intended.
 - b. Submit with shop drawings. Submit prior to fabrication if shop drawings are not required by individual specification sections.
 6. Qualification Data:
 - a. When specified in individual Sections, submit manufacturer's, fabricator's, and installer's qualifications verifying years of experience.
 - b. Include list of completed projects having similar scope of Work identified by name, location, date, reference names, and phone numbers.
 - c. Submit manufacturer qualification data with proposed products list.
 - d. Submit fabricator or installer qualification data with list of subcontractors at least 15 days prior to submitting first Application for Payment.

7. Manufacturer's Instructions:
 - a. Refer to Section Quality Control for requirements.
 - b. When specified in individual Specification sections, submit manufacturer's printed instructions for delivery, storage, assembly, installation, adjusting, finishing, and other pertinent data.
 - c. Identify conflicts between manufacturer's instructions and Contract Documents.
 - d. Submit with product data.
8. Manufacturer's Certificates:
 - a. When specified in individual specification Sections, submit manufacturers' certificate to Architect for review, in quantities specified for Product Data.
 - b. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
 - c. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.
9. Manufacturer's Field Reports:
 - a. Refer to Section Quality Control for requirements.
 - b. When specified in individual Specification sections, submit written results and findings of manufacturer's field services specified as part of Field Quality Control.
 - c. Submit within two weeks following completion of field services covered in individual reports.
10. DAILY CONSTRUCTION REPORTS
 - a. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect and Owner at weekly intervals:
 - List of subcontractors at the site.
 - Approximate count of personnel at the site.
 - High and low temperatures, general weather conditions.
 - Accidents and unusual events.
 - Meetings and significant decisions.
 - Stoppages, delays, shortages, losses.
 - Meter readings and similar recordings.
 - Emergency procedures.
 - Orders and requests of governing authorities.
 - Change Orders received, implemented.
 - Services connected, disconnected.
 - Equipment or system tests and start-ups.
 - Partial Completions, occupancies.
 - Substantial Completions authorized.
11. IAQ Plan Commitment Sheet – Refer to Section Indoor Air Quality Plan During Construction.
 - C. Quantity: Submit in quantities specified for product data.

1.11 INCOMPLETE AND PARTIAL SUBMITTALS

- A. Incomplete Submittal: Submittal not complying with specified submittal requirements.
- B. Partial Submittal: Submittal subdivided into components as indicated in submittal schedule and each component submitted separately.
- C. Architect will not review incomplete submittals. Complete submittals for each item are required. Submittal will not be considered official until it is complete in every respect. Delays resulting from incomplete submittals are not responsibility of Architect.

1.12 PROGRESS SCHEDULES

- A. Refer to Section Construction Progress Documentation.

1.13 CONSTRUCTION PHOTOGRAPHS

- A. Refer to Section Construction Progress Documentation.

1.14 QUALITY CONTROL AND CONTRACT CLOSEOUT SUBMITTALS:

- A. Submit quality control and contract closeout information as indicated in respective specification sections.
 - 1. Design data or calculations requiring professional certification shall be properly sealed and signed by a registered professional engineer in State of in which project is located.
 - 2. Test reports shall be in accordance Section Quality Control.
 - 3. Installation instructions submitted in accordance with Section Product Requirement.
 - 4. Contract closeout submittals in accordance with Section Closeout Submittals.
 - 5. Submit PDF of Quality Control submittals concurrent with Shop Drawing and Product Data submittals.
 - 6. Submit number of Contract Closeout submittals as specified in Section Closeout Submittals.
- B. Submit in PDF as Product Data, except as otherwise specified.

1.15 CONTRACTOR REVIEW

- A. Review submittal prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- B. Coordinate submittal with requirements of Work and of Contract Documents.
- C. Sign or initial electronically stamped review block format, each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal of any deviations from requirements of Contract Documents.

- D. Do not fabricate products or begin work which requires submittal until return of submittal with Architect acceptance.
- E. Responsibility for errors and omissions in submittal is not relieved by Architect's review of submittal.
- F. Responsibility for deviations in submittal from requirements of Contract Documents is not relieved by Architect's review of submittal, unless Architect gives specific written acceptance of deviations. Architect will review submittal for general conformance to design intent only.

1.16 ARCHITECT AND ENGINEER REVIEW

- A. Architect will review construction progress schedules, and submittal schedules. Architect will review product lists, shop drawings, product data, and samples and return within 10 working days of receipt.
- B. Do not make "Mass" submittals (6 or more submittals) to Architect at one time. If Mass submittals are received, Architect's review time stated above will be extended as necessary to perform proper review. Architect will review Mass submittals based upon priority determined by Architect after consultation with Owner and Contractor.
- C. Informational submittals and other similar data are for Architect's information and do not require Architect's responsive action.
- D. Architect's review of submittals is for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. Architect's review is not conducted for purpose of determining accuracy and completeness of items such as dimensions and quantities, which remain responsibility of Contractor.
- E. Architect's review of submittals does not relieve Contractor of responsibility for deviations from Contract Document requirements, unless Architect is informed in writing of deviations and review is received in writing from Architect for such deviation.
- F. Architect's review of submittals does not indicate acceptance of changes in Contract time or cost.
- G. Submittals made by Contractor which are not required by Contract Documents will not be reviewed.
- H. Submittals stamped "Reviewed": No resubmittal required; fabrication may proceed.
- I. Submittals stamped "Furnished as Corrected": Comply with noted corrections and modifications; and resubmit. Fabrication may proceed. If for any reason noted corrections and modifications can not be fully complied with, resubmit for review requesting clarification; do not proceed with fabrication.
- J. Submittals stamped "Rejected" or "Revise and Resubmit": Revise and resubmit for review; do not proceed with fabrication. Clearly indicate revisions, including corrections, to previous submittal. Disapproved submittals will not be considered valid cause for construction delay.
- K. Submittal approval does not authorize changes to Contract requirements unless accompanied by a Change Order, Architect's Supplemental Instruction, or Construction Change Directive.

- L. Architect will electronically send a of Approved or Approved as Noted submittals to Owner.

1.17 RE-SUBMITTALS

- A. Make re-submittal under procedures specified for initial submittals; identify changes made since previous submittal.
- B. Architect will record time required to review re-submittals after original submittal and first re-submittal. Contractor shall reimburse Owner for charges of Architect and Architect's consultants for reviewing submittal more than two times.

1.18 DISTRIBUTION

- A. Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear Architect stamp of approval, to job site file, Record Documents file, subcontractors, suppliers, and other entities requiring information.
- B. Architect will record time required to review resubmittals after original submittal and first resubmittal. Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for reviewing submittal more than two times.

1.19 SCHEDULE OF SUBMITTALS

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
- B. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
- C. Distribution: Following response to initial submittal, electronically distribute copies to the Architect, Program Manager, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
- D. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- E. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.
- F. Incorporate schedule of submittals into pre-construction meeting distribution. See attached form for use.

1.20 LEED REQUIREMENT DATA

- A. Refer to Section Sustainable Design Requirements – LEED Certification.

PART 2 PRODUCTS (NOT USED)

PART 3– EXECUTION (NOT USED)

END OF SECTION 01 33 00



SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1- GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Quality control of products and workmanship.
 - 2. Manufacturer's instructions.
 - 3. Manufacturer's certificates and field services.
 - 4. Mockups.
 - 5. Field samples.
 - 6. Owner provided testing laboratory services.
 - 7. Selection and payment.
 - 8. Laboratory responsibilities.
 - 9. Laboratory reports.
 - 10. Limits on testing laboratory authority.
 - 11. Contractor responsibilities.

1.2 DESCRIPTION

- A. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce Work in accordance with Contract Documents.

1.3 DEFINITIONS

- A. Field Samples: Partial installation of selected materials installed at Project site for Architect's review and approval of visual features and workmanship.
- B. Mock-ups: Full size assemblies that incorporate several materials or elements of construction erected for Owner and Architect's review and approval of visual features and workmanship. Mock-ups represent quality of materials and workmanship required for Work.

1.4 PERFORMANCE REQUIREMENTS

- A. Workmanship:

1. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
2. Provide suitably qualified personnel to produce Work of specified quality.
3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
4. Provide finishes to match approved samples.

B. Manufacturer's Instructions:

1. Require compliance with instructions in full detail, including each step in sequence. Do not omit preparatory steps or installation procedures unless specifically modified or exempted by Contract Documents.
2. Maintain one complete set of instructions at Project Site during installation and until completion.
3. Should instruction conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

C. Manufacturer's Certificates:

1. When required in individual Specifications section, submit manufacturer's certificate, in duplicate, certifying that products meet or exceed specified requirements, executed by responsible officer.

D. Manufacturer's Field Services and Reports:

1. Submit PDF reports in accordance in accordance with Section Submittal Procedures
2. Submit qualifications of field observer 30 days in advance of required observations; observer is subject to approval of Architect.
3. 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, quality of workmanship, and conditions of installation as applicable, and to initiate instructions when necessary.
4. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
5. Submit PDF reports within 7 days of observation. Send PDF to Architect, Owner, Project site file, subcontractor, and other entities requiring information.
6. Provide one additional copy of reports for record documents file; refer to Section Closeout Submittals.

1.5 QUALITY ASSURANCE

- A. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- B. Ensure that persons performing Work are qualified to produce workmanship of specified quality.
- C. Monitor quality control over products, suppliers, manufacturers, services, site conditions, and workmanship to ensure Work complies with Contract Documents.

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

1.6 EXAMINATION OF CONDITIONS

- A. Examine substrates and conditions under which Work is to be performed. Do not commence work over unsatisfactory conditions detrimental to proper and timely execution of Work.
- B. Do not proceed with Work until unsatisfactory conditions have been corrected.
- C. Commencement of installation constitutes acceptance of conditions and cost of any corrective measures are responsibility of Contractor.

1.7 MOCKUPS

- A. General:
 - 1. Use materials, fabrication and installation methods identical with those indicated for Work. Simulate actual construction conditions as accurately as possible.
 - 2. Provide mock-ups required by individual Specification sections.
 - 3. Approval:
 - a. Obtain Architect's written approval for each mock-up.
 - b. Do not start production of materials for final Project site erection until Project Manager's approval of mock-ups has been obtained.
 - c. Approved mock-ups will serve as standard of quality and workmanship of Work; maintain mock-ups until completion of relevant Work.
 - 4. Upon completion of relevant Work or when directed by Project Manager, demolish and remove mock-ups.
- B. Visual Mock-up
 - 1. Provide full scale mock-up for review of Owner and Architect.
 - 2. Unless specified or directed otherwise, erect visual mock-ups at Project site at location acceptable to Architect.
 - 3. Obtain Architect approval of visual mock-up prior to fabrication and construction of test mock-up.

1.8 FIELD SAMPLES

- A. General:
 - 1. Provide field samples at site required by individual Specification sections.
 - 2. Erect at location acceptable to Architect; perform Work in accordance with applicable Specification sections.
 - 3. Construct complete, including Work of related trades required in finished Work.

4. Make adjustments necessary to obtain approval from Architect. Do not proceed with further work until sample installation has been approved by Architect.
5. Approved samples will serve as standard of quality and workmanship of Work; maintain samples until completion of relevant Work.
6. Upon completion of Work or when directed by Architect, demolish field samples and remove from site, unless accepted by Architect as part of completed Work.

1.9 TESTING LABORATORY SERVICES

A. General:

1. Where terms "Laboratory", "Inspector", "Inspection Laboratory", "Laboratory" or "Testing Laboratory" are used, they mean and refer to officially designated and accredited testing laboratory.
2. Provide testing laboratory with one set of Contract Documents and relevant approved submittals.

B. Selection and Payment:

1. Contractor will employ services of an independent testing laboratory to perform specified inspection and testing.
2. Employment of testing laboratory in no way relieves obligation to perform Work in accordance with requirements of Contract Documents. Contractor will pay testing required by local authorities having jurisdiction.
3. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.

C. Laboratory:

1. Cooperate with Architect, Owner, and Contractor.
2. Comply with requirements of ANSI/ASTM E 329 and ANSI/ASTM D 3740.
3. Maintain a full-time registered Engineer on staff to review services.
4. Authorized to operate in State of North Carolina.
5. Calibrate testing equipment once each year with devices of an accuracy traceable to either NBS Standards or accepted values of natural physical constants.
6. Test samples of mixes submitted by Contractor.
7. Provide qualified personnel at site. Cooperate with Contractor and Architect in performance of services.
8. Perform specified inspection, sampling, and testing of products in accordance with specified standards.
9. Ascertain compliance of materials and mixes with requirements of Contract Documents.
10. Promptly notify Architect, Owner, and Contractor of observed irregularities or non-conformance of Work or products.
11. Perform additional inspections and tests required by Architect.
12. Attend Preconstruction Conference.

D. Laboratory Reports:

1. After each inspection and test, promptly submit PDF of laboratory report to Architect and one to the applicable consultant and one to Contractor.
2. Include: Date issued, project title and number, name of inspector, date and time of sampling or inspection, identification of product and Specifications section,

location in the Project, type of inspection or test, date of test, results of tests, and conformance with Contract Documents.

3. When requested by Architect, provide interpretation of test results.

E. Limits on Testing Laboratory Authority:

1. May not release, revoke, relax, alter, or enlarge on requirements of Contract Documents.
2. May not approve or accept any portion of the Work.
3. May not assume any duties of Contractor.
4. Has no authority to stop Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location adequate samples of materials proposed to be used which require testing, together with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to Work and to manufacturer's facilities.
- C. Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.
- D. Notify laboratory of material sources and furnish necessary quantities of representative samples of materials proposed for use which are required to be tested.
- E. Advise laboratory in a timely fashion to complete required inspection and testing prior to subsequent work being performed.
- F. Pay for subsequent re-testing of products or systems found to be defective or otherwise not in accordance with specification requirements. Remove rejected products and replace with products of specified quality.
- G. Provide PDF of product tests or mill test reports as specified or required.
- H. Provide incidental labor and facilities:
 1. To provide access to Work to be tested.
 2. To obtain and handle samples at Project site or at source of product to be tested.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples.
- I. Notify Architect, Owner, and laboratory 48 hours prior to expected time for operations requiring inspection and testing services.
- J. When inspections or tests can not be performed after proper notification and at no fault of laboratory, reimbursement costs for laboratory expenses incurred will be charged to Contractor by deducting charges from Contract Sum.

1.11 SUBMITTALS

- A. Provide submittals in accordance with Section Submittal Procedures.

- B. Laboratory Reports:
1. Include with each report:
 - a. Date issued.
 - b. Project title and number.
 - c. Testing laboratory name, address, and telephone number.
 - d. Record of temperature and weather conditions.
 - e. Names of individuals making tests and inspections. Name and signature of person submitting report.
 - f. Dates, times, and locations of sampling, testing, and inspection.
 - g. Identification of specification section and products.
 - h. Location in Project.
 - i. Type of inspection or test.
 - j. Reference standards used for test.
 - k. Name of material suppliers.
 - l. Results of tests and interpretation of test results.
 - m. Professional opinion of whether tested and inspected Work complies with Contract Documents.
 - n. Certified statement, signed and sealed by testing laboratory attesting to accuracy of testing results.
 - o. Number pages.
 2. PDF test reports within 2 weeks of test date.
 3. After each inspection and test, promptly submit PDF of written reports to the following:
 - a. Owner.
 - b. Architect.
 - c. Code Officials
 - d. Contractor.
 4. When requested by Architect, provide interpretation of test results and suggested remedies.

1.12 FAILURES AND RETESTING

- A. When initial inspections and tests indicate Work does not comply with Contract Documents, subsequent testing will be performed by same Testing Agency and will be done at Contractor's expense and deducted from Contract Sum.
- B. Removal and replacement of Work necessitated by such non-compliance of Contract Documents shall be at Contractor's expense.

1.13 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for Section Cutting and Patching.
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 40 00



SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Reference standards.
 - 2. Explanation of project manual content.
 - 3. Abbreviations and symbols.
 - 4. Definitions.
 - 5. Metric measurements.

1.2 REFERENCE STANDARDS

- A. Comply with association, trade, federal, commercial, standards generating organization (such as ANSI and ASTM), and other similar standards referenced within Specification sections, except where more explicit or stringent requirements are indicated or required by Specification or applicable codes.
- B. Reference standards include their associated amendments and supplements.
- C. Except where a specific date is indicated, date of standard is latest edition in effect at date of Contract Documents, or date of standard required by code.
- D. Reference standards have same force and effect as if bound into or copied directly into Contract Documents; standards are made a part of Contract Documents by reference.
- E. Contractual relationship of parties to the Contract shall not be altered from Contract Documents by mention or inference otherwise in reference standards.
- F. Names and titles of standards are frequently abbreviated. Where acronyms or abbreviations are used in Specifications, they are defined to mean the recognized name of trade association, standards generating organization, governing authority, or other entity applicable to context of text provision.
- G. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- H. When indicated by individual Specification section, obtain copy of standard. Maintain copy at Project site during submittals, planning, and progress of specific work, until Substantial Completion.

- I. Units of measurements required by specifications govern regardless of units of measurement used in reference standards.
- J. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
- K. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
- L. The Architect reserves the right to require the Contractor to submit copies of standards as necessary for enforcement of requirements.

1.3 EXPLANATION OF PROJECT MANUAL CONTENT

- A. Section Numbering and Titles: Sections are placed in Project Manual in numeric sequence; refer to Table of Contents at beginning of Project Manual for complete listing of sections and titles.
- B. Page Numbering: Pages are numbered sequentially within each section. Page number is shown together with section number at bottom of each page.
- C. Project Identification: Project name, architect's project number and date of Contract Documents are recorded on each page to minimize possible misuse or confusion with other project specifications.
- D. Specifying Methods: Techniques or methods of specifying varies throughout text and may include "prescriptive," "generic-descriptive," "compliance with standards," "performance," "proprietary," or a combination of these.
- E. Language:
 - a. Imperative mood of sentence structure is generally used which places verb as first word in sentence. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor.
 - b. In certain circumstances, the language of specifications and other contract documents are of abbreviated type. It implies words and meanings that will be appropriately interpreted. Words such as "the," "shall," "shall be," "Contractor shall," "a," "all," "an," "any," and other similar words are eliminated.
 - c. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of Contract Documents so indicates.
 - d. The words "shall be" are implied wherever a colon (:) is used within a sentence or phrase.
- F. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
- G. Specialist Assignments:

- a. In certain circumstances, Specification text requires or implies that specific elements of Work are to be assigned to specialists who must be engaged to perform that element of Work. Such assignments are special requirements of Contract.
 - b. Such assignments are intended to establish which party or entity involved in a specific element of Work is considered as being sufficiently experienced in indicated construction processes or operations to be recognized as "expert" in those processes or operations. Nevertheless, ultimate responsibility for fulfilling Contract requirements remains with Contractor.
 - c. These requirements should not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. They are also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- H. Minimum Quality and Quantity: In every instance, quality level or quantity shown or specified is intended to be minimum for Work to be performed or provided. Except as otherwise specifically indicated, actual Work may either comply exactly with that minimum within specified tolerances, or may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are either minimums or maximums as noted, or as appropriate for context of requirements. Refer instances of uncertainty to Architect for decision before proceeding.

1.4 ABBREVIATIONS

- A. Explanation of metric abbreviations is located in ASTM E 380 Practice for Use of the International System of Units (SI).

1.5 SYMBOLS

- A. List of Symbols:
 - 1. # Number.
 - 2. % Percent.
 - 3. EF Degrees Fahrenheit.
 - 4. EC Degrees Celsius.
 - 5. ' Feet.
 - 6. " Inches.
 - 7. +/- Plus to Minus; Plus or Minus.
 - 8. As may be listed on Drawings.

1.6 DEFINITIONS

- A. And: Conjunction indicating that items in a series are to be taken jointly. It may also mean plus or in addition to the preceding items in the series.
- B. Approved: Where used in conjunction with Architect's response or action, the meaning will be held to limitations of Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will Architect's approval be interpreted as release of Contractor from responsibilities to fulfill requirements of Contract Documents.

1. Custom Color: Refers to color selection by Architect that is not limited to a manufacturer's standard color or a manufacturer's color that is designated by the manufacturer as "custom", "premium" or any other designation. Custom color means any color selected by Architect.
2. Directed, Requested: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Architect," "requested by Architect," and similar phrases. However, no such implied meaning shall be interpreted to extend Architect's responsibility into area of construction supervision.
3. Finish: The manner or method of completion. The final appearance of a surface, including texture, smoothness, sheen, and color, after finishing operations have been performed. Finishing operations include preparation of substrate and application, curing, and protection of specified finish materials.
4. Furnish: Means to supply, purchase, procure and deliver complete with related accessories, ready for assembly, application, installation, and similar operations, as applicable in each instance.
5. Indicated: Refers to graphic representations, notes, or schedules on Drawings, or other paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help reader locate the reference. Location is not limited.
6. Install: Means to construct, assemble, erect, mount, anchor, place, connect, apply and similar operations, complete with related accessories, as applicable in each instance, connected, operable, and ready for service or intended use.
7. Installer: Entity (person or firm) engaged to perform a particular unit of Work at Project site, including installation, erection, application, repair, patching, and similar required operations. Such entities must be experienced in operations they are engaged to perform.
8. Or: Used to introduce any of the possibilities in a series. Items in the series are not required to be taken jointly. It does not mean that individual items in the series are optional requirements.
9. Product: Includes natural and manufactured materials, components, machinery, fixtures, equipment, devices, furnishings, systems, and their associated accessories to be incorporated into the Work.
10. Provide: Means to furnish and install, complete and ready for operations and use for purpose intended.
11. Regulations: Includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within construction industry that control performance of the Work.
12. Similar: Interpreted in its general sense and not as meaning identical. Elements defined as "similar" shall be coordinated in relationship to their location and connection with other parts of the Work.
13. True To Line, Plumb, Level, and Flat: Install Work within following tolerances, except where indicated otherwise:
 - a. True to line: Allowed deviation from straight line within plus or minus 1/16 inch in 1 foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 3/8 inch in lengths over 20 feet.
 - b. Level: Allowed deviation from horizontal plane within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 1/2 inch in lengths over 20 feet.
 - c. Plumb: Allowed deviation from vertical plane within plus or minus 1/16 inch in one foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 1/2 inch in lengths over 20 feet.

- d. Flat: Allowed deviation from flat plane in any planar direction within plus or minus 1/16 inch in 1 foot; plus or minus 1/8 inch in 10 feet; plus or minus 1/4 inch in 20 feet; and plus or minus 3/8 inch in lengths over 20 feet.
- e. Tolerances are not accumulative.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 42 00



SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, Erosion and Sedimentation Control, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Electricity, lighting.
 - 2. Heat, ventilation.
 - 3. Telephone service.
 - 4. Water.
 - 5. Sanitary facilities.
 - 6. Fire protection.
 - 7. Barriers.
 - 8. Enclosures.
 - 9. Protection of installed work.
 - 10. Security.
 - 11. Water control.
 - 12. Project identification.
 - 13. Field offices.
 - 14. Waste disposal service.
 - 15. Rodent and pest control.
 - 16. Construction aids and miscellaneous services and facilities.

1.2 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- D. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

- E. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
- F. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
- G. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
- H. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.

1.3 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from Utility source.
 - 1. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library, "Temporary Electrical Facilities."
 - 2. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
 - 3. Except where overhead service must be used, install electric power service underground.
 - 4. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- B. For work within existing facilities, connect to existing power service. Power consumption shall not disrupt Owner's need for continuous service. Owner will pay cost of energy used. Exercise measures to conserve energy.
- C. Provide temporary electric feeder from electrical service at location as directed. Power consumption shall not disrupt Owner's need for continuous service.
- D. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- E. Permanent convenience receptacles may be utilized during construction.
- F. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
- G. Provide 20 ampere duplex outlets, single phase circuits for power tools for every 2,500 sq. ft. of active work area.
- H. Provide 20 ampere, single phase branch circuits for lighting.

1.4 TEMPORARY LIGHTING

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq. ft.
- B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails and lamps as required.
- D. Maintain lighting and provide routine repairs.
- E. Permanent building lighting may be utilized during construction.
- F. Provide a minimum of 80 f.c. of lighting on surfaces to receive finished materials.
- G. Temporary Lighting: Wherever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
- H. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

1.5 TEMPORARY HEAT

- A. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations.
- B. For work within existing building, utilize Owner's existing heat plant, extend and supplement with temporary heat devices as required to maintain specified conditions for construction operations.
- C. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
- D. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.6 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.7 TEMPORARY TELEPHONE SERVICE

- A. Provide telephone service to each field office.

- B. Provide a minimum of 2 lines, one for voice, and one for fax/data.

1.8 TEMPORARY WATER SERVICE

- A. Provide service required for construction operations. Extend branch piping with outlets located so that water is available by use of hoses.
- B. For work within existing building, connect to existing facilities; extend branch piping with outlets located so that water is available by use of hoses.

1.9 TEMPORARY SANITARY FACILITIES

- A. Existing facilities shall not be used.
- B. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures.
- C. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best service the Project's needs.
- D. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- E. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- F. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
- G. Drinking Water Fixtures: Provide drinking water fountains where required to for compliance with regulations and health codes, including paper supply.

1.10 TEMPORARY FIRE PROTECTION

- A. Observe and enforce throughout the work all requirements of City, State and Insurance authorities to minimize fire hazards.
- B. Remove combustible refuse from within each building daily.
- C. Provide fire extinguishers as required by the local fire department and city ordinances.
- D. Fire Lanes: The General Contractor shall provide and maintain temporary "all-weather" emergency vehicle access adjacent to roads designated by the Contract Documents as Fire Lanes, as required by the authorities having jurisdiction until complete construction of all fire lanes. Fire lanes shall be maintained and remain accessible at all times.
- E. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.

- F. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- G. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

1.11 BARRIERS

- A. Provide as required to prevent public entry to construction areas [to provide for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide 6 foot high commercial grade chain link fence around construction site; equip with vehicular and pedestrian on outside gates with locks. Fencing must conform to all code and Owner specific requirements.
- C. Provide barricades and covered walkways as required by governing authorities for public rights-of-way and for public access to existing building.
- D. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water. Protect from staining on trunk and branches. Do not disturb existing soil at base or within drip line in any manner.

1.12 ENCLOSURES

- A. Provide temporary weather-tight closures of openings in exterior surfaces to provide acceptable working conditions and protection for materials, to allow for temporary heating, and to prevent entry of unauthorized persons. Provide doors with self-closing hardware and locks.
- B. Provide temporary partitions and ceilings as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, to prevent damage to existing areas and equipment. Construction: Framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces; Flame Spread Rating of 25 in accordance with ASTM E 84; paint surfaces exposed to view in Owner occupied areas.

1.13 PROTECTION OF INSTALLED WORK

- A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage.
- C. Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.

1.14 SECURITY

- A. Coordinate with Owner's security program.

1.15 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide and operate pumping equipment.
- B. Protect site from puddling or running water.

1.16 PROJECT IDENTIFICATION

- A. Provide 8 foot by 8 foot Project Identification Sign of wood frame and exterior grade plywood construction, painted, with exhibit lettering by professional sign painter, to Architect's design and colors. List title of Project, names of Owner, Architect, professional consultants, and Contractor.
- B. Erect on site at location established by Architect. Mount 4 by 4 inch posts, set 3 feet into ground, with 3 foot clearance from ground to bottom of sign. Brace each post back to ground with 2 by 4 inch brace.
- C. Allow no other signs to be displayed.

1.17 FIELD OFFICES

- A. Office:
 - 1. Weather-tight, secured, with lighting, electrical outlets, telephone, heating, and air conditioning equipment.
 - 2. Equip with minimum of one layout table, one desk, file cabinet, plan rack and 2 chairs.
 - 3. In addition, provide space for Project meetings, with table and chairs to accommodate 10 persons.
 - 4. Refer to previous discussion for phone and facsimile requirements.
- B. Provide incombustible construction for offices and shops located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

1.18 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of 2 feet; grade site as indicated. Restore existing facilities used during construction to specified, or to original, condition.

1.19 OTHER FACILITIES AND CONTROLS

- A. **Collection and Disposal of Waste:** Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.
- B. **Rodent and Pest Control:** Before deep foundation Work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.
- C. **Environmental Protection:** Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

PART 2- PRODUCTS

2.1 MATERIALS

- A. **General:** Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. **Lumber and Plywood:** Comply with requirements in Section Rough Carpentry.
 - 1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
 - 2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
 - 3. For fences and vision barriers, provide exterior type, minimum 3/8 inch thick plywood.
 - 4. For safety barriers, sidewalk bridges and similar uses, provide minimum 5/8 inch thick exterior plywood.
 - 5. Refer to Section Sustainable Design Requirements – LEED Certification for Certified Wood (MR 7).
- C. **Paint:** Comply with requirements of Section Painting.
 - 1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
 - 2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.

- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.
- F. Open-Mesh Fencing: Provide 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2 inch I.D. for line posts and 2-1/2 inch I.D. for corner posts.
- G. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with applicable requirements specified in Division 23 (Mechanical) and in Division 26 (Electrical).
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.
- D. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.
- E. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt or other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances and elsewhere when used during construction, as required by the governing authority, Architect and or the Owner.
- F. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
 - 1. Replace air filters and clean inside of ductwork and housings.
 - 2. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
 - 3. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION 01 50 00

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
 - 2. Packaging, transportation, delivery, receiving, storage, protection and other product handling requirements.
 - 3. Product options and substitutions including:
 - a. Contractor's options in selection of products.
 - b. Products list.
 - c. Requests for substitution of products.

1.2 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment", is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.
 - 4. "Foreign Products," as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United

States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.

1.3 PRODUCT LIST

- A. Prepare a schedule showing products specified in a tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.
- C. Coordinate the product list schedule with the Contractor's Construction Schedule.
- D. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:
 - 1. Related Specification Section number.
 - 2. Generic name used in Contract Documents.
 - 3. Proprietary name, model number and similar designations.
 - 4. Manufacturer's name and address.
 - 5. Supplier's name and address.
 - 6. Installer's name and address.
 - 7. Projected delivery date, or time span of delivery period.
- E. Initial Submittal:
 - 1. Within 30 days after date of commencement of the Work, submit PDF of an initial product list schedule.
 - 2. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
 - 3. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
- F. Completed Schedule:
 - 1. Within 60 days after date of commencement of the Work, submit PDF of the completed product list schedule.
 - 2. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
- G. Architect's Action:
 - 1. Architect will respond in writing via e-mail PDF to the Contractor within two weeks of receipt of the completed product list schedule.
 - 2. No response within this time period constitutes no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents.
 - 3. The Architect's response will include the following:
 - a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.4 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources whose products possess these qualities, to the fullest extent possible.
- B. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work:
1. No available domestic product complies with Contract Documents.
 2. Domestic products that comply with Contract Documents are only available at prices or terms that are substantially higher than foreign products that also comply with Contract Documents.
 3. The product is not expressly prohibited in other parts of Contract Documents.
- C. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
- E. Matching of Colors:
1. When a product is listed in the specifications with an accompanying color, pattern, texture, or sheen, provide only that product, or one that is identical in color, pattern, texture, and sheen to the product specified, regardless if the color, pattern, texture, or sheen of the alternate manufacturer's product is a standard or option.
 2. On finished materials and products, verify that colors, patterns, textures, and sheens are identical for the entire project and that there are no visual differences between batches, packages, bundles, or shipments, due to differing production runs. Architect reserves the right to reject products and materials installed, which have, in the sole opinion of the Architect, a significant enough difference in color,

pattern, texture, or sheen, from other products on the project, so as to be visually distracting.

1.5 OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.
- B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named within time frame specified herein.
- C. Products Specified by Naming Several Manufacturers: Products of named manufacturers meeting specifications; no options, no substitutions.
- D. Products Specified by Naming Only One Manufacturer: No option; no substitution allowed.

1.6 SUBSTITUTIONS

- A. Substitutions: Substitutions are prohibited. If named product is no longer available, contact Architect for procedures.

1.7 PROHIBITION ON INCORPORATION OF HAZARDOUS MATERIALS

- A. Architect and its consultants have not knowingly specified for incorporation into the work, materials or products containing hazardous materials or toxic substances (including asbestos).
- B. Contractor (including it's subcontractors, sub-sub-contractors, and material suppliers/fabricators under it's control) is prohibited from incorporating any material or products into the work containing hazardous materials or toxic substances.
- C. As part of completed materials and products list required herein, Contractor shall assemble, for the Owner's records, the Material Safety Data Sheets (MSDS) for all materials and products incorporated into the work. These MSD sheets shall be updated upon final completion of the work to incorporate changes which have occurred during the course of the work due to approved substitution requests and other modifications. Architect will not review, nor approve, the MSD sheets. The Contractor, also as a pre-requisite to achieving final completion, shall provide a certificate to the Owner indicating that no hazardous or toxic materials or products were incorporated into the work.
- D. Architect and its consultants are not responsible for the presence of hazardous materials or toxic substances in or around the work, nor the exposure to persons who construct or subsequently occupy the work. The Architect will not provide certifications regarding the presence or absence of such materials or substances.

PART 2- PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
 - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 - 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
 - 1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
 - 2. Semi-Proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where products or manufacturers are specified by name, comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 - 3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 - 4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
 - 5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

- a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
6. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.
8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.
9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 01 for allowances that control product selection, and for procedures required for processing such selections.

PART 3- EXECUTION

3.1 PACKAGING AND TRANSPORTATION

- A. Require supplier to package products in boxes or crates for protection during shipment, handling, and storage. Protect sensitive products against exposure to elements and moisture.
- B. Protect sensitive equipment and finishes against impact, abrasion, and other damage.

3.2 DELIVERY, RECEIVING, AND HANDLING

- A. Deliver, receive, and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft
- B. Delivery:
 1. Arrange deliveries of products in accordance with construction progress schedules. Allow time for inspection prior to installation.
 2. Coordinate deliveries to avoid conflict with Work and conditions at site; limitations on storage space; availability of personnel and handling equipment, and Owner's use of premises.
 3. Schedule delivery to minimize long-term storage at site and to prevent overcrowding of construction spaces.
 4. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

5. Deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
6. Clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.

C. Receiving and Handling:

1. Provide equipment and personnel to handle products, including those provided by Owner, by methods to prevent soiling and damage.
2. Provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.
3. Handle product by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.
4. Immediately on delivery, inspect shipment to assure:
 - a. Product complies with requirements of Contract Documents and reviewed submittal.
 - b. Quantities are correct.
 - c. Accessories and installation hardware are correct.
 - d. Containers and packages are intact and labels legible.
 - e. Products are protected and undamaged.

3.3 STORAGE

A. General:

1. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
2. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.
3. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

B. Enclosed Storage:

1. Store products, subject to damage by the elements, in substantial weathertight enclosures.
2. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
3. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
4. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

C. Exterior Storage:

1. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
2. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.

3. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
4. Provide surface drainage to prevent erosion and ponding of water.
5. Prevent mixing of refuse or chemically injurious materials or liquids.

D. Maintenance of Storage:

1. Periodically inspect stored products on a scheduled basis.
2. Verify that storage facilities comply with manufacturer's product storage requirements.
3. Verify that manufacturer required environmental conditions are maintained continually.
4. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

E. Maintenance of Equipment Storage:

1. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
2. Service equipment on a regularly scheduled basis, maintaining a log of services; submit as a record document.

3.4 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
- B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 60 00

SECTION 01 73 23 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Requirements and limitations for cutting and patching of Work as specified in Divisions 02-32, required to complete work or to make its several parts fit together.

1.2 SUBMITTALS

- A. Submit electronic request in advance of cutting or alteration which affects:
 - 1. Structural integrity of any element of the 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. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
 - a. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - Shoring, bracing, and sheeting.
 - Primary operational systems and equipment.
 - Air or smoke barriers.
 - Water, moisture, or vapor barriers.
 - Membranes and flashings.
 - Fire protection systems.
 - Noise and vibration control elements and systems.
 - Control systems.
 - Communication systems.
 - Conveying systems.
 - Electrical wiring systems.
 - Special construction specified by Division-13 Sections.

7. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
 8. When possible retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm:
 - a. Matched-veneer woodwork.
 - b. Preformed metal panels.
 - c. Window wall system.
 - d. Acoustical ceilings.
 - e. Carpeting.
 - f. Wall covering.
 - g. HVAC enclosures, cabinets or covers.
- B. Include in request:
1. Identification of Project.
 2. Location and description of affected work.
 3. Necessity for cutting or alteration.
 4. Description of proposed work, and products to be used.
 - a. Scope of cutting, fitting, patching, or alteration.
 - b. Listing of applicable trades.
 - c. Proposed products and materials.
 - d. Extent of refinishing.
 5. Alternatives to cutting and patching.
 6. Effect on structural integrity of Work.
 7. Effect on weatherproof integrity of Work.
 8. Effect on building's appearance and significant visual elements.
 9. Effect on utilities:
 - a. List of utilities affected by cutting and patching.
 - b. List of utilities that will be relocated.
 - c. List of utilities that will be temporarily out-of-service. Indicate time period of service outage.
 10. Effect on work of Owner or separate contractor.
 11. Written permission of affected separate contractor.
 12. Date and time work will be executed.
- C. Should conditions or schedule require change of products or methods different than original installation, submit written recommendation to Architect explaining conditions necessitating change and requirements of alternative materials or methods.
- D. Reviewed by Architect to proceed with cutting and patching does not waive Architect's right to later require complete removal and replacement of unsatisfactory work.

1.3 PAYMENT FOR COSTS

- A. Costs resulting from ill-timed or defective work, or work not conforming to Contract Documents, including costs for additional services of Architect, or other consultants shall be borne by the party responsible for ill-timed, rejected or non-conforming Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Products: Those required for original installation.
- B. For any change in materials, submit request for substitution under provisions of Section Project Requirements.

PART 3 - EXECUTION

3.1 GENERAL

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

3.2 INSPECTION

- A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- B. After uncovering, inspect conditions affecting performance of work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

3.3 PREPARATION

- A. Provide temporary supports to assure structural integrity of surroundings; devices and methods to protect other portions of Project from damage.
- B. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.
- C. Provide materials and control operations to prevent spread of dust in surrounding area. Provide drop cloths or other suitable barriers.
- D. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- E. Avoid cutting in service pipes, ducts, or conduit until provisions have been made to bypass them.

3.4 CUTTING AND PATCHING

- A. Execute cutting, fitting, and patching (including excavation and fill) to complete work.
- B. Fit products together, to integrate with other work.
- C. Uncover work to install ill-timed work.
- D. Remove and replace defective or non-forming work.
- E. Remove samples of installed work for testing when requested.
- F. Provide openings in the work for penetration of mechanical and electrical work.
- G. Uncover work to allow for Architect's observation of covered work which has been covered up prior to required observation by Architect.

3.5 PERFORMANCE

- A. Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
 - 1. Use hand or small power tools designed for sawing or grinding, not hammering or chopping.
 - 2. Cut holes and slots as small as possible, neatly to size required, with minimum disturbance of adjacent surfaces.
 - 3. Temporarily cover openings when not in use.
 - 4. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces.
 - 5. Cut through concrete and masonry using cutting machine, such as Carborundum saw or diamond-core drill.
- B. Execute in manner which does not void required or existing warranties.
- C. Employ original installer to perform cutting and patching 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 tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated packing material, full thickness of the construction element.
- H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- I. Execute excavating and backfilling by methods in accordance with applicable which will prevent settlement or damage to Project.

- J. Execute fitting and adjustment to produce finished installation complying with specified products, functions, tolerances, and finishes.
- K. Install products and materials to complete Work in accordance with requirements of Contract Documents.
- L. Do not cut and patch structural elements in manner that would result in reduction of load carrying capacity or of load deflection ratio.
- M. Do not cut and patch operational elements or safety related components in manner that would result in reduction of their capacity to perform in manner intended, including energy performance, that would result in increased maintenance, decreased operational life, or decreased safety.
- N. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- O. Where utilities are to be removed, relocated, or abandoned, by-pass before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe, duct, or conduit to prevent entrance of moisture or matter after by-passing and cutting.
- P. Except where indicated otherwise, restore exposed finishes of patched areas to match existing and where necessary extend finish restoration into retained adjoining surfaces in manner which will eliminate evidence of patching and refinishing. Thoroughly clean surfaces prior to application of paint and other finishes.
- Q. Where patching occurs in previously painted surface, provide appropriate prime coat followed by first finish coat of paint. Provide final finish coat over entire area containing patch; for continuous surface extend to nearest vertical break or intersection, for an assembly refinish entire unit. Except where indicated otherwise, finish in sheen and color to match existing.
- R. Patch, repair, or re-hang existing ceilings as required to provide an even plane surface of uniform appearance.

3.6 CLEANING

- A. Thoroughly clean areas and spaces affected by Work. Completely remove paint, mortar, oils, putty, and items of similar nature.
- B. Restore damaged surfaces to its original condition.

END OF SECTION 01 73 23



SECTION 01 74 00 – CONSTRUCTION AND FINAL CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Cleaning during construction.
 - 2. Final cleaning of project and related site work.

1.2 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.
- B. Keep site and construction areas clean on a weekly basis. Keep owner occupied areas clean on a daily basis.
- C. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.3 FINAL CLEANING

- A. Execute cleaning prior to inspection for Substantial Completion of the Work. Include all exterior store front.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Utilize materials which will not create hazards to health or property, and which will not damage surfaces. Cleaning materials must be environmentally friendly materials per Section Sustainable Design Requirements – LEED Certification.
- B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3- EXECUTION

3.1 CLEANING

- A. In addition to removal of debris and cleaning specified in other sections, clean interior and exterior exposed-to-view surfaces.
- B. Remove waste, foreign matter, and debris from roofs, gutters, area ways, and drainage systems.
- C. Cleaning during Construction:
 - 1. Execute periodic cleaning to keep building, site, and adjacent properties free of accumulations of waste materials, debris, rubbish, and wind blown debris resulting from construction operations.
 - 2. Prior to Substantial Completion remove construction tools, scaffolding, equipment, machinery, and surplus materials.
 - 3. Broom clean and vacuum interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
 - 4. Schedule cleaning operations so that dust and other contaminants will not fall on or adhere to wet or newly-coated surfaces.
 - 5. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing space.
 - 6. Store volatile wastes in covered metal containers and remove from premises daily. Prevent accumulation of waste which creates hazardous conditions. Provide adequate ventilation during use of volatile or noxious substances.
 - 7. Do not throw materials from heights.
 - 8. Open free-fall chutes not permitted. Terminate closed chutes into appropriate containers with lids.
 - 9. Collect and remove waste materials, debris, and rubbish from site weekly until execution of final cleaning and dispose off site in lawful manner.
 - 10. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 11. Do not burn or bury rubbish and waste materials on Project site. Do not dispose of volatile wastes or hazardous materials such as mineral spirits, oil, or paint thinner in storm or sanitary drains. Do not dispose of wastes into streams or waterways.
 - 12. Maintain cleaning until Final Completion.
- D. Final Cleaning: In addition to cleaning during construction, prior to Substantial Completion provide the following:
 - 1. Remove temporary protection and labels not required to remain.
 - 2. Clean finishes free of dust, stains, films and other foreign substances.
 - 3. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.
 - 4. Vacuum clean carpeted and similar soft surfaces.
 - 5. Clean, damp mop, wax, and polish resilient and hard- surface floor as specified.
 - 6. Clean surfaces of equipment; remove excess lubrication.
 - 7. Clean plumbing fixtures, and food service equipment, to a sanitary condition.
 - 8. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated without filters during construction.
 - 9. Clean light fixtures and lamps.

10. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.
 11. Clean exterior store fronts and wax floors.
- E. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.
1. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
 2. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 01 74 00



SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section
- C. This Section includes administrative and procedural requirements for the following:
 - 1. Recycling nonhazardous construction waste.
 - 2. Disposing of nonhazardous construction waste.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous construction waste as possible including the following materials:

1. Construction Waste:
 - a. Site-clearing waste.
 - b. Masonry and CMU.
 - c. Lumber.
 - d. Wood sheet materials.
 - e. Wood trim.
 - f. Metals.
 - g. Roofing.
 - h. Insulation.
 - i. Carpet and pad.
 - j. Gypsum board.
 - k. Piping.
 - l. Electrical conduit.
 - m. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.4 SUBMITTALS

- A. Comply with requirements and forms provided in the Wells Fargo De Novo Volume Certification for New Construction Guidelines.
- B. Waste Management Plan: Submit electronic plan within 30 days of date established for the Notice to Proceed.
- C. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit electronic report. Include the following information:
 1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons (tonnes).
 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- D. Waste Reduction Calculations: Before request for Substantial Completion, submit electronic copy of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- E. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

- F. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- G. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. Landfill Disposal Records: Indicate receipt and acceptance of waste by landfill facilities licensed to accept them. Include manifests, weight and load tickets, receipts, and invoices.
- I. LEED Submittal: Construction Waste Management Report tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.
- J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.5 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: LEED Accredited Professional (AP) or Green Associate (GA) by U.S. Green Building Council. Waste management coordinator may also serve as LEED coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.6 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill facility.
 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Revenue from salvaged materials.
 5. Revenue from recycled materials.
 6. Savings in hauling and tipping fees by donating materials.
 7. Savings in hauling and tipping fees that are avoided.
 8. Handling and transportation costs. Include cost of collection containers for each type of waste.
 9. Net additional cost or net savings from waste management plan.
- E. Forms: Prepare waste management plan on forms included at end of Part 3.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
 - 3. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - 4. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 5. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 6. Store components off the ground and protect from the weather.
 - 7. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.

3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.

1. Comply with requirements in Division 31 Section "Exterior Plants" for use of chipped organic waste as organic mulch.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in Division 31 Section "Exterior Plants." for use of clean sawdust as organic mulch.

D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - a. Comply with requirements in Division 31 Section "Exterior Plants." for use of clean ground gypsum board as inorganic soil amendment.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 75 00 - STARTING AND ADJUSTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, General, Mechanical, and Electrical Commissioning Sections, Indoor Air Quality Plan During Construction, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Procedures for starting of mechanical and electrical systems.

1.2 QUALITY CONTROL

- A. When specified in individual Sections, require manufacturer to provide authorized representative to be present at site to:
 - 1. Inspect, check, and approve equipment installation prior to start-up.
 - 2. Supervise placing equipment in operation.
 - 3. Provide a written report that equipment has been properly installed and lubricated, is in accurate alignment, is free from any undue stress imposed by connecting lines or anchor bolts, and has been satisfactorily operated under full load conditions.

1.3 SUBMITTALS

- A. Submit preliminary schedule listing times and dates for start-up of each item of equipment in sequence two weeks prior to proposed dates.
- B. Submit manufacturer's representative reports within one week after start-up, listing satisfactory startup dates.

1.4 PROJECT CONDITIONS

- A. Building enclosure is complete and weathertight.
- B. Excess packing and shipping bolts are removed.
- C. Interdependent systems have been checked and are operational.

PART 2 - PRODUCTS (NOT USED)

PART 3- EXECUTION

3.1 INSPECTION

- A. Verify that Project conditions comply with requirements.
- B. Verify that status of Work meets requirements for starting of equipment and systems.

3.2 PREPARATION

- A. Coordinate sequence for start-up of various items of equipment, including Owner-provided equipment.
- B. Notify Architect 7 days prior to start-up of each item of equipment.
- C. Have Contract Documents, shop drawings, product data, and operation and maintenance data at hand during entire start-up process.
- D. Verify that each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, and other conditions which may cause damage.
- E. Verify control systems are fully operational in automatic mode.
- F. Verify that tests, meter readings, and specific electrical characteristics agree with those specified by electrical equipment manufacturer.
- G. Verify wiring to motors and controls required by mechanical work for operational smoke and fire protection demonstrations is complete.
- H. Verify wiring and support systems for equipment installed under separate contracts is complete and checked.
- I. Bearings: Inspect for cleanliness; clean and remove foreign matter. Verify alignment; take corrective measures.
- J. Drives: Inspect for tension on belt drives, adjustment of variable pitch sheaves and drives, alignment, proper equipment speed, and cleanliness. Take corrective action.
- K. Motors: Verify that motor amperage agrees with nameplate value. Inspect for conditions which produce excessive current flow and which exist due to equipment malfunction. Take corrective action.

3.3 STARTING SYSTEMS

- A. Execute start-up under supervision of responsible Contractor personnel.
- B. Place equipment in operation in proper sequence.

END OF SECTION 01 75 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section
- C. Section Includes:
 - 1. Administrative provisions for Substantial Completion and for final acceptance.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Complete items in following paragraphs before requesting Certification of Substantial Completion, either for entire Work or for portions of Work.
- B. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
- C. Conduct inspection to substantiate basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or non-conforming work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
- D. Submit statement showing accounting of changes to Contract Sum.
- E. Advise Owner of pending insurance change-over requirements at final payment.
- F. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
- G. Submit project record documents in compliance with Section Closeout Submittals, maintenance manuals, negatives of construction photographs, and other similar final record data.
- H. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
- I. Make final change-over of locks eliminating construction master key system and transmit keys directly to Owner. Advise Owner's personnel of change-over in security provisions.

- J. Comply with requirements of Section Temporary Facilities and Controls for restoring permanent systems operated prior to Substantial Completion.
- K. Complete facility startup, testing, adjusting, and balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel.
- L. Discontinue or change over and remove temporary facilities and services from Project site, along with construction tools, mock-ups, and similar elements.
- M. Perform final cleaning in accordance with Section Construction and Final Cleaning.
- N. Touch-up and otherwise repair and restore marred exposed finishes.
- O. Submit LEED credit documentation for review by Architect. Complete required LEED online documentation as directed by Owner.

1.3 SUBSTANTIAL COMPLETION

- A. When Contractor considers Work or designated portion of Work is substantially complete, submit written notice with list of items to be completed or corrected.
- B. Should Architect inspection find Work is not substantially complete, he will promptly notify Contractor in writing, listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second written notice of substantial completion.
- D. When Architect finds Work is substantially complete he will prepare a Certificate of Substantial Completion in accordance with provisions of General Conditions.

1.4 PREREQUISITES FOR FINAL COMPLETION

- A. Complete items in following paragraphs before requesting final acceptance and final payment. List known exceptions, if any, in request.
- B. When Contractor considers Work to be complete, submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been examined for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Work is completed and ready for final inspection.
- C. Submit final punch list indicating all items have been completed or corrected.
- D. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
- E. Submit specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
- F. Submit final LEED credit documentation.

- G. Submit updated accounting statement for final changes to Contract Sum.
- H. Submit consent of surety to final payment.
- I. Perform final cleaning for Contractor soiled areas in accordance with Section 01 74 00.

1.5 FINAL COMPLETION

- A. When Contractor considers Work is complete, submit written certification
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents, and deficiencies listed with Certificate of Substantial Completion have been corrected.
 - 4. Equipment and systems have been tested, adjusted and balanced, and are fully operational.
 - 5. Operation of systems has been demonstrated to Owner's personnel.
 - 6. Work is complete and ready for final inspection.
- B. Should Architect inspection find Work incomplete, he will promptly notify Contractor in writing listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second certification of final completion.
- D. When Architect finds work is complete, Architect will consider closeout submittals.
- E. Submit final LEED credit documentation.

1.6 REINSPECTION FEES

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

1.7 CLOSEOUT SUBMITTALS

- A. Evidence of Compliance with Requirements of Governing Authorities
 - 1. Certificate of Occupancy.
 - 2. Certificates of Inspection required for mechanical and electrical systems.
- B. Project Record Documents: Under provisions of Section Closeout Submittals.
- C. Operation and Maintenance Data: Under provisions of Section Closeout Submittals
- D. Warranties and Bonds: Under provisions of Section Closeout Submittals.
- E. Spare Parts and Maintenance Materials: Under provisions of Section Closeout Submittal.
- F. Keys and Keying Schedule: Under provisions of Section Door Hardware.

- G. Evidence of Payment and Release of Liens: In accordance with Conditions of the Contract.
- H. Consent of Surety to Final Payment.
- I. Certificates of Insurance for Products and Completed Operations: In accordance with Supplementary Conditions.

1.8 STATEMENT OF ADJUSTMENT OF ACCOUNTS

- A. Submit final statement reflecting adjustments to Contract Sum indicating
 - 1. Original Contract Sum.
 - 2. Previous change orders.
 - 3. Changes under allowances.
 - 4. Changes under unit prices.
 - 5. Deductions for uncorrected work.
 - 6. Penalties and bonuses.
 - 7. Deductions for liquidated damages.
 - 8. Deductions for reinspection fees.
 - 9. Other adjustments to Contract Sum.
 - 10. Total Contract Sum as adjusted.
 - 11. Previous payments.
 - 12. Sum remaining due.
- B. Architect will issue final Change Order reflecting approved adjustments to Contract Sum not previously made by change orders.

1.9 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of Conditions of the Contract.

PART 2- PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 77 00

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section
- C. Section Includes:
 - 1. Maintenance of Record Documents and Samples.
 - 2. Submittal of Record Documents and Samples.
 - 3. Format and content of operation and maintenance manuals.
 - 4. Instruction of Owner's personnel.
 - 5. Preparation and submittal of warranties and bonds.
 - 6. Spare parts, overages, and maintenance materials.
 - 7. Schedule of submittals.
 - 8. LEED documentation

1.2 QUALITY ASSURANCE

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

1.3 PROJECT RECORD DOCUMENTS

- A. Maintenance of Documents and Samples:
 - 1. In addition to requirements in General Conditions, maintain at the site for Owner one record copy of:
 - a. Contract Drawings.
 - b. Specifications.
 - c. Addenda.
 - d. Change Orders and other modifications to the Contract.
 - e. Reviewed shop drawings, product data, and samples.
 - f. Field test records.
 - g. Inspection certificates.
 - h. Manufacturer's certificates.
 - 2. Store Record Documents and samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

3. Label and file Record Documents and samples in accordance with Section number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
4. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
5. Keep Record Documents and samples available for inspection by Architect.

B. Recording:

1. Record information on set opaque drawings, and in a copy of a Project Manual. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
2. Mark record sets with marker pens; use other colors to distinguish between variations in separate categories of the Work; use the following color code:
 - a. Red for Architectural Work
 - b. Blue for Structural Work
 - c. Green for Plumbing Work
 - d. Orange for HVAC Work
 - e. Brown for Electrical Work
 - f. Black for other written notations
3. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
4. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
 - a. Measured depths of elements of foundation in relation to finish first floor datum.
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 - d. Field changes of dimension and detail.
 - e. Changes made by Modifications.
 - f. Details not on original Contract Drawings.
 - g. References to related shop drawings and Modifications.
5. Specifications: Legibly mark each item to record actual construction, including:
 - a. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
 - b. Changes made by Addenda and Modifications.
 - c. Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
6. Other Documents: Maintain manufacturer's certifications, inspection certifications, field test records, and other documents required by individual Specifications sections.

7. At completion of project, transfer all Project Record Data to one complete set of colored electronic document. Deliver one complete set electronic Record Documents to the Architect for the Owner's records.

1.4 OPERATION AND MAINTENANCE MANUALS

A. Format:

1. Prepare data in the form of an instructional manual electronically.
2. Binders: Commercial quality, 8-1/2 by 11 inch three-ring binders with hardback, cleanable, plastic covers; 3 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
3. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project identify subject matter of contents.
4. Arrange content by systems, under section numbers and sequence of Table of Contents of this Project Manual.
5. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
6. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
7. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

B. Contents, Each Volume

1. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
2. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
3. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
4. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
5. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section "References".
6. Warranties and Bonds: Bind in copy of each.

C. Manual for Materials and Finishes:

1. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
2. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
3. 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.
4. Additional Requirements: As Specified in individual Specifications sections.

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

D. Manual for Equipment and Systems:

1. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Give function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
2. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.
3. Include as-installed color coded wiring diagrams.
4. 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.
5. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
6. Provide servicing and lubrication schedule, and list of lubricants required.
7. Include manufacturer's printed operation and maintenance instructions.
8. Include sequence of operation by controls manufacturer.
9. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
10. Provide as-installed control diagrams by controls manufacturer.
11. Provide Contractor's coordination drawings, with as- installed color coded piping diagrams.
12. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
13. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
14. Include test and balancing reports as specified in individual specification sections.
15. Additional Requirements: As specified in individual Specifications sections.
16. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

E. Instruction of Owner Personnel:

1. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, perform instructions for other seasons within 6 months.

F. Submittals:

1. Submit electronic copy of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return annotated electronic file with comments.
2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within 10 days after acceptance.
3. Electronic copy of completed volumes in final form 15 days prior to final inspection. Copy will be returned after final inspection, with Architect comments, and Engineer's comments where applicable. Revise content of documents as required prior to final submittal.

4. Submit electronic copy of revised volumes of data in final form within 10 days after final inspection.

1.5 WARRANTIES AND BONDS

A. Summary

1. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
2. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
3. General closeout requirements are included in Section "Project Closeout."
4. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Divisions-02 through -32.
5. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

C. Definitions:

1. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
2. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

D. Warranty Requirements:

1. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
2. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
3. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
4. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

5. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.
- F. Submittals:
1. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
 - a. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.
 2. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
 3. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Architect for approval prior to final execution.
 4. Refer to individual Sections of Divisions-02 through -32 for specific content requirements, and particular requirements for submittal of special warranties.
- G. Form
1. Bind in commercial quality 8-1/2 by 11 inch three-ring binders, with hardback, cleanable, plastic covers.
 2. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor; and name of responsible principal.
 3. 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.
 4. 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.
- H. Preparation
1. 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.

2. Verify that documents are in proper form, contain full information, and are notarized.
3. Co-execute submittals when required.
4. Retain warranties and bonds until time specified for submittal.

I. Time of Submittals:

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 10 days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.6 SPARE PARTS, OVERAGES, AND MAINTENANCE MATERIALS

A. Products Required:

1. Provide quantities of products, spare parts, maintenance tools, and maintenance materials specified in individual sections to be provided to Owner, in addition to that required for completion of Work.
2. Products: Identical to those installed in the Work. Include quantities in original purchase from manufacturer to avoid variations in manufacture.

B. Storage, Maintenance:

1. Store products with products to be installed in the Work, under provisions of Section Product Requirements.
2. When adequate, secure storage facilities are available at site, capable of maintaining conditions required for storage and not required for Contract work or storage, or for Owner's needs, spare products may be stored in available space.
3. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.

C. Delivery:

1. Coordinate with Owner: Deliver and unload spare products to Owner at Project site and obtain receipt prior to final payment.
2. For portions of Project accepted and occupied by Owner prior to Substantial Completion, deliver a proportional part of spare products to Owner; obtain receipt.

1.7 LEED DOCUMENTATION SUBMITTALS

- A. Provide all documentation required by Section Sustainable Design Requirements – LEED Certification and to LEED online.

1.8 SUBMITTALS

- A. At Contract closeout, deliver Record Documents including samples, Operation and Maintenance Manuals, and Warranties and Bonds under provisions of Section Closeout Procedures.
- B. Transmit with cover letter in duplicate, listing:
 - 1. Date
 - 2. Project title and number.
 - 3. Contractor's name, address, and telephone number.
 - 4. Number and title of each Record Document.
 - 5. Signature of Contractor or authorized representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 78 00

SECTION 01 81 13 – SUSTAINABLE DESIGN REQUIREMENTS – LEED CERTIFICATION – Version 3

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Section includes general requirements and procedures for compliance with certain USGBC LEED prerequisites and credits needed for Project to obtain LEED certification based on the Wells Fargo Volume Certification Program.
 - 1. Other LEED prerequisites and credits needed to obtain LEED certification depend on material selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests and comparable product requests.
 - 2. Additional LEED prerequisites and credits needed to obtain the indicated LEED certification depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.
 - 3. A copy of the project LEED Scorecard is attached at the end of this Section for information only.

1.2 DEFINITIONS

- A. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.
- B. LEED: Leadership in Energy & Environmental Design.
- C. Rapidly Renewable Materials: Materials made from plants that are typically harvested within a 10-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower or walnut seed hulls, vegetable oils, or wool.
- D. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.
- E. Regionally Manufactured Materials: Materials that are manufactured within a radius of 500 miles from Project site. Manufacturing refers to the final assembly of components into the building product that is installed at Project site.

- F. Regionally Extracted and Manufactured Materials: Regionally manufactured materials made from raw materials that are extracted, harvested, or recovered within a radius of 500 miles from Project site.
- G. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.
1. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
 2. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.
- H. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
 2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.

1.3 SUBMITTALS

- A. General: Submit additional LEED submittals required by other Specification Sections.
- B. LEED submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit as a separate submittal to verify compliance with indicated LEED requirements.
- C. Project Materials Cost Data: Provide statement indicating total cost for building materials used for Project, excluding mechanical, electrical, and plumbing components, and specialty items such as equipment. Include statement indicating total cost for wood-based materials used for Project.
- D. LEED Compliance Action Plans: Provide preliminary submittals within 30 days of date established for the Notice to Proceed indicating how the following requirements will be met:
1. Construction Waste Management: Waste management plan complying with Section Construction Waste Management.
 2. Rapidly Renewable Material: List of proposed rapidly renewable materials. Indicate cost and rapidly renewable content for each product have rapidly renewable content.
 3. Content: List of proposed materials with recycled content. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.

4. Regional Materials: List of proposed regional materials. Identify each regional material, including its source, cost, and the fraction by weight that is considered regional.
 5. Regional Materials Extraction: List of proposed regionally manufactured materials and regionally extracted and manufactured materials.
 - a. Identify each regionally manufactured material, including its source and cost.
 - b. Identify each regionally extracted and manufactured material, including its source and cost.
 6. Certified Wood: List of proposed FSC certified wood products. Indicate each product containing certified wood, including its source and cost of certified wood products.
 7. Indoor Air Quality Management: Construction indoor-air-quality management plan.
- E. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
1. Waste reduction progress reports complying with Division 01 Section "Construction Waste Management."
 2. Rapidly renewable materials.
 3. Recycled content.
 4. Regional materials.
 5. Regionally manufactured materials and regionally extracted and manufactured materials.
 6. Certified wood products.
- F. ESC Plan: Submit a developed ESC Plan that conforms to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, the most stringent applies.
- G. LEED Documentation Submittals:
1. Comply with Section Construction Waste Management.
 2. Product data for rapidly renewable materials indicating percentages by weight of rapidly renewable material. Include statement indicating costs for each product having rapidly renewable content.
 3. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.
 4. Product data for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
 5. Product data indicating location of material manufacturer for regionally manufactured materials. Include statement indicating cost for each regionally manufactured material and for each regionally extracted and manufactured material.
 - a. Include statement indicating distance from manufacturer to Project for each regionally manufactured material.
 - b. Include statement indicating location of and distance from Project to point

of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials.

6. Product data and chain-of-custody certificates for products containing FSC certified wood. Include statement indicating cost for each certified wood product.
7. Indoor Air Quality Management – During Construction:
 - a. Construction indoor-air-quality management plan.
 - b. Product data for temporary MERV 13 filtration media. Provide date stamped photos at required intervals. Log filtration change dates.
 - c. Product data for MERV 8 filtration media used during occupancy. Provide date stamped photos at required intervals. Log filtration change dates.
 - d. Air Ducting IAQ Measures: Supplies, returns, transfers, exhausts, and relief air ducting must be sealed during construction. Comply with SMACNA standards for Indoor Air Quality Management During Construction. Provide date stamped photos at required intervals.
 - e. HVAC System Used During Construction: Return air openings to have MERV 13 filtration media sealed to the openings on system plenums and duct returns. The AC unit to have MERV 13 rated filtration media. Provide date stamped photos at required intervals.
 - f. Construction Documentation: Six photographs at three different times during the construction period, along with a brief description of the SMACNA approach employed, documenting implementation of the indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials. Photos to be date stamped.
8. Indoor Air Quality Before Occupancy:
 - a. Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
 - b. Product data for filtration media used during flush-out and during occupancy.
 - c. Report from testing and inspecting agency indicating results of indoor-air-quality testing and documentation showing compliance with indoor-air-quality testing procedures and requirements (to be provided in lieu of flush out period).
9. Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA Method 24).
10. Product data for paints and coatings used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA Method 24).
11. Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.

1.4 QUALITY ASSURANCE

- A. LEED Coordinator: Engage an experienced LEED-Accredited Professional (AP) to coordinate LEED requirements. A LEED-Green Associate (GA) will also suffice. LEED coordinator may also serve as waste management coordinator.

- B. Contractor to have a LEED-Accredited Professional (AP) on the team or request special consideration to have a designated person study and take the LEED Building Design & Construction (BD+C) exam within 3 months of the project start date.

PART 2 - PRODUCTS

2.1 RECYCLED CONTENT OF MATERIALS

- A. Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of 20 percent of cost of materials used for Project.
 - 1. Cost of post-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.
 - 2. Cost of post-consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.
 - 3. Do not include mechanical and electrical components in the calculation.

2.2 REGIONAL MATERIALS

- A. Provide 2.5 percent of building materials (by cost) that are regional materials.
- B. Provide 20 percent of building materials (by cost) that are regionally manufactured materials.
- C. Provide 10 percent of building materials (by cost) that are regionally extracted and manufactured materials.
- D. Provide building materials (by cost) that are Cradle to Cradle compliant.
- A. General: Develop ESC Plan that conforms to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, the most stringent applies.
- B. ESC Requirements: Owner's goal is to accomplish the following objectives:
 - 1. Prevent loss of soil during construction by stormwater runoff and/or wind erosion.
 - 2. Prevent sedimentation of storm sewer or receiving streams.
 - 3. Prevent polluting the air with dust and particulate matter.

2.3 RAPIDLY RENEWABLE MATERIAL

- A. Provide 5 percent of the building materials (by cost) that are rapidly renewable.

2.4 CERTIFIED WOOD

- A. Provide a minimum of 50 percent (by cost) of wood-based materials that are produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
1. Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:
 - a. Rough carpentry.
 - b. Miscellaneous carpentry.
 - c. Heavy timber construction.
 - d. Wood decking.
 - e. Metal-plate-connected wood trusses.
 - f. Structural glued-laminated timber.
 - g. Finish carpentry.
 - h. Architectural woodwork.
 - i. Wood paneling.
 - j. Wood veneer wall covering.
 - k. Wood flooring.
 - l. Wood lockers.
 - m. Wood cabinets.
 - n. Wood veneer doors.
 - o. Furniture.

2.5 LOW-EMITTING MATERIALS

- A. For field applications that are inside the weatherproofing system, use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Wood Glues: 30 g/L.
 2. Metal to Metal Adhesives: 30 g/L.
 3. Adhesives for Porous Materials (Except Wood): 50 g/L.
 4. Subfloor Adhesives: 50 g/L.
 5. Plastic Foam Adhesives: 50 g/L.
 6. Carpet Adhesives: 50 g/L.
 7. Carpet Pad Adhesives: 50 g/L.
 8. VCT and Asphalt Tile Adhesives: 50 g/L.
 9. Cove Base Adhesives: 50 g/L.
 10. Gypsum Board and Panel Adhesives: 50 g/L.
 11. Rubber Floor Adhesives: 60 g/L.
 12. Ceramic Tile Adhesives: 65 g/L.
 13. Multipurpose Construction Adhesives: 70 g/L.
 14. Fiberglass Adhesives: 80 g/L.
 15. Contact Adhesive: 80 g/L.
 16. Structural Glazing Adhesives: 100 g/L.
 17. Wood Flooring Adhesive: 100 g/L.
 18. Structural Wood Member Adhesive: 140 g/L.
 19. Special Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported vinyl, Teflon, ultra-high molecular weight polyethylene, rubber or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
 20. Top and Trim Adhesive: 250 g/L.
 21. Plastic Cement Welding Compounds: 350 g/L.

22. ABS Welding Compounds: 400 g/L.
23. CPVC Welding Compounds: 490 g/L.
24. PVC Welding Compounds: 510 g/L.
25. Adhesive Primer for Plastic: 650 g/L.
26. Sheet Applied Rubber Lining Adhesive: 850 g/L.
27. Aerosol Adhesive, General Purpose Mist Spray: 65 percent by weight.
28. Aerosol Adhesive, General Purpose Web Spray: 55 percent by weight.
29. Special Purpose Aerosol Adhesive (All Types): 70 percent by weight.
30. Other Adhesives: 250 g/L.
31. Architectural Sealants: 250 g/L.
32. Nonmembrane Roof Sealants: 300 g/L.
33. Single-Ply Roof Membrane Sealants: 450 g/L.
34. Other Sealants: 420 g/L.
35. Sealant Primers for Nonporous Substrates: 250 g/L.
36. Sealant Primers for Porous Substrates: 775 g/L.
37. Modified Bituminous Sealant Primers: 500 g/L.
38. Other Sealant Primers: 750 g/L.

B. For field applications that are inside the weatherproofing system, use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:

1. Flat Paints, Coatings, and Primers: VOC not more than 50 g/L.
2. Nonflat Paints, Coatings, and Primers: VOC not more than 150 g/L.
3. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
4. Clear Wood Finishes, Varnishes: VOC not more than 350 g/L.
5. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
6. Floor Coatings: VOC not more than 100 g/L.
7. Shellacs, Clear: VOC not more than 730 g/L.
8. Shellacs, Pigmented: VOC not more than 550 g/L.
9. Stains: VOC not more than 250 g/L.
10. Flat Interior Topcoat Paints: VOC not more than 50 g/L.
11. Nonflat Interior Topcoat Paints: VOC not more than 150 g/L.
12. Anticorrosive and Antirust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
13. Clear Wood Finishes, Varnishes and Sanding Sealers: VOC not more than 350 g/L.
14. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
15. Floor Coatings: VOC not more than 100 g/L.
16. Shellacs, Clear: VOC not more than 730 g/L.
17. Shellacs, Pigmented: VOC not more than 550 g/L.
18. Stains: VOC not more than 250 g/L.
19. Primers, Sealers, and Undercoaters: VOC not more than 200 g/L.
20. Dry-Fog Coatings: VOC not more than 400 g/L.
21. Zinc-Rich Industrial Maintenance Primers: VOC not more than 340 g/L.
22. Pretreatment Wash Primers: VOC not more than 420 g/L.
23. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
24. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.

- d. Benzene.
- e. Butyl benzyl phthalate.
- f. Cadmium.
- g. Di (2-ethylhexyl) phthalate.
- h. Di-n-butyl phthalate.
- i. Di-n-octyl phthalate.
- j. 1,2-dichlorobenzene.
- k. Diethyl phthalate.
- l. Dimethyl phthalate.
- m. Ethylbenzene.
- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

- C. Do not use composite wood or agrifiber products or adhesives that contain urea-formaldehyde resin.

2.6 ESC REQUIREMENTS

- A. ESC Requirements: Owner's goal is to accomplish the following objectives:
- B. Prevent loss of soil during construction by stormwater runoff and/or wind erosion including protecting topsoil by stockpiling for reuse.
- C. Prevent sedimentation of storm sewer or receiving streams.
- D. Prevent polluting the air with dust and particulate matter.

PART 3 - EXECUTION

3.1 REFRIGERANT AND CLEAN-AGENT FIRE-EXTINGUISHING-AGENT REMOVAL

- A. Remove CFC-based refrigerants from existing HVAC&R equipment indicated to remain and replace with refrigerants that are not CFC based. Replace or adjust existing equipment to accommodate new refrigerant as described in Division 22 Sections.
- B. Remove clean-agent fire-extinguishing agents that contain HCFCs or halons and replace with agent that does not contain HCFCs or halons. See Division 21 Section "Clean-Agent Extinguishing Systems" for additional requirements.

3.2 CONSTRUCTION WASTE MANAGEMENT

- A. Comply with Section Construction Waste Management.

3.3 INDOOR-AIR-QUALITY MANAGEMENT

- A. Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction."
1. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Section "Temporary Facilities and Controls," install filter media MERV 13 qualified according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.
 2. Replace all air filters immediately prior to occupancy with MERV 8 filtration in place before Testing and Balancing (TAB).
 3. Flush out prior to testing to be performed as directed by Commissioning Agent.
- B. Air-Quality Testing (to be used in lieu of 2 week flush out period):
1. Conduct baseline indoor-air-quality testing, after construction ends and prior to occupancy, using testing protocols consistent with the EPA's "Compendium of Methods for the Determination of Air Pollutants in Indoor Air," and as additionally detailed in the USGBC's "LEED-NC: Reference Guide."
 2. Demonstrate that the contaminant maximum concentrations listed below are not exceeded:
 - a. Formaldehyde: 50 ppb.
 - b. Particulates (PM10): 50 micrograms/cu. m.
 - c. Total Volatile Organic Compounds (TVOC): 500 micrograms/cu. m.
 - d. 4-Phenylcyclohexene (4-PH): 6.5 micrograms/cu. m.
 - e. Carbon Monoxide: 9 ppm and no greater than 2 ppm above outdoor levels.
 - 1) Demonstrate that the contaminant maximum concentrations listed below do not exceed LEED published requirement limit.
 - 2) For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting noncomplying building areas, take samples from same locations as in the first test.
 - 3) Air-sample testing shall be conducted as follows:
 - a) All measurements shall be conducted prior to occupancy but during normal occupied hours, and with building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.
 - b) Building shall have all interior finishes installed including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles. Nonfixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing.
 - c) Number of sampling locations will vary depending on the size of building and number of ventilation systems. For each portion of building served by a separate ventilation system, the number of sampling points shall not be less than one per 25,000 sq. ft. or for each contiguous floor

- area, whichever is larger, and shall include areas with the least ventilation and greatest presumed source strength.
- d) Air samples shall be collected between 3 and 6 feet (from the floor to represent the breathing zone of occupants, and over a minimum four-hour period.

3.4 LEED CREDIT WORKSHEET

- A. See attached for project LEED Scorecard identifying specific credits being attempted.

END OF SECTION 01 81 13

SECTION 01 91 13 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Definitions:

1. Commissioning: Commissioning is the systematic process of assuring by third-party design review, testing, documentation, and training from the design through construction, acceptance, and warranty phases that building facility systems perform independently and interactively in accordance with the design intent and design documentation.
2. Commissioning Authority: The commissioning process will be a collaborative effort between Wells Fargo Commissioning Staff and Wells Fargo Project Manager who will direct the commissioning process and oversee commissioning activities.
3. Owner's Project Requirements: The Owner's Project Requirements (OPR) is the written description of the specific functional performance objectives and quantifiable requirements that fulfill the Owner's key operational expectations for the building being commissioned.
4. Basis of Design: The Basis of Design (BOD) is the documentation of the primary thought processes and assumptions behind design decisions that were made to meet the design intent found in the Owner Project Requirements (OPR). This includes descriptions of the systems, components, conditions, and methods chosen to meet that intent. While some reiteration of the design intent may be included in the Basis of Design documentation, the Basis of Design is distinct from the Owner's Project Requirements. The BOD is created by the Architect and MEP team using the OPR as a reference document. The BOD is reviewed by the Commissioning Authority to insure compliance with the OPR.

B. Enhanced Commissioning process and timeline. Included items occurring during the construction process on the construction schedule:

1. OPR (Owners Project Requirements): Provided to the Design Team by the Owner.
2. BOD (Basis of Design): Created by the Projects Architect and design team, BEFORE the drawings are started. This document is reviewed by the Commissioning agent to insure it meets the OPR.
3. 50 Percent Plan review: The Commissioning Agent reviews the plans at 50 percent completion to insure all commissioned systems meet the buildings performance requirements, OPR and BOD.
4. 100 Percent Plan Review: the Commissioning agent reviews the plans at 100 percent completion, BEFORE the plans are sent in for Construction Permits and Before the Construction drawings are completed to insure all commissioned systems meet the buildings performance requirements, OPR and BOD.
5. Commissioned System Submittal Reviews, The commissioning agent reviews

all commissioned systems submittals to insure they meet the buildings performance requirements, Design Plans, OPR and BOD.

6. Schedule Pre-Functional and Functional Commissioning.
7. Pre-Functional Commissioning: The intent is to prevent incorrect equipment or systems from being installed or installed improperly. Performed by the commission agent before systems are running and or installed to insure all systems and equipment are the correct per the plans, OPR and BOD. This portion also verifies the installation of all systems is per the plans, installed correctly, installed so systems are accessible for maintenance / service, per the OPR and BOD. This may require multiple visits / inspections.

a. Requirements for this visit:

- 1) Full set of Construction Drawings.
- 2) Mechanical Contractor qualified representative
- 3) Electrical Contractor qualified representative
- 4) Controls Contractor: (HVAC and Lighting) qualified representative
- 5) Plumbing Contractor. qualified representative
- 6) Mechanical Engineer (If local)
- 7) Electrical Engineer (If local)
- 8) Architect: (If local)
- 9) Other Commissioned systems subcontractors qualified representative(s).

8. Functional Commissioning: The building is essentially completed and ready for occupancy.

a. Requirements to perform functional Commissioning:

- 1) All Pre-functional documents fully executed.
- 2) All commissioned systems start up documentation.
- 3) Construction Drawings. (Full Set of CD's are onsite)
- 4) All controls are installed programmed and fully operational.
- 5) Controls system is online and communicating with the outside world remotely.
- 6) All Lighting controls are installed programmed and fully operational.
- 7) All HVAC controls are installed programmed and fully operational.
- 8) TAB: Completed certified TAB test and Air Balance is completed and the report is in the hands of the commissioning agent prior to Functional Commissioning.
- 9) The Commissioned Equipment's Start-Up documents are in the hands of the commissioning agent prior to Functional Commissioning.

- a) Lighting Controls.
- b) HVAC controls.
- c) HVAC equipment.
- d) Other commissioned systems.

b. Required Participants in Function Commissioning:

- 1) Mechanical Engineer (If local extensive travel is not required)
- 2) Electrical Engineer (If local and extensive travel is not required)

- 3) Architect: (If local and extensive travel is not required)
 - 4) HVAC equipment installing contractor qualified representative.
 - 5) HVAC installing contractor qualified representative.
 - 6) Electrical System contractor qualified representative.
 - 7) Lighting Controls contractor qualified representative.
 - 8) Controls contractor qualified representative.
 - 9) HVAC Controls contractor qualified representative.
 - 10) Plumbing contractor qualified representative.
9. 10 month Commissioning: The building has been occupied for 10 months. The intent is to insure all deficiencies noted during the commission process are resolved and that all outstanding issues or new issues found are resolved before the buildings warrantee period ends to insure all issues are resolved before the warrantee expires. Performed by the Commissioning Agent.
- a. The commissioning agent can request at their discretion any for the participants that participated in the Functional commission process to participate in the 10 month commissioning to resolve unresolved issues and comfort issues fund during the first year of operation and on the 10 month Comfort Survey.
 - 1) The comfort survey is given to the occupants prior to the 10 month commissioning. The results are reviewed by the commissioning agent so that the issues resolution can be documented.
- C. Commissioning shall be used to verify the following for building systems:
1. Completeness and functional performance according to the Owner's Project Requirements and the Owner's operational needs prior to occupancy.
 2. Documented performance provided by the installed systems, deficiencies found, and corrective actions taken. Includes written documentation of the corrective action from the company(s) resolving the issue.
 3. Installation of correct equipment per construction plans.
 4. Proper installation per plans.
 5. Verify Equipment installation for service and repair access.
 6. Pertinent, useful, and organized operation and maintenance (O&M) data.
- D. The designers and installing contractors retain their full contract document responsibilities in providing a finished and fully functional facility. Commissioning does not take away from or reduce these responsibilities.
- E. Commissioning requires active project team involvement and participation to deliver effective and successful results for all concerned.

1.2 SYSTEM DESCRIPTION

- A. Commissioning consists of the Commissioning Authority systematically and rigorously performing the activities that follow.
1. Inputting design development recommendations for systems operability, accessibility, testability, and maintainability.
 2. Documenting that systems to be commissioned have been installed, started up, adjusted properly, and readied prior to starting functional performance testing.

3. Verifying proper installation and access for system service and repair.
 4. Reviewing project operation and maintenance data, and test and balance report submittals for content completeness.
 5. Conducting functional performance test procedures to verify and document proper operation of critical building systems through normal and other alternate modes necessary to meet design intent.
 6. Identifying and documenting performance deficiencies after initial functional performance testing.
 7. Performing a facility review ten months into the 12-month warranty period to examine the actual in-service operations and maintenance history, application and warranty issues, and “lessons learned.”
 8. Delivering a final written report documenting the commissioning results achieved.
- B. Performance verification proceeds in general from the simple to the complex. It starts at the component level, moves to the equipment, and then focuses on the system that includes the equipment. Verification next looks at possible intersystem dependencies and concludes with an overall integrated systems test when appropriate to meet the design intent.
- C. Systems to be commissioned are:
1. Building heating, ventilating, air conditioning, and refrigeration (HVAC&R) systems and associated controls
 2. Domestic water systems and water heating systems.
 3. Lighting and daylighting controls
 4. Renewable energy systems
 5. Commissioning Authority might also review the building envelope and its components at his or her discretion.
 6. Commissioning authority at his or her discretion will note any construction issues identified during the commissioning process to help insure all deficiencies are resolved under warranty.

1.3 COMMISSIONING TEAM

- A. Commissioning Team:
1. Wells Fargo Project Manager
 2. Design Architects / Engineers
 3. Installation Contractors
 - a. Mechanical Contractor
 - b. Electrical Contractor
 - c. Controls Contractor (Lighting & HVAC)
 4. Test and Balance Contractor
 5. IAQ testing contractor.

- B. Wells Fargo Project Manager Commissioning Coordination Supervisor: The Wells Fargo Project Manager shall assign a person with the coordination of disciplines of construction. The coordinator's responsibilities include:
1. Facilitating Coordination meetings,
 2. Commissioning Planning in collaboration with Contractors, Subcontractors and Vendors,
 3. Scheduling of Commissioning Activities
 4. Schedule IAQ testing per the Wells Fargo Volume Certification Program.
 - a. LEED CI projects meeting LEED 2009 version 3.0 IAQ air testing requirements using prequalified Wells Fargo IAQ testing vendors in coordination with the Wells Fargo CMM Group Maintenance Manager/Environmental Coordinator. For the regions the building is located.
 5. Documentation of Commissioning Activities and Assembly of Reports provided by Contractors, Subcontractors and Vendors,
 6. Communication with Owner's Commissioning Authority,
 7. Management and Reporting of Corrective actions, and
 8. Specified training.
- C. Installation Contractor Representative: Each of the Contractors shall assign a person responsible for communications with the Wells Fargo Project Manager's Commissioning Coordination Supervisor. Responsibilities include:
1. Active Participation in Commissioning Coordination meetings,
 2. Planning for Commissioning Activities within their scope of responsibility,
 3. Scheduling of Commissioning Activities within their scope of responsibility and coordination with the Wells Fargo Project Manager's Schedule,
 4. Fully completing and signing all forms required for the commissioning process provided and or required by the Commissioning Agent and Wells Fargo LEED team.
 5. Communication with Wells Fargo Project Manager's Commissioning Coordination Supervisor,
 6. Execution of Equipment and systems Pre-functional checklists provided by the Commissioning Authority to be fully completed and executed by qualified personnel, signed and dated by the qualified persons completing the documentation. Qualified personnel are persons that installed the equipment with extensive working knowledge and experience in the specific trade the systems fall within and expertise in the systems being reviewed.
 7. Delivery of specified training sessions,
 8. Review of final Functional Performance Tests prior to execution of the tests,
 9. Attendance and participation during Functional Performance tests, including operation of the systems within their contract responsibility, and
 10. Implementation of Corrective actions and reporting results of said actions to the Wells Fargo Project Manager's Commissioning Coordination Supervisor with clear written documentation describing how the issue was resolved including photographs of the resolved issue, if a photograph is not possible, such as reprogramming a computerized system, written documentation is required.

1.4 SUBMITTALS

- A. Each Contractor and the Wells Fargo Project Manager shall submit the name of person(s) assigned as representatives to Commissioning Team within (2) weeks of contract award to the Wells Fargo Project Manager. The following information shall be submitted for each assigned Commissioning Representative:
1. Company Name
 2. Name
 3. Title
 4. Years of Experience
 5. Phone Number
 6. Pager Number
 7. Fax Number
 8. E-Mail Address
- B. Contractors shall submit a comprehensive list of required project submittals for all commissioned systems (HVAC, lighting, controls (HVAC and lighting), and plumbing (May include other commissioned systems including but not limited to solar, water systems, or waste water systems that are decided by the LEED team that they are required to be commissioned) include other commissioned systems including but not limited to solar, water systems, or to the Commissioning Coordination Supervisor for review. Commissioning Coordination Supervisor shall identify submittals for which copies shall be submitted to the Commissioning Coordination Supervisor concurrent with submission to the Design Engineers. Copies of all selected submittals shall also be sent to the Commissioning Coordination Supervisor, through the Wells Fargo Project Manager, after review and disposition by the Designers.
- C. Master Construction Schedule: Contractors shall incorporate all commissioning activities into their construction schedules. This includes required photographs, IAQ events, submittal review, pre-functional commissioning, functional commissioning, certified TAB (Test and Air Balance Testing), IAQ (Indoor Air Quality Testing) for LEED NC projects per LEED 2006 version 2.2, IAQ (Indoor Air Quality Testing) per LEED CI 2009 version 3.0 for CI projects, and ten (10) month commissioning. The Wells Fargo Project Manager shall incorporate all commissioning milestones into the Master Construction Schedule. When incorporating Commissioning Activities into the Construction CPM Schedule, the focus shall be on the operation of the indicated system from the time these activities begin until project completion. That includes understanding of the system boundaries, interactions, interconnections, and scheduling restrictions (e.g., no starting / stopping of AHU for electrical or other work during TAB of the AHU system, etc.).
- D. For each system, sub-system, and equipment listed (Paragraph 3.4.E) below, the following commissioning activities shall be incorporated into the Construction CPM Schedule. These activities should generally occur in the sequence listed below, with Functional Performance Testing being the last activity. Training will occur coincident with other listed activities. Functional Performance Testing will always follow System Readiness Checklist completion:
1. Contractor Testing
 2. Equipment Start-Up
 3. Test, Adjust and Balance (Mechanical and Plumbing Only)
 4. Equipment Training
 5. Systems Training
 6. Prefunctional Performance Testing
 7. Functional Performance Testing

- E. Construction Manager shall submit a copy of Construction Meeting Minutes. The Construction Manager shall submit required submittal to the Commissioning Agent for all commissioned systems. Requests for Information (RFI), Architectural Supplemental Instructions (ASI), and Change Orders (CO) to the Commissioning Agent for all commissioned systems.
1. Meeting Minutes: When distributed to attendees.
 2. RFI's: When answered.
 3. ASI's: When issued.
 4. CO's: When fully executed.
- F. Contractors shall submit operation and maintenance (O&M) manuals for systems being commissioned to the Architect and Commissioning Agent, through the Wells Fargo Project Manager, for review. Submit "preliminary" copies within (8) eight weeks after all submittals for systems to be commissioned have been accepted. Contractor shall incorporate Design Associate' and Commissioning Agent's comments into O&M manuals. Contractor shall submit "final" O&M manuals to the Commissioning Authority, through the Wells Fargo Project Manager, a minimum of (2) two months prior to the first scheduled equipment training session. Refer to Divisions 01, 02, 22, 23, and 26 for specific information to be included in the O&M manuals.
- G. Contractors shall submit a functional performance testing schedule to Commissioning Coordination Supervisor, through the Wells Fargo Project Manager, at least four (4) weeks prior to the start of testing.
- H. Contractors shall submit the completed test and balance report to the Designers and Commissioning Agent, through the Wells Fargo Project Manager for review and approval within one week of completion of work and prior to commencement of HVAC system functional performance tests. System functional performance testing shall not commence until its system balancing is complete.
- I. Contractors shall submit completed Prefunctional Performance Testing Checklists through the Wells Fargo Project Manager, within one week of system check-out completion. System functional performance testing shall not commence until its system is documented ready for testing.
- J. Project Manager to schedule and coordinate with the project team using Wells Fargo approved IAQ testing vendor's project IAQ testing before occupancy. The GMM (Wells Fargo Group Maintenance Manager) is the internal resource for identifying the prequalified IAQ vendor.

1.5 OPERATION AND MAINTENANCE MANUALS

- A. Comply with requirements of Divisions 01, 02, 22, 23, and 26. The requirements of this Section will govern with respect to timing and distribution of submissions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Each contractor is responsible for providing all tools, services, qualified personnel, and instruments required to test and adjust equipment and to verify compliance with design documents. See individual Functional Performance Tests for the requirements of each procedure (Paragraph 3.6.D).

PART 3 - EXECUTION

3.1 COORDINATION

- A. Review the commissioning requirements.
- B. Include commissioning activities in the construction schedule.
- C. Request clarification as needed.
- D. Contractor and/or Commissioning Agent shall document performance of the training session by completing the Operation and Maintenance Training then submitting a notice of completion consisting of the following information:
 - 1. Date of training
 - 2. Sign-in sheet of attendees and their affiliation
 - 3. Sign-off by Owner's Operations and Maintenance Representative

3.2 ELECTRICAL ENERGIZATION

- A. Contractor shall inform Commissioning Coordination Supervisor, through Wells Fargo Project Manager, two (2) weeks in advance of electrical energization of the new facility. Commissioning Authority and/or the Owner reserves the right to witness the performance of any or all energization procedures.

3.3 SYSTEM CHECKOUT

- A. Contractors shall, prior to the scheduled start of Prefunctional Performance Tests, check out systems to confirm readiness for testing.
- B. In addition to verifying that all equipment and associated hardware is installed properly, Contractors shall perform and document sensor calibration or provide documentation verifying manufacturer's performance of calibration one week prior to Functional Performance testing. A sensor is defined as any device that measures a system parameter for control purposes or for monitoring the system performance. The Commissioning Coordination Supervisor may observe sensor calibration procedures.
- C. Contractor shall submit System Readiness Checklists (Paragraph 3.6.C) to the Commissioning Coordination Supervisor, through the Wells Fargo Project Manager, within (1) week of completing the checklist. System Readiness Checklists will be finalized by the Commissioning Coordination Supervisor near the end of construction in order to represent the final design configuration and requirements of each system (i.e., incorporating all changes, clarifications, RFI responses, etc.).

- D. System functional performance testing shall not commence until its system is documented ready for testing through submission of a fully executed System Readiness Checklist.

3.4 FUNCTIONAL PERFORMANCE TESTS

- A. Preliminary Prefunctional Functional Performance Tests (Paragraph 3.6.D) are written based on the Designers' specified performance requirements.
- B. Contractor shall provide input into the master scheduling process with regards to timing and duration of the Functional Performance Tests. The master scheduling process will include the designation of contractor personnel required to perform the Functional Performance Tests and coordination of deferred testing due to season, tenant fit-out schedule, etc.
- C. Contractor shall review and comment on the Final Functional Performance Tests developed by Wells Fargo near the end of construction in order to confirm that the tests represent the final design configuration and requirements of each system (i.e., incorporating all changes, clarifications, RFI responses, etc.). Provide feedback as to the efficiency of the procedures and possible alternate approaches to achieving the same results.
- D. Contractor shall provide personnel and equipment as required to perform the Functional Performance Tests under the direction of the Commissioning Agents.
- E. The following is a list of Functional Performance Tests to be conducted under the direction of the Commissioning Authority.
 - 1. Rooftop Package Air handling units and auxiliary transfer fan
 - 2. Relief air fans/dampers/systems.
 - 3. Restroom and common area exhaust fans
 - 4. Domestic hot water systems.
 - 5. Water fixture performance.
 - 6. Normal and emergency lighting systems
 - 7. Daylighting control systems
 - 8. Renewable energy systems
 - 9. Submetering for energy and water systems.
 - 10. EMS Systems.

3.5 CORRECTIVE ACTIONS

- A. Contractors shall perform corrective actions for resolution and document how the issue(s) are resolved in writing with photographs documenting the resolution of deficiencies found. Written documentation is required.
 - 1. Specified equipment startup, cleaning or testing
 - 2. Test and balance
 - 3. System checkout
 - 4. Functional performance testing

- B. A deficiency is defined as equipment that does not function as expected and more than five (5) minutes is required to correct the problem, not properly installed, and system or equipment is not accessible for service and repair.
- C. A deficiency is defined as any system or device that does not match the Architectural/MEP Plans, drawings for equipment type issues, installation issues, and performance issues.
- C. A deficiency in the building component system is defined as a visual or measured failure of a component of the system to perform according to specified standards or manufacturer's test data, not properly installed, system or equipment is not accessible for service and repair.
- D. A deficiency is defined as any system or device that does not match the plans for manufacturer's name and model number.
- E. During construction or testing, anyone finding deficiencies may document the deficiencies on an attached Commissioning Issues Log (Paragraph 3.6.A) within one working day of discovery. The deficiency then shall be forwarded to the Commissioning Coordination Supervisor.
1. Deficiency Identification Process (by Commissioning Coordination Supervisor):
 - a. Date
 - b. Description of deficiency
 - c. Enter deficiency into Master Commissioning Issues Log
 - d. Give original form to Wells Fargo Project Manager
 - e. Distribute copies to:
 - 1) Owner's Project Manager
 - 2) Designers
 2. Commissioning Issue Direction (by Wells Fargo Project Manager):
 - a. Obtain the original form
 - b. Date of direction
 - c. Description of commissioning issue required
 - d. Name of person issuing the direction
 - e. Give the original form to the Installation Contractor(s) who will perform the corrective action.
 - f. Distribute copies to:
 - 1) Owner's Project Manager
 - 2) Commissioning Agent
 - 3) Designers
 3. Installation Contractor Commissioning Issue Completed (by Installation Contractor):
 - a. Obtain the original form
 - b. Date of correction
 - c. Description of final equipment status or corrective action performed
 - d. Name of person performing the work

- e. Installation Contractor submit the original form to the Wells Fargo Project Manager.
 - f. Wells Fargo Project Manager will approve and submit original form to Commissioning Agent.
 - g. Distribute copies to:
 - 1) Owner's Project Manager
 - 2) Designers
4. Verification of Commissioning Issue Completion (by Wells Fargo Project Manager):
- a. Date of retest
 - b. Status description; resolved or more work required
 - c. Name(s) of person(s) performing verification
 - d. Enter resolution into Master Commissioning Issues Log
 - e. Distribute copies to:
 - 1) Owner's Project Manager
 - 2) Designers
 - 3) Wells Fargo Project Manager

3.6 COMMISSIONING DOCUMENTATION (ATTACHED)

- A. Commissioning Issues Log
- B. Commissioning Document Requirements Table

Wells Fargo –Prototype
COMMISSIONING DOCUMENT REQUIREMENTS TABLE

Submit all items to the Commissioning Authority

DOCUMENTATION	SUBMIT BY:	SUBMIT WHEN:
Installation Contractor & Wells Fargo Project Manager Commissioning Representative	Each Commissioning Team Member	Within 2 weeks of contract award
Comprehensive list of required project submittals	Wells Fargo Project Manager	Within 2 weeks of contract award
Submit identified submittals to Commissioning Authority	Wells Fargo Project Manager	When submitted to Designers
Submit a copy of the Design Associate's reviewed submittals	Wells Fargo Project Manager	Within 1 week of receiving reviewed submittal from the Designers
Operation and maintenance manuals	Responsible Contractor	Within 8 weeks of submittal acceptance. Submit "final" O&M manuals a minimum of 2 months prior to first scheduled training session.
Functional Performance Test Schedule	Wells Fargo Project Manager	Minimum of 4 weeks prior to start of testing
Test and balance report	TAB Contractor	Within 1 week of completion of work and prior to HVAC Functional Performance tests
System Readiness Checklists	Wells Fargo Project Manager	Within 1 week of check-out completion and prior to Functional Performance tests

END OF SECTION 01 91 13

SECTION 05 50 00 - METAL FABRICATIONS

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Miscellaneous steel framing and supports.
 - 2. Miscellaneous steel trim.
 - 3. Loose steel lintels.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Grout.
- B. Shop Drawings: Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Include erection drawings.
- C. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Regional Material: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials.
 - a. Identify each regionally manufactured materials, its source, and cost.
- D. Templates: For anchors and bolts.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
- B. Recycled Content of Steel Products: Provide products with average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- C. Ferrous Metals:
 - 1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - 2. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
 - 3. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
 - 4. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
 - 5. Steel Tubing: ASTM A 500, cold-formed steel tubing.
 - 6. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
 - 7. Slotted Channel Framing: Cold-formed metal channels complying with MFMA-3, 1-5/8 by 1-5/8 inches. Channels made from galvanized steel complying with ASTM A 653/A 653M, structural steel, Grade 33, with G90 coating; 0.079-inch nominal thickness.
 - 8. Cast Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
- D. Nonferrous Metals:
 - 1. Aluminum Extrusions: ASTM B 221, alloy 6063-T6.
 - 2. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, alloy 6061-T6.
 - 3. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.3 FASTENERS

- A. General: Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Cast-in-Place Anchors in Concrete: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47 M malleable irons or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

2.4 MISCELLANEOUS MATERIALS

- A. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Products:
 - a. Carboline Company; Carbozinc 621.
 - b. ICI Devoe Coatings; Catha-Coat 313.
 - c. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
 - d. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
 - e. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- B. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.
- C. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
- D. Concrete Materials and Properties: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

2.5 FABRICATION

- A. General: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.
 - 1. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
 - 2. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
 - 3. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.
 - 4. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
 - 5. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, not less than 24 inches o.c.
- B. Miscellaneous Steel Trim: Fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Exterior Miscellaneous Steel Trim: Galvanize.

2.6 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish metal fabrications after assembly.

B. Steel and Iron Finishes:

1. Hot-dip galvanize items as indicated to comply with ASTM A 123/A 123M or ASTM A 153/A 153M as applicable.
2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below for environmental exposure conditions of installed metal fabrications:
 - a. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - b. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
3. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting," for shop painting.

C. Aluminum Finishes: Dark bronze anodized finish with 0.7 mil thickness, minimum.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.
1. Fit exposed connections accurately together. Weld connections that are not to be left as exposed joints but cannot be shop welded. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication.
 2. Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.
 3. Fasteners are to be concealed.
 4. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- B. Set bearing and leveling plates on cleaned surfaces using wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts and pack solidly with nonshrink, nonmetallic grout.
- C. Touch up surfaces and finishes after erection.
1. Painted Surfaces: Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.
 2. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 50 00

SECTION 06 10 00 - ROUGH CARPENTRY

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Framing with dimension lumber.
 - 2. Framing with engineered wood products.
 - 3. Wood blocking and nailers.
 - 4. Wood furring.
 - 5. Wood sleepers.
 - 6. Utility shelving.
 - 7. Plywood backing panels.

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. LEED Submittals:

1. FSC Certificates: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification requirements. Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.
2. Product Data for Adhesive: For adhesives, documentation including printed statement of VOC content.
3. Product for Composite Wood: For composite wood products, documentation indicating that product VOC and contains no urea formaldehyde.
4. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
5. Product Data for Regional Materials: List of proposed regional materials.
 - a. Identify each regional material along with the location of its manufacture, processing, and raw material source, and cost.

C. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

D. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Manufacturers: Subject to compliance with requirements provide products by the following:
 - 1. Framing: FSC certified Structural and Dimensional Wood Framing; PanelSource. Phone: 877-464-7246. www.panelsource.net.
 - 2. Roofing Substrate: Purko FSC Certified OSB; PanelSource. Phone: 877-464-7246. www.panelsource.net.
 - 3. Structural Decking: FSC Certified Structural Lumber Decking; PanelSource. Phone: 877-464-7246. www.panelsource.net.
- B. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship"
- C. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.
- D. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
 - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- D. Application: Treat items indicated on Drawings.

2.4 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade.
- B. Exterior and Load-Bearing Walls: Construction or No. 2 grade.

2.5 ENGINEERED WOOD PRODUCTS

- A. Engineered Wood Products, General: Products shall contain no urea formaldehyde.
- B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
 - 1. Extreme Fiber Stress in Bending, Edgewise: As indicated on drawings for 12-inch nominal- depth members.
 - 2. Modulus of Elasticity, Edgewise: As indicated on drawings.
- C. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
 - 1. Extreme Fiber Stress in Bending, Edgewise: As indicated on Drawings.
 - 2. Modulus of Elasticity, Edgewise: As indicated on Drawings.

2.6 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Cants.
 - 4. Furring.
 - 5. Grounds.
 - 6. Utility shelving.
- B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber
- C. For utility shelving, provide lumber with 15 percent maximum moisture content
- D. For concealed boards, provide lumber with 15 percent maximum moisture content.
- E. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- G. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.7 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.8 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2.9 METAL FRAMING ANCHORS

- A. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
 - 1. Use for interior locations unless otherwise indicated.
- C. Wall Bracing: T-shaped bracing made for letting into studs in saw kerf, 1-1/8 inches wide by 9/16 inch deep by 0.034 inch thick with hemmed edges.

2.10 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
 - 1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chlorpyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- I. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.
 - 2. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
 - 3. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- J. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- K. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- L. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
- M. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- size furring horizontally and vertically at 24 inches o.c.

3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction unless otherwise indicated.
 - 1. For exterior walls, provide 2-by-6-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 2. For interior partitions and walls, provide 2-by-6-inch nominal- size wood studs spaced o.c. unless otherwise indicated.
 - 3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

3.5 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 00



SECTION 06 20 23 – INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and Drawings are applicable to this Section.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Interior Finish Carpentry Work.
 - a. Loose shelving with standards and brackets.
 - b. On-site constructed millwork and finish hardware.
 - c. Counter tops and lavatories.

1.2 SUBMITTALS

- A. General: Submit following items in accordance with Section Submittal Procedures.
- B. Product Data: Manufacturer's technical literature for factory fabricated items and components.
- C. Shop Drawings
 - 1. Indicate profiles, sections, and views of stock items as well as specially fabricated items for the work, at scale large enough to permit checking for design conformity.
 - 2. Indicate sizes, quantities, markings, materials, wood species, finishes and accessories.
 - 3. Include assembly and installation drawings to show methods of blocking, fastening, bracing, jointing, and connecting to work of other trades.
- D. Samples
 - 1. Three samples of each type and species of plywood and finish lumber specified, complete with applied finish.
 - 2. Each type of hardware and fastening device required in the construction of the work specified herein.
- E. Certificate: Submit certification by testing plant stating chemicals and process used, conformance with referenced standards and governing ordinances, and non-bleeding quality of treatment.

F. LEED Submittals:

1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
2. Product Data Regional Materials: List of proposed regional materials.
 - a. Identify each regional material along with the location of its manufacture, processing and raw material source, and cost.
3. Product Data for Low Emitting Materials Adhesives & Sealants & Composite Wood: For adhesives composite wood and agrifiber products including printed statement of VOC content.
 - a. Include statement indicating costs for each certified wood product.
4. Product Data for Rapidly Renewable: For products having rapidly renewable content, documentation indicating percentages by weight of postconsumer and pre consumer recycled content.

1.3 QUALITY ASSURANCE

- A. Fabrication Standards: Fabricate items in accordance with AWI standards listed below using custom grade unless noted otherwise.
 1. Lumber grades: AWI Section 100.
 2. Standing and running trim: AWI Section 300.
 3. Counter tops: AWI Section 400.
 4. Shelving: AWI Section 600.
 5. Miscellaneous work: AWI Section 700.
 6. Door frames: AWI Section 900.
- B. Regulatory Requirements: Conform to applicable code for fire retardant requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle, and protect products in accordance with Section 01 60 00.
- B. Protect materials from damage, soiling and deterioration.
- C. Do not deliver finish carpentry materials until job site conditions and operations which could damage, soil or deteriorate work are complete.
- D. Store products and materials in ventilated, interior locations under constant minimum temperature of 60 degrees F. and relative humidity not to exceed 55 percent.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Install finish carpentry products only when temperature and humidity conditions have been stabilized and will be maintained.
- B. Maintain temperature and moisture conditions as recommended by woodwork fabricator from date of installation through remainder of construction period.

PART 2- PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MATERIALS

- A. General
 - 1. Comply with quality and grading standards contained herein for each material.
 - 2. Sizes noted on drawings or indicated herein for lumber are nominal unless detailed by specific dimensions of actual size.
 - 3. Plywood and particleboard 3/4 inch thickness unless noted or detailed otherwise.
 - 4. Products surfaced four sides, unless noted otherwise.
- B. Softwood Lumber
 - 1. Quality standard: PS 20.
 - 2. Grading Standard: AWI custom [premium] grade.
 - 3. Maximum moisture content: 6 percent for interior work; 10 percent for exterior work.
 - 4. Species: Idaho white pine or Douglas fir.
 - 5. Grain: Mixed
- C. Hardwood Lumber
 - 1. Quality standard: FS MM-L-736C.
 - 2. Grading standard: AWI custom grade.
 - 3. Maximum moisture content: 6 percent.
 - 4. Species and Grain: Color: Refer to Finish Legend on Drawings.
- D. Softwood Plywood
 - 1. Quality standard: PS 1.
 - 2. Grading standard: AWI custom.
 - 3. Core material: C-D Plugged INT-APA.
 - 4. Face quality: A-B INT-APA.
 - 5. Species: Southern yellow pine or Douglas fir.
 - 6. Ply construction: As indicated or 3 ply, 3/8 inch, minimum.

- E. Hardwood Plywood
 - 1. Quality standard: PS51.
 - 2. Grading standard: AWI custom.
 - 3. Core material: Lumber.
 - 4. Face veneer and grain: Color: Refer to Finish Legend on Drawings.
 - 5. Ply Construction: As indicated or 3 ply, 3/8 inch, minimum
- F. Particleboard:
 - 1. ANSI A208.1, Grade M-2 made with phenol-formaldehyde resins.
- G. Millwork Substrate/Composite Wood:
 - 1. MDF: ANSI A208.2, Grade 130, made with binder containing no urea-formaldehyde resin.
- H. Hardboard
 - 1. Quality standard: PS 58.
 - 2. Grade: Tempered.
 - 3. Face: One face sanded.
 - 4. Thickness: 1/4 inch.
- I. Laminate Materials
 - 1. High pressure laminate surface
 - a. Quality standard: NEMA, LD-3.
 - b. Grade: General Purpose.
 - c. Thickness: 0.050 inch for horizontal grade; 0.028 to 0.032 inch for vertical grade.
 - d. Core: Standard.
 - e. Finish and Color: Refer to Finish and Color Legend on Drawings.
 - 1) Manufacturers: Refer to Finish Legend.
 - 2. Laminate Backing Sheets
 - a. Composition: High pressure laminate of paper and melamine, without decorative finish, 0.020 inch thick minimum.
 - b. Acceptable Manufacturers: Same as for high pressure laminate surfacing.

2.3 ACCESSORIES AND TREATMENT

- A. Contact and Wall Adhesive: Type recommended by millwork manufacturer to suit application, but complying with VOC limits in Section 01 35 44.
- B. Bolts, Nuts, Washers, Lags, Pins, Nails, and Screws: Size and type to suit application.
- C. Nails: Size and type to suit application, plain finish.
- D. Hardware

1. Clothes Rods: Knape and Vogt No. 660 stainless clad steel tubing with No. 734 polished chrome, heavy duty.
 2. Shelf Standards:
 - a. Standard Duty: K&V no. 80 and 180, in bright zinc plated finish.
- E. Wood Filler: Solvent base, tinted to match surface finish color.

2.4 SHOP FABRICATION

- A. Shop fabricate assemblies in accordance with AWI custom standards.
- B. Shop prepare and identify components for book match grain matching during site erection.
- C. Sanding/Filling
 1. Perform work in accordance with AWI.
 2. Sand work smooth and set exposed nails and screws.
 3. Apply wood filler in exposed nail and screw indentations and leave ready to receive applied finishes.
 4. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- D. Prime seal concealed and semi-concealed surfaces. Brush apply only.
- E. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures. Verify locations of cutouts from site dimensions. Seal edge surfaces of cutouts.
- F. Before proceeding with millwork required to be fitted to other construction, obtain measurements and verify dimensions of shop drawings details for accurate fit.
- G. Fabricate woodwork to dimensions, profiles, and details shown.
- H. Route and groove back of flat trim members, kerf backs of other wide flat members except plywood or veneered members.
- I. Assemble in mill in as large of units as practicable to minimize field cutting and fitting.
- J. Miter joints, where required, by joining, splining, and gluing to comply with requirements for specified grade.
- K. Cap exposed plywood with hardwood trim, 3/8 inch by width of sheet, unless noted or shown otherwise to use plastic or aluminum trim.
- L. On countertops, perform the following
 1. Apply laminate finish in full, uninterrupted sheets of maximum practical lengths.
 2. Form corners and butt joints with hairline joints.
 3. Do not locate joints within 2 feet of sink cut-out.
 4. Cap exposed edges with laminate.
- M. Mill wood moldings to stock shapes, patterns, and sizes using WMMPA guidelines for transparent "N" finishes using white birch species material

2.5 FINISH

- A. Shop finish items in accordance with the following. Refer to schedule at end of Section for list of finishes included in project
 - 1. Transparent finish: AWI System Number 2; and as follows:
NOTE: All materials in following Finish Systems are applications of one coat unless indicated otherwise. Products are those as manufactured by Sherwin Williams Co. as a standard.
 - a. AWI Finish System No. 2 - Catalyzed Lacquer
 - 1) Stain - S64 Series Wiping Stains.
 - 2) Vinyl Washcoat - T67F3 Vinyl Sealer 24 percent (Reduced 1:6).
 - 3) Filler - D70T1 Natural Filler.
 - 4) Vinyl Sealer - T67F3 Vinyl Sealer 24 percent.
 - 5) Topcoat - T77 Series Catalyzed Lacquer – low gloss.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces openings and conditions are ready to receive work of this section. Notify Architect of any existing condition which will adversely affect execution. Beginning of execution will constitute acceptance of existing conditions.
- B. Verify that field measurements are as shown on shop drawings.
- C. Verify that mechanical, electrical, and other items affecting work of this section are in place and ready to receive the work.
- D. Beginning of installation indicates acceptance of existing conditions.

3.2 PREPARATION

- A. Prime paint or seal concealed surfaces and items or assemblies which will be in contact with cementitious materials or surfaces.
- B. Make field cuts with extreme care to avoid splintering.

3.3 INSTALLATION

- A. Install using skilled workmen in accordance with manufacturer's printed instructions and recommendations.
- B. Install work in accordance with AWI Custom Quality Standards. Handle materials to avoid dents and other damages.
- C. Set and secure materials and components, rigid, plumb, and square.
- D. Shim as required using concealed shims.

- E. Cut to fit to exact size. Where woodwork abuts other finished work, scribe and cut for accurate fit. Where necessary to fit at site, provide ample allowance for cutting and fitting.
- F. Before making cutouts, drill pilot holes at corners.
- G. Distribute defects allowed in quality grade to best overall advantage when installing job assembled woodwork items.
- H. Install trim and molding in unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in straight run. Allow no joints closer than 12 feet apart.
- I. Stagger joints in adjacent members.
- J. Cope moldings at returns and miter at corners.
- K. Attach woodwork securely in place with uniform joints providing for thermal and building movements; blind nail where possible.
- L. Use finishing nails where exposed.
- M. Set exposed heads for filling, except for exterior wood to receive natural finish.
- N. Secure woodwork to anchors, built-in blocking, or directly attach to substrates.
- O. Preparing for Finish
 - 1. Clean woodwork and fill nail holes. Sand to smooth finish.
 - 2. Where woodwork is to receive transparent finish, use matching wood filler.
- P. Install hardware in accordance with manufacturer's recommendations.
- Q. Install paneling with fasteners at 12 inches on center at perimeter, 16 inches on center in field. Butt edges and ends tightly.
- R. Cover exposed edges of sheet goods used for shelving and other items with 3/8 inch thick hardwood edging unless otherwise shown or noted to use aluminum or plastic edging. Width of edging to match thickness of shelving.
- S. On field applied laminate plastic work
 - 1. Apply plastic laminate finishes where indicated.
 - 2. Adhere with adhesive over entire surface. Make joints and corners hairline.
 - 3. Match patterns. Slightly bevel joints.
 - 4. Cap exposed edges with plastic laminate of same finish and pattern.
 - 5. Apply laminate backing sheet on reverse side of plastic laminate finished surfaces.

3.4 TOLERANCES FOR FIELD ASSEMBLIES/JOINED ITEMS

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

3.5 ADJUSTING

- A. Adjust work under provisions of Section Closeout Procedures.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.6 CLEANING AND PROTECTION

- A. Protect installed millwork from marring defacement or other damage until final completion.
- B. Clean spaces of debris, vacuum and dust all millwork. Leave in condition ready for use.

END OF SECTION 06 20 23

SECTION 06 41 16 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section

1.2 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-faced architectural cabinets.
 - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, fire-retardant-treated materials, and cabinet hardware and accessories.
 - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. LEED Submittals:
 - 1. Product Data for Recycled Content For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
 - 2. Product Data for Rapidly Renewable Material: For products having rapidly renewable content include documentation indicating percentage by weight. Include statement indicating costs for each product having rapidly renewable content.
 - 3. Product Certificates for Regional: For products and materials required to comply with requirements for regionally manufactured materials. Include statement indicating cost for each regionally manufactured material.
 - a. Include statement indicating location of manufacturer and distance to Project for each regionally manufactured material.

4. Certificates for FSC: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification and chain-of-custody requirements. Include statement indicating cost for each certified wood product.
 5. Product Data for Adhesives and Composite Wood: For adhesives and composite wood products, documentation indicating VOC and products contain no urea formaldehyde.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
1. Show details full size.
 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 3. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
- D. Samples for Verification:
1. Plastic laminates, 12 by 12 inches, for each type, color, pattern, and surface finish, with one sample applied to core material.
 2. Corner pieces as follows:
 - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 - b. Miter joints for standing trim.
 3. Exposed cabinet hardware and accessories, one unit for each type and finish.
- E. Qualification Data: For Installer.
- F. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who specializes in custom casework and is eligible to participate in the AWI's Quality Certification Program. Minimum three (3) years documented experience.
- B. Installer Qualifications: Fabricator of products.
- C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
 - 1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom.
- C. Regional Materials: Plastic-laminate cabinets shall be manufactured within 500 miles of Project site.

- D. Certified Wood: Plastic-laminate cabinets shall be made from wood products certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
- E. Type of Construction: Frameless.
- F. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- G. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products as indicated on drawings.
- H. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade HGS.
 - 4. Edges: Grade HGS.
 - 5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.
- I. Materials for Semiexposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade CLS.
 - a. Edges of Plastic-Laminate Shelves: PVC tape, 0.018-inch minimum thickness, matching laminate in color, pattern, and finish.
 - b. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber.
 - 3. Drawer Bottoms: Hardwood plywood.
- J. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- K. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued dovetail joints.
- L. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated by laminate manufacturer's designations on Finish Schedule.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content: 5 to 10 percent.

- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
1. Recycled Content of Medium-Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
 2. Composite Wood: Products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 3. Medium-Density Fiberboard: ANSI A208.2, Grade 130, made with binder containing no urea formaldehyde.
 4. Softwood Plywood: DOC PS 1, medium-density overlay.
 5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
 6. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
1. Use treated materials that comply with requirements of referenced woodworking standard. Do not use materials that are warped, discolored, or otherwise defective.
 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
 3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.
- B. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.
 2. For items indicated to receive a stained or natural finish, use organic resin chemical formulation.
 3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking shop certified by testing and inspecting agency.
 4. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.

2.5 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 08 71 11 "Door Hardware."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening, self-closing.
- C. Back-Mounted Pulls: BHMA A156.9, B02011.
- D. Wire Pulls: Back mounted, solid metal, 4 inches long, 1-3/4 inches deep, and 5/16 inch in diameter.
- E. Catches: Magnetic catches, BHMA A156.9, B03141.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- G. Shelf Rests: BHMA A156.9, B04013; metal.
- H. Drawer Slides: BHMA A156.9.
 - 1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
- I. Door Locks: BHMA A156.11, E07121.
- J. Drawer Locks: BHMA A156.11, E07041.
- K. Door and Drawer Silencers: BHMA A156.16, L03011.
- L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
- M. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.6 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.7 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate cabinets to dimensions, profiles, and details indicated.
- C. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
- E. Install glass to comply with applicable requirements in Section 08 80 00 "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

- E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
 - 1. Use filler matching finish of items being installed.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 06 41 16

SECTION 06 64 00 – FIBERGLASS REINFORCED PLASTIC WALL PANELS

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes fiberglass reinforced plastic wall panels and accessories.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 01 Specification Sections.
 - 1. Product data for each type of product specified. Include data on physical characteristics, durability, and flame resistance characteristics.
 - 2. Shop drawings showing location and extent of FRP panels and accessories. Indicate termination points.
 - 3. Provide specified finish on FRP sample.
 - 4. Product certificates signed by manufacturer certifying materials furnished comply with specified requirements.
 - 5. Certified test reports showing compliance with requirements for fire performance characteristics and physical properties.
- B. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Adhesives: For adhesives used to laminate gypsum board panels to substrates, including printed statement of VOC content.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer, as defined in Division 01 and completed FRP panel installations similar in material, design, and extent to that indicated for Project that has resulted in construction with a record of successful in-service performance.
- B. Fire Performance Characteristics: Provide fiberglass-reinforced plastic wall panels that are identical to those tested in accordance with ASTM E84 for the fire performance characteristics

indicated below. Identify wall panel materials with appropriate markings from the testing and inspection organization.

1. Flame Spread: Class A.
2. Smoke Developed: 200 or less.

- C. Single Source Responsibility: Obtain each color, texture, grade, finish, and type of wall panel material from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.5 PROJECT CONDITIONS

- A. Environmental Conditions: Do not install wall panel material until the space to receive the wall panel material is enclosed and weatherproof. Do not install materials until the ambient temperature within the building is maintained and stabilized at not less than 60 deg F for not less than 10 days prior to beginning of the installation and 10 days following installation.
1. During and after installation, shield walls from exposure to direct sunlight to avoid blistering and distortion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PRODUCT

- A. Product: Subject to compliance with requirements, provide the projects indicated on Finish Schedule.

2.3 FIBERGLASS-REINFORCED PLASTIC WALL PANELS

- A. Sheet Wall Panels: Provide manufacturer's smooth finish, semirigid, fiber-reinforced plastic sheets, thickness as indicated. Material shall be chemical and stain resistant. Plastic sheets shall comply with performance characteristics specified.
- B. Impact Strength: Provide wall panel materials with a minimum impact resistance of 12 ft.lbs/inc. notched when tested in accordance with ASTM D 256.
- C. Water Absorption: Provide wall panel materials with a maximum water absorption of .08 percent in 24 hours at 25 deg C.
- D. Expansion: Provide wall panel materials which have a thermal coefficient of linear expansion of 1.7×10^{-5} in./in./deg F.

- E. Government Approval: USDA accepted.

2.4 ACCESSORIES

- A. General: Wall panel manufacturer shall provide all components to insure a complete installation.
- B. Moldings: Joints shall receive extruded polyvinyl chloride (PVC) moldings. Provide inside corners, outside corners, division bars, transitions to abutting substrates, and capping strips.
 - 1. Color: To match panel.
- C. Fasteners: Provide high-impact thermoplastic drive rivets, color to match wall panel.
- D. Adhesive: As recommended by panel manufacturer for application to various substrates with no VOCs.
- E. Sealant: Provide Manufacturer's no VOCs silicone sealant.
 - 1. Color: To match panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates scheduled to receive fiberglass-reinforced plastic wall panel materials for compliance with manufacturer's requirements and conditions affecting performance.
 - 1. Wall surfaces to receive wall panel materials shall be dry and free from dirt, grease, loose paint, and scale.
 - 2. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Prior to installation, clean substrate to remove dust, debris, and loose particles. Provide skim coat over rough walls to smooth surface.
 - 1. Complete all finishing operations, including painting, before beginning installation of wall panel materials.
 - 2. Test masonry and plaster substrates to receive wall panel with an electronic moisture meter. Moisture content shall be within manufacturer's recommended limits.
 - 3. Prime and seal substrates, if required, in accordance with wall panel materials manufacture's recommendations for the type of substrate.
 - 4. Acclimatize materials by removing from packaging in areas of installation, not less than 48 hours before installation.

3.3 INSTALLATION

- A. General: Install wall panel materials in accordance with manufacturer's recommendations.

1. Cutting: Do all cutting with carbide tipped saw blades or drill bits, or cut with snips.
2. Install panels with manufacturer's recommended gap for panel field and corner joints.
3. Install seams plumb at least 24 inches from corner. On walls taller than length of sheets, end match veneers at horizontal joints.
4. Fasteners holes in the panels must be predrilled 1/8 inch oversize.
5. Using a ¼-inch notched trowel, apply adhesive to panel back for 100 percent coverage.
6. Moldings: Install silicone sealant within moldings. Install moldings at all perimeter edges of panels except above the ceiling plane, in the longest practical lengths. Tightly butt end joints and miter corners of moldings.
7. Installation Type: Full-wall height.

3.4 CLEANING

- A. General: Immediately upon completion of installation, clean plastic and accessories in accordance with the manufacturer's recommendations.
- B. Remove any excess adhesive or sealant from face seams, perimeter edges or adjacent surfaces using solvent or cleaner recommended by panel manufacturer.
- C. Remove and replace damaged sheets or sheets that cannot be cleaned.
- D. Remove surplus materials, rubbish, and debris resulting from installation upon completion of work, and leave areas of installation in neat, clean condition.

END OF SECTION 06 64 00

SECTION 07 21 00 – THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and Drawings are applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Batt and blanket insulation.
 - 2. Rigid insulation. See drawings for type.
 - 3. Installation accessories.

1.2 PERFORMANCE REQUIREMENTS

- A. Materials of this Section shall provide continuity of thermal barrier at building enclosure elements.

1.3 SUBMITTALS

- A. General: Submit following items under provisions of Section Submittal Procedures.
- B. Product Data: Including performance specifications, composition, and applicable standards.
- C. Manufacturer's Instructions: Written installation instructions including attachment recommendations.
- D. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Rapidly Renewable Material: For products having rapidly renewable content, documentation indicating percentages by weight.
 - a. Include statement indicating costs for each product having rapidly renewable content
 - 3. Product Data for Regional Material: List of proposed regional materials.

- a. Identify each regional material along with the location of its manufacture, processing and raw material source, and cost.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle, and protect products under provisions of Section 01 60 00 "Product Requirements".

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install insulation during inclement weather or when surfaces are moist.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate work in accordance with Section 01 31 00 "Project Management and Coordination."
- B. Do not begin work until substrate work is complete and work of other trades which will be concealed by work of this Section has been approved.

PART 2- PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 THERMAL AND ACOUSTICAL BATT INSULATION

A. MINERAL-WOOL BLANKET INSULATION

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fibrex Insulation Inc.
 - b. Owens Corning.
 - c. Roxul Inc.
 - d. Thermafiber.
2. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 70 percent.
3. Unfaced, Mineral-Wool Blanket Insulation: ASTM C 655, Type I (blankets without membrane facing): consisting of fibers, with maximum flame-spread and smoke

developed indexes of 25 and 50 respectively per ASTM E84, passing ASTM E 136 for combustion characteristics.

4. Reinforced-Foil-Faced, Mineral-Wool Blanket Insulation: ASTM C665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less per ASTM E84), Category 1, foil faced.

2.3 ACCESSORIES

A. Fire Retardant, Reinforced-Polyethylene Vapor Retarders.

1. 2 outer layers of polyethylene film laminated to an inner reinforcing layer consisting of either nonwoven grid of nylon cord or polyester scrim and weighing not less than 22 lbs/1000 sq. ft. with maximum permeance rating of 0.1317 perm and with flame-spread and smoke development indexes of not more than 5 and 60 respectively.
2. Products:
 - a. Raven Industries; DURA-SKRIM 2 FR.
 - b. Reef Industries; Griffolyn T-55 FR.
 - c. Bonded Logic; Ultratouch.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that substrates and conditions are ready to receive work of this Section. Notify Architect of any existing conditions which will adversely affect execution. Beginning of execution will constitute acceptance of existing conditions.
- B. Verify that work of other trades which will be covered by insulation is complete and approved.

3.2 INSTALLATION

- A. Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 4. For wood-framed construction, install blankets according to ASTM C 1320 with faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.
 5. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
- B. Vapor Barrier Membrane:

1. Install membrane facing warm in winter side of building spaces. If in doubt about location, confirm with Architect prior to installation.
2. Attach to substrate using manufacturer's approved fasteners.
3. Tape seal butt ends; lap side flanges and ends. Do not tear membrane.

3.3 PROTECTION

- A. Protect insulation from moisture until building is made watertight.

3.4 SCHEDULES

- A. Provide acoustical insulation in thickness and locations as follows
 1. Walls: 3-1/2 inch thickness in designated walls to receive acoustical treatment.

END OF SECTION 07 21 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 – GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and Drawings are applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section
- C. Section Includes:
 - 1. Preparing sealant substrate surfaces.
 - 2. Sealant and backing.

1.2 DEFINITIONS

- A. Use definitions in ASTM C 717.
- B. Non-Bleeding: Not capable of exuding liquid chemical components of sealant.
- C. Non-Staining: Not capable of discoloring joint substrate.
- D. Sealant System: Sealant, sealant backing, and primer intended for use in particular condition.

1.3 SUBMITTALS

- A. Product Data:
 - 1. Submit product data for each product.
 - 2. Include data to indicate performance criteria, limitations, substrate preparation, installation requirements, and curing requirements.
 - 3. Include information for accessories and other required components.
 - 4. Include color charts indicating manufacturer's full color range available of each sealant type for Architect's initial selection. Color to match substrate.
- B. Samples: Submit four 1/4 inch diameter by 2 inch long samples illustrating sealant colors for each product exposed to view.
- C. Submit the following Informational Submittals:
 - 1. Test Reports: Submit written results of testing specified as part of Source and Field Quality Control articles.
 - 2. Certifications specified in Quality Assurance article.
 - 3. Qualification Data: Manufacturer's and installer's qualification data.

4. Manufacturer's instructions. Include requirements for surface preparation, priming, joint size ratios, adhesion testing, and perimeter conditions requiring special attention.

D. Closeout Submittals:

1. Warranty: Submit specified warranty.

E. LEED Submittals:

1. Product Data for Adhesives and Sealants: For adhesives and sealants including printed statement of VOC content and chemical components.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility:

1. Provide products for each sealant system from one manufacturer for entire Project, unless otherwise acceptable to Architect.
2. Provide products from a single manufacturer to ensure material compatibility where different sealant materials come in direct contact with each other.
3. Provide each sealant system as complete unit, including accessory items necessary for proper function.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum 10 years documented experience.

C. Applicator Qualifications: Acceptable to manufacturer, specializing in applying sealants, with documented experience on at least 10 projects of similar nature in past 5 years.

D. Certifications:

1. Manufacturer's certification that products:
 - a. Furnished for the specific project meet or exceed specified requirements.
 - b. Assembled for each joint are compatible with each other and with joint substrates under conditions of service and application.
 - c. Are suitable for the indicated use.
2. Manufacturer's certification that sealants, primers, and cleaners, comply with local regulations controlling the use of volatile organic compounds.
3. Contractor's and installer's certification that products are installed in accordance with Contract Documents, based on inspection and testing specified as part of Field Quality Control.

1.5 FIELD SAMPLES

A. Preconstruction Field Sample:

1. Construct sealant joint mock-up five feet long for elastomeric joint sealants specified in this Section.
2. Position at location directed by Architect.
3. Perform "field hand-pull adhesion test" described under Field Quality Control.

1.6 PRE-INSTALLATION CONFERENCE

- A. Convene pre-installation conference two weeks prior to commencing work of this Section.
- B. Conference Purpose and Agenda:
 - 1. Visit Project site to analyze site conditions, and inspect surfaces and joints to be sealed in order that recommendations may be made should adverse conditions exist.
 - 2. Discuss following items:
 - a. Substrate conditions.
 - b. Preparatory work.
 - c. Weather conditions under which work will be done.
 - d. Anticipated frequency and extent of joint movement.
 - e. Joint design.
 - f. Sealant installation procedures.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 01 60 00 "Product Requirements."
- B. Deliver materials to site in unopened containers and bundles with labels indicating:
 - 1. Manufacturer's name.
 - 2. Product name and designation.
 - 3. Color.
 - 4. Expiration period for use.
 - 5. Working life.
 - 6. Curing time.
 - 7. Mixing instructions for multi-component materials.
- C. Storage and Protection:
 - 1. Store products within manufacturer's required temperature and humidity ranges.
 - 2. Prior to use, condition products within manufacturer's required temperature range, humidity range, and time period.

1.8 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Perform sealing when the following are within manufacturer's limits during and for 24 hours after sealant installation:
 - a. Ambient and surface temperatures.
 - b. Relative humidity.
 - 2. Do not apply sealants to wet or frozen surfaces.
 - 3. Comply with manufacturer's requirements regarding application of sealants in vicinity of curing sealants of a different material.
 - 4. Preformed Foam Sealants:

- a. When ambient temperature is 50 degrees F or lower, store at room temperature for at least 24 hours prior to installation.
- b. Do not store foam seals in direct sunlight.

1.9 SEQUENCING

- A. Coordinate work with Sections referencing this Section.
- B. Coordinate installation of sealants with substrates to which they are applied.

1.10 WARRANTY

- A. Warrant installed products to be free from defects in material, labor, or installation techniques for two years.
- B. Include coverage for installed sealants and accessories which:
 1. Fail to achieve air tight seal.
 2. Fail to achieve watertight seal.
 3. Exhibit loss of adhesion.
 4. Exhibit loss of cohesion.
 5. Do not cure.

1.11 EXTRA STOCK MATERIALS

- A. Furnish extra sealant in quantity equal to 2 percent of total material furnished but not less than 6 cartridges of each color.

PART 2- PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed.
- B. Acrylic Sealant Manufacturers:
 1. Pecora Corporation, Harleysville, PA.
 2. Sonneborn Building Products/ChemRex, Inc., Minneapolis, MN.
 3. Tremco Corporation, Cleveland, OH.

- C. Preformed Foam Seal Manufacturers:
1. Dow Corning Corporation, Midland, MI.
 2. General Electric Silicone Products Division, Waterford, NY.
 3. Pecora Corporation, Harleysville, PA.
 4. Tremco Corporation, Cleveland, OH.
- D. Urethane Sealant Manufacturers:
1. Mameco International, Inc., Cleveland, OH
 2. Pecora Corporation, Harleysville, PA.
 3. Sika Corporation, Lyndhurst, NJ.
 4. Sonneborn Building Products/ChemRex, Inc., Minneapolis, MN.
 5. Tremco Corporation, Cleveland, OH.

2.3 MATERIALS

- A. Acrylic Latex:
1. Description:
 - a. ASTM C 834.
 - b. Non-sag; non-staining; non-bleeding.
 - c. Joint movement range without cohesive/adhesive failure: Plus 7.5 percent to minus 7.5 percent of joint width.
 - d. Color: As selected by Architect from manufacturer's full color range.
 2. Products:
 - a. AC-20, Pecora.
 - b. Sonolac, Sonneborn.
 - c. Acrylic Latex 834, Tremco.
- B. Silicone - General Purpose (Designation S-GP):
1. Description:
 - a. ASTM C 920:
 - 1) Type: S
 - 2) Grade: NS
 - 3) Class: 25
 - 4) Uses: NT, G, A, O
 - b. Low modulus, single component, neutral curing, non-staining, non-bleeding silicone sealant.
 - c. Joint movement range without cohesive/adhesive failure: Plus 50 percent to minus 50 percent of joint width.
 - d. Color: Selected by Architect from manufacturer's full color range.
 2. Products:
 - a. 795, Dow Corning.
 - b. Silpruf, General Electric.

- c. 864, Pecora.
- d. Spectrum 1, Tremco.

C. Urethane - Multi-Component:

1. Description:

- a. ASTM C 920:
 - 1) Type: M
 - 2) Grade: NS
 - 3) Class: 25
 - 4) Uses: NT, M, A, O
- b. Chemical curing, non-staining, and non-bleeding.
- c. Joint movement range without cohesive/adhesive failure: Plus 25 percent to minus 25 percent of joint width.
- d. Color: Selected by Architect from manufacturer's full color range.

2. Acceptable Products:

- a. Dynatrol II, Pecora.
- b. Sonolastic NP-2, Sonneborn.
- c. Dymeric 511, Tremco.

D. Urethane - Traffic-Bearing:

1. Description:

- a. ASTM C 920:
 - 1) Type: M
 - 2) Grade: P or NS
 - 3) Class: 25
 - 4) Uses: T, M, O
- b. Chemical curing, non-staining, non-bleeding.
- c. Joint movement range without cohesive/adhesive failure: Plus 25 percent to minus 25 percent of joint width.
- d. Shore A hardness: 35 minimum, when tested in accordance with ASTM D 2240.
- e. Color: Selected by Architect from manufacturer's full color range.

2. Acceptable Products:

- a. Dynatred, Pecora.
- b. Sikaflex 2c/SL, Sika.
- c. THC 900/901, Tremco.

2.4 ACCESSORIES

A. Joint Cleaner:

1. Chemical cleaners required by sealant manufacturer for substrates encountered, compatible with sealant backing bond breaker materials.
 2. Free of substances capable of staining, corroding, or harming:
 - a. Joint substrates.
 - b. Adjacent nonporous surfaces.
 - c. Sealant.
 - d. Sealant backing.
 3. Formulated to promote optimum adhesion of sealants to joint substrates.
- B. Primer:
1. Dyed coating material required by sealant manufacturer for enhancing sealant adhesion to joint substrates.
 2. Non-staining to joint substrate beyond the substrate surface.
 3. Required for use unless not required by results of:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described under Source Quality Control.
 - b. "Field hand-pull adhesion test" under Field Quality Control.
- C. Sealant Backing Bond Breaker Rod:
1. Non-staining material.
 2. Compatible and non-adhering to sealant when tested in accordance with ASTM C 1087.
 3. Compatible with sealant, joint substrates, primers, and other sealant backing bond breakers.
 4. Sealant manufacturer approved.
 5. Sized and shaped to provide optimum performance and backing to sealant.
 6. Preformed, compressible, resilient, non-staining, non-outgassing, non-waxing, non-extruding, cylinder-shaped plastic foam rods compliant with ASTM D 1056 and D 1565.
 7. Open cell polyurethane: Use not permitted unless required by sealant manufacturer.
 8. Closed cell polyethylene:
 - a. Non-absorbent to liquid water.
 - b. Use in wall and ceiling joints unless otherwise required by sealant manufacturer.
 9. Unless otherwise required by sealant manufacturer, oversize rod to be larger than joint width by following minimum amounts:
 - a. Open cell polyethylene: 50 percent.
 - b. Closed cell polyethylene: 33 percent.
 - c. Reticulated polymeric: 25 percent.
 - d. Closed cell polyethylene for use with abuse-resistant and pick-resistant urethane sealant: 25 percent.
- D. Elastomeric Tubing Joint Filler:
1. Neoprene, butyl, EPDM, or silicone tubing compliant with ASTM D 1056.
 2. Shore A hardness of 70.

3. Compatible with sealant, joint substrates, primers, and other sealant backing bond breakers.
 4. Use in pavement joints, unless otherwise required by sealant manufacturer.
 5. Use sealant backing bond breaker tape to separate sealant from rod.
 6. Unless otherwise required by sealant manufacturer, oversize rod to be larger than joint width by 25 percent the following minimum amounts:
- E. Sealant Backing Bond Breaker Tape:
1. Pressure sensitive polyethylene tape or tetrafluoroethylene self-adhesive tape required by sealant manufacturer to suit application.
 2. Minimum Thickness of 11 mils.
- F. Masking Tape: Non-staining, non-absorbent material compatible with sealants and surfaces adjacent to joints.
- G. Tooling Liquids: Non-staining material approved by manufacturer to reduce adhesion of sealant to joint finishing tools.

2.5 MIXES

- A. Comply with manufacturer's instructions.
- B. Mix thoroughly with mechanical mixer without mixing air into sealants.
- C. Continue mixing until sealant is uniform in color and free from streaks of unmixed materials.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Ensure that concrete and masonry have cured minimum of 28 days.
- B. Verify that sealant backing is compatible with sealant.
- C. Verify that substrate surface:
 1. Is within manufacturer's moisture content range.
 2. Complies with manufacturer's cleanliness and surface preparation requirements.
- D. Joint Width:
 1. Verify joints are greater than minimum widths required by manufacturer.
 2. If joints are narrower than minimum required widths, widen narrow joints to indicated width.
 3. Do not place sealant in joints narrower than manufacturer's required minimum.

3.2 PREPARATION

- A. Prepare, clean, and prime joints in accordance with manufacturer's instructions.

- B. Remove loose materials and matter which might impair adhesion of primer and sealant to substrate.
- C. Remove form release agents, laitance, and chemical retarders, which might impair adhesion of primer and sealant to concrete and masonry surfaces.
- D. Comply with ASTM C 1193.
- E. Protect elements adjoining and surrounding work of this Section from damage and disfiguration.
- F. Priming:
 - 1. Prime joint substrates unless priming is not required by:
 - a. "Manufacturer's sealant-substrate compatibility and adhesion test" described in Source Quality Control article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 - 2. Apply primer to substrate areas where joint sealant is to adhere.
 - 3. Comply with manufacturer's sequencing requirements for joint priming and sealant backing bond breaker rod installation to assure required primer application coverage and rate without placement of primer on backer rod surface to be in contact with sealant and avoid three-sided sealant adhesion.
 - 4. Do not allow spillage and migration of primer onto surfaces not to receive primer.
 - 5. Install sealant to primed substrates after primer has cured.
- G. Masking Tape:
 - 1. Use masking tape to prevent contact of primer and sealant with adjoining surfaces that would be permanently stained or damaged by:
 - a. Contact with primer and sealant.
 - b. Cleaning methods used to remove primer and sealant smears.
 - 2. Place continuously along joint edges.
 - 3. Apply masking tape so it does not shift in position after placement.

3.3 APPLICATION

- A. General:
 - 1. Comply with results and recommendations from:
 - a. "Manufacturer's compatibility and adhesion test" described in Source Quality Control Article.
 - b. "Field hand-pull adhesion test" described in Field Quality Control article.
 - 2. Provide compatible sealant system between dissimilar assemblies and adjacent construction.
 - 3. Seal locations necessary to create and secure continuous enclosure even though Drawings may not indicate all locations; do not seal weep holes.
 - 4. Seal to prevent migration of water, vapor, and air through joints.

5. Comply with manufacturer's required application temperature and relative humidity ranges. Consult manufacturer when sealant cannot be applied within these ranges.

B. Sealant Backing Bond Breaker:

1. Measure joint dimensions and size materials to achieve manufacturer-required width-to-depth ratios.
2. Install to achieve sealant depth and sealant contact depth no greater than distance required by manufacturer for sealant material, joint width, and joint movement range.
3. Install using blunt instrument to avoid puncturing.
4. Do not:
 - a. Twist, puncture, and tear material.
 - b. Leave gaps between ends of material pieces.
 - c. Stretch or compress material along its length.
 - d. Stretch or compress tape material along its width.
5. Install to provide optimum joint profile and in manner to provide not less than ¼ inch sealant depth when tooled.
6. Install tape where insufficient joint depth makes use of rod not possible. Match tape width to joint width to prevent three-side adhesion. Do not wrap tape onto sides of the joint.
7. Replace backing bond breaker materials which have become wet with dry materials prior to sealant application.

C. Sealant:

1. Install sealants at same time as installation of backing bond breaker materials.
2. Do not exceed manufacturer's required:
 - a. Material shelf life.
 - b. Material working life.
 - c. Installation time after mixing.
3. Comply with manufacturer's requirements for applying different sealant materials in direct contact with each other.
4. Use gun nozzle size to suit joint size and sealant material.
5. Install sealant with pressure-operated devices to form uniform continuous bead.
6. Use sufficient pressure to fill voids and joints full.
7. Install to adhere to both sides of joint.
8. Install to not adhere to back of joint; provide sealant backing.
9. Install sealant free of air pockets and embedded matter.
10. Recess sealant 1/8 inch from surface of pavements and horizontal surfaces.

D. Sealant Tooling:

1. Comply with manufacturer's tooling method requirements.
2. Tool sealant within manufacturer's tooling time limits.
3. Tooling liquids:
 - a. Comply with manufacturer's requirements regarding use.
 - b. Do not use when not permitted by manufacturer.
 - c. Do not allow tooling liquids to come in contact with surfaces receiving sealant.

4. Produce smooth exposed surface.
 5. Tool sealant to be free of:
 - a. Air pockets and voids.
 - b. Embedded impurities.
 - c. Surface ridges, sags, and indentations.
 6. Achieve full sealant contact and adhesion with substrate.
 7. Form a concave tooled joint shape indicated in Section A of Figure 5 of ASTM C1193, unless otherwise indicated.
 8. Remove excess sealant from surfaces adjacent to joint.
 9. Allow acrylic latex sealant to achieve firm skin before paint is applied.
- E. Masking Tape:
1. Remove immediately after tooling sealant and before sealant skin forms.
 2. Remove without disturbing sealant.
- F. Preformed foam sealants:
1. Position sealant in joint.
 2. Apply adhesive and top coat for pavement type sealant in accordance with manufacturer's requirements.
 3. Immediately after removing wrapping to expose adhesive side, press adhesive surface onto side of joint.
 4. Do not stretch or compress material.
 5. At ends, turns, and intersections, comply with manufacturer's requirements to produce continuity of seal.

3.4 FIELD QUALITY CONTROL

- A. Field Hand-Pull Adhesion Test:
1. At field sample:
 - a. Before sealant installation is commenced, test materials for indications of staining and poor adhesion to substrate.
 - b. Perform after sealants have fully cured.
 - c. Perform under observation of [Architect and] manufacturer's technical representative.
 2. Subsequent to commencement of sealant installation:
 - a. Perform under observation of manufacturer's technical representative.
 - b. Perform minimum of 4 times prior to completion of sealant installation.
 - c. Schedule tests at evenly-spaced intervals during sealant installation at discretion of sealant manufacturer.
 3. Procedure:
 - a. Make knife cut through sealant from side to side of joint.
 - b. At joint's sides, make two cuts approximately 2 inches long meeting cut made across joint width.
 - c. Place a mark on cut portion of sealant 1 inch from cut across joint width.

- d. Use fingers to grasp 2 inch piece of sealant firmly between mark and cut across joint width.
 - e. Pull cut portion outward at an angle of 90 degrees from sealant face.
 - f. Use a ruler to measure distance that sealant is pulled.
 - g. Pull uncut sealant out of joint to distance recommended by manufacturer for testing adhesive capability, but not less than a distance equal to maximum movement capability in extension.
 - h. Hold extended sealant for a minimum of 10 seconds.
 - i. If adhesion is proper, sealant should tear cohesively in itself or be difficult to adhesively remove from joint substrate.
4. Summarize test results in test report. Indicate:
- a. Sealants tested.
 - b. Joint substrates.
 - c. Cohesive failures.
 - d. Adhesive failures.
 - e. Pull distance used.
 - f. Actions to correct failures and non-complying conditions.
5. In absence of noncomplying conditions, sealants which do not indicate adhesive failure from testing will be considered satisfactory.
6. Replace sealant removed from test locations by applying sealant in accordance with manufacturer's requirements for applying sealant to previously sealed joints.

3.5 CLEANING

- A. Clean excess sealants and sealant smears from adjacent surfaces as application progresses; comply with sealant manufacturer's requirements and manufacturer of surface in which joints occur.
- B. Repair or replace defaced or disfigured finishes caused by work of this Section and replace where installation techniques result in unsatisfactory joining of materials and unsightly conditions.

3.6 PROTECTION

- A. Protect sealants from contamination until cured.
- B. Protect sealant joints in horizontal surfaces from foot and vehicular traffic until cured.

3.7 SCHEDULE

- A. Items Not to be Sealed:
 1. Joints, perimeter, and penetrations in sound-rated assemblies. Use acoustical sealant specified with sound-rated assembly in Section 09 29 00 "Gypsum Board Assemblies."
 2. Weep holes in masonry, windows.
- B. Sealant Schedule:
 1. Exterior locations:

- a. Wall joints:
 - 1) Bordered on both sides by porous building material (concrete, stone, masonry, exterior insulation and finish systems):
Designation U-MC.
 - 2) Bordered on both sides by non-porous building material (coated and uncoated metals, anodized aluminum, and glass):
Designation S-GP.
 - 3) Bordered on one side by porous building material (concrete, stone, masonry) and other side by non-porous building material (coated and uncoated metals, anodized aluminum, and glass):
Designation U-MC.
 - b. Perimeter of penetrations through walls: Designation U-MC.
 - c. Expansion joints in ceilings, soffits, and overhead surfaces: Designation U-MC.
 - d. Control joints and perimeter of penetrations in ceilings, soffits, and overhead surfaces: Designation U-MC.
 - e. Wall and ceiling joints between frames and their rough opening: Designation U-MC.
 - f. Wall and ceiling joints between frames and adjoining surfaces: Designation U-MC.
 - g. Joints and perimeter of penetrations in horizontal pedestrian and vehicle traffic surfaces: Designation U-TB.
2. Interior Joints:
- a. Wall and ceiling joints subject to movement: Designation U-MC.
 - b. Wall and ceiling joints not subject to movement: Designation AL.
 - c. Interior side of exterior openings: U-MC.
 - d. Floor joints: Designation U-TB.
 - e. Wall and ceiling joints between frames and their rough opening: Designation AL.
 - f. Wall and ceiling joints between frames and adjoining surfaces: Designation AL.
 - g. Joints indicated to require abuse-resistance and pick-resistance: Designation U-AR.

END OF SECTION 07 92 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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section includes hollow-metal doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation 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.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, and finishes.
- B. LEED Submittals:
 - 1. Product Data Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
 - 2. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured material, its source, and cost.
- C. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 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 each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

- D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.6 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.
- B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Ceco Door Products; an Assa Abloy Group company.

2. Fenestra Corporation.
3. Republic Doors and Frames.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.3 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Heavy-Duty Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level B according to SDI A250.4.
2. Frames:
 - a. Materials: Uncoated steel sheet, minimum thickness of 1-3/4 inch.
 - b. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
 - c. Construction: Full profile welded.
3. Exposed Finish: Prime.

2.4 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level B according to SDI A250.4.
2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch, with minimum A40 coating.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
 - f. Core: Kraft-paper honeycomb.
 - 1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
3. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.

- b. Construction: Full profile welded.
4. Exposed Finish: Prime.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
- 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 2. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 - 3. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
- 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 MATERIALS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
- 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

- I. Glazing: Comply with requirements in Section 08 80 00 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.7 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 metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
 - 1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
 - 2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.
 - 3. Top Edge Closures: Close top edges of doors with inverted closures of same material as face sheets.
 - 4. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- C. Hollow-Metal Frames: 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.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 - 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. 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) Four anchors per jamb from 60 to 90 inches high.
 - 2) Five anchors per jamb from 90 to 96 inches high.
 - 3) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - b. Compression Type: Not less than two anchors in each frame.
 - c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 - 5. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
 - 6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

- a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - 7. Terminated Stops: Terminate stops 6 inches above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.
 - D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
 - E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- 2.8 STEEL FINISHES
- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

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. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. 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. Drill and tap doors and frames to receive nontemplated, 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 SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - b. Install frames with removable stops located on secure side of opening.
 - c. Install door silencers in frames before grouting.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - f. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 - 6. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
 - 7. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.

- c. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

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 Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 08 11 13

SECTION 08 14 16 - FLUSH WOOD DOORS

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors and transom panels with wood-veneer faces.
 - 2. Factory Finish flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. LEED Submittals:
 - 1. Product Certificates for Regional Materials: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
 - 2. Product Data for Recycled Content: For products have recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating cost for each product having recycled content.
 - 3. Product Data for Rapidly Renewable Content: For products having recycled content, documentation indicating percentages by weight of rapidly renewable materials.
 - a. Include statement indicating costs for each product having rapidly renewable content.

4. Certificates for FSC: Chain-of-custody certificates indicating that flush wood doors comply with forest certification requirements. Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating and cost for each certified wood product.
 5. Product Data for Adhesives and Composite Wood: For adhesives and composite wood products, documentation indicating VOC content and that product contains no urea formaldehyde.
 6. Cradle to Cradle: Product data for Cradle to Cradle Certification.
 - a. Include product Cradle to Cradle certification certificates or number for products.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
1. Dimensions and locations of blocking.
 2. Dimensions and locations of mortises and holes for hardware.
 3. Dimensions and locations of cutouts.
 4. Undercuts.
 5. Requirements for veneer matching.
 6. Doors to be factory finished and finish requirements.
- D. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
 2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 - a. Provide Samples for each species of veneer and solid lumber required.
 - b. Finish veneer-faced door Samples with same materials proposed for factory-finished doors.
 3. Frames for light openings, 6 inches long, for each material, type, and finish required.
- E. Sample Warranty: For special warranty.
- 1.5 QUALITY ASSURANCE
- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- 1.7 FIELD CONDITIONS
- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and

maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

1.8 WARRANTY

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

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. VT Industries, Inc.

2.3 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- B. Regional Materials: Flush wood doors shall be manufactured within 500 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.
- C. Certified Wood: Flush wood doors shall be certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
- D. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that comply with the testing and product requirements of the California Department of Health

Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- E. WDMA I.S.1-A Performance Grade: Heavy Duty.
- F. Manufacturer's rapidly renewable and recycled content core.
 - 1. Recycled and Renewable Content: 94 percent.
 - 2. Provide core with no added urea-formaldehyde.

2.4 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 - 1. Grade: Custom (Grade A faces).
 - 2. Species: Select, white maple.
 - 3. Cut: Plain sliced (flat sliced).
 - 4. Match between Veneer Leaves: Slip match.
 - 5. Assembly of Veneer Leaves on Door Faces: Balance match.
 - 6. Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by 10 feet or more.
 - 7. Exposed Vertical and Top Edges: Same species as faces or a compatible species - edge Type A.
 - 8. Core: Recycled and renewable core.
 - 9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.
 - 10. WDMA I.S.1-A Performance Grade: Heavy Duty.

2.5 LIGHT FRAMES AND LOUVERS

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.
 - 1. Wood Species: Same species as door faces.
 - 2. Profile: Flush rectangular beads.
- B. Wood Louvers: Door manufacturer's standard solid-wood louvers unless otherwise indicated.

2.6 FABRICATION

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

- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
 - 1. Fabricate door and transom panels with full-width, solid-lumber[, **rabbeted**,] meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.
- D. Openings: Factory cut and trim openings through doors.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section Glazing.

2.7 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: WDMA TR-4 conversion varnish.
 - 3. Staining: To match MW1 Wilsonart Legacy Cherry 10773-07.
 - 4. Effect: Open-grain finish.
 - 5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

- B. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior and interior storefront framing.
 - 2. Storefront framing for window walls.
 - 3. Interior manual-swing entrance doors and door-frame units.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. LEED Submittals:
 - 1. Product Data for Sealants: For glazing sealants used inside the weatherproofing system, documentation including printed statement of VOC content.
 - 2. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content
 - 3. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured material, its source, and cost.
- C. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.

2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.
 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- D. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- E. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Preconstruction Laboratory Mockup Testing Submittals:
1. Testing Program: Developed specifically for Project.
 2. Test Reports: Prepared by a qualified preconstruction testing agency for each mockup test.
 3. Record Drawings: As-built drawings of preconstruction laboratory mockups showing changes made during preconstruction laboratory mockup testing.
- G. Sample Warranties: For special warranties.
- H. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.
- 1.5 QUALITY ASSURANCE
- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.
- 1.6 WARRANTY
- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.

- d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- C. Structural Loads:
- 1. Wind Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
- 1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding 1/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
- E. Structural: Test according to ASTM E 330 as follows:
- 1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 - 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
 - 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
- 1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
 - 2. Entrance Doors:
 - a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
 - b. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
- 1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.
- H. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
- 1. Temperature Change: 120 deg F ambient; 180 deg F, material surfaces.
 - 2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.

- a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
- b. Low Exterior Ambient-Air Temperature: 0 deg F.
- c. Interior Ambient-Air Temperature: 75 deg F.

2.3 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Arcadia, Inc.
 2. Kawneer North America.
 3. Old Castle Building Envelope.

2.4 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 1. Construction: Thermally broken.
 2. Glazing System: Retained mechanically with gaskets on four sides.
 3. Glazing Plane: Front.
 4. Finish: Color anodic finish.
 5. Fabrication Method: Field-fabricated stick system.
- B. Recycled Content: 55 percent recycled billet.
- C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- E. Materials:
 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209.
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - c. Extruded Structural Pipe and Tubes: ASTM B 429.
 - d. Structural Profiles: ASTM B 308/B 308M.
 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
 - a. Structural Shapes, Plates, and Bars: ASTM A 36.
 - b. Cold-Rolled Sheet and Strip: ASTM A 1008.
 - c. Hot-Rolled Sheet and Strip: ASTM A 1011

2.5 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.6 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from exterior.
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Storefront Framing: Fabricate components for assembly using shear-block system.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At exterior doors, provide compression weather stripping at fixed stops.
 - 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
2. At exterior doors, provide weather sweeps applied to door bottoms.

G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.7 ALUMINUM FINISHES

A. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

1. Color: Clear anodized.

2.8 SOURCE QUALITY CONTROL

A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

- A. General:
 1. Comply with manufacturer's written instructions.
 2. Do not install damaged components.
 3. Fit joints to produce hairline joints free of burrs and distortion.
 4. Rigidly secure nonmovement joints.
 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 6. Seal perimeter and other joints watertight unless otherwise indicated.

- B. Metal Protection:
 - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
 - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Set continuous sill members and flashing in full sealant bed as specified in Section 07 92 00 "Joint Sealants" to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Section Glazing.
- G. Install weatherseal sealant according to Section Joint Sealants and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.
- H. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
 - 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
 - 1. Plumb: 1/8 inch in 10 feet ; 1/4 inch in 40 feet,
 - 2. Level: 1/8 inch in 20 feet/4 inch in 40 feet.
 - 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 - 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- B. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.
 - 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform a minimum of two tests in areas as directed by Architect.
 - b. Perform tests in each test area as directed by Architect. Perform at least three tests, prior to 10, 35, and 70 percent completion.
- C. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 08 41 13



SECTION 08 71 11 - DOOR HARDWARE

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Commercial door hardware.

1.3 SUBMITTALS

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, 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.
 - a. Organize door hardware sets in same order as in the Door Hardware Schedule as indicated on the drawings.
 - 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 each 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.
 - 4. Submittal Sequence: Submittals are to be used for installation purposes only. Material provided by Wells Fargo's National Account Provider.

- C. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
- D. Qualification Data: If requested by Architect, for firms and persons specified in "Quality Assurance" Article.
 - 1. Include lists of completed projects with project names and addresses of architects and owners, and other information specified.
- E. Product Test Reports: If requested by Architect, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current products comply with requirements.
- F. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 01.
- G. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed 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.
- B. Supplier Qualifications: Wells Fargo National Account Provider.
 - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- C. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- D. Standards: Comply with BHMA A 156 series standards, Grade 1, unless otherwise indicated by manufacturer designations.
- E. Regulatory Requirements: Comply with provisions of the following:
 - 1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," and/or ANSI A117.1, as follows:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
 - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.

2. NFPA 101: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - b. Door Closers: Not more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.
 - c. Thresholds: Not more than 1/2 inch high.
- F. Fire-Rated Door Assemblies: Provide door hardware for 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 NFPA 252.
 1. Test Pressure: Test at atmospheric pressure.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 DOOR HARDWARE

- A. Scheduled Door Hardware: Provide door hardware according to door hardware sets indicated the on the drawings. Manufacturers' names are abbreviated.

2.3 FABRICATION

- A. Base Metals: Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials if different from specified standard.
- B. Fasteners: Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated. Provide steel machine or wood screws or steel through bolts for fire-rated applications.
- C. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."
- D. Finishes: Comply with BHMA A156.18 with base material and finish requirements indicated on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine doors and frames for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- B. Steel Door and Frame Preparation: Comply with DHI A115 series. Drill and tap doors and frames for surface-applied hardware according to SDI 107.
- C. Wood Door Preparation: Comply with DHI A115-W series.
- D. Mounting Heights: Comply with the following requirements, unless otherwise indicated:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- E. Adjust and reinforce attachment substrates as necessary for proper installation and operation. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Section Joint Sealants.

3.2 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.
 - 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 - 2. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
 - 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
 - 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
 - 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.3 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.4 FIELD QUALITY CONTROL

- A. Inspections: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

END OF SECTION 08 71 11



SECTION 08 80 00 - GLAZING

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Doors.
 - 2. Storefront framing.

1.3 DEFINITIONS

- A. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
- B. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- C. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than

thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:

1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Specified Design Wind Loads: As indicated.
 - b. Specified Design Wind Loads: As indicated, but not less than wind loads applicable to Project as required by ASCE 7 "Minimum Design Loads for Buildings and Other Structures": Section 6.0 "Wind Loads."
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.5 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: 12-inch- square, for each type of glass product indicated, other than monolithic clear float glass.
- C. LEED Submittals:
 1. Product Data for Sealants: For glazing sealants used inside of the weatherproofing system, including printed statement of VOC content.
 2. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured materials, its source, and cost.
- D. Glazing Schedule: Use same designations indicated on Drawings.
- E. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer.

1.6 QUALITY ASSURANCE

- A. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant manufacturers, for testing according to ASTM C 1087, samples of each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member that will contact or affect elastomeric glazing sealants:
- B. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201.
- C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 1. GANA Publications: GANA Laminated Division's "Laminated Glass Design Guide" and GANA's "Glazing Manual."
 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."

- D. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the Insulating Glass Certification Council.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form, made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

- 1. Warranty Period: 10 years from date of Substantial Completion.

- B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

- 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURER

- A. Manufacturer: Subject to compliance with requirements, provide the products by the following:

- 1. PPG Industries.

2.3 GLASS PRODUCTS

- A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.

- B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

- 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
 - 2. Provide Kind HS (heat-strengthened) float glass in place of annealed float glass where needed to resist thermal stresses induced by differential shading of individual glass lites

- and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
3. For uncoated glass, comply with requirements for Condition A.
 4. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is indicated.
- C. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 2190 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.
1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
 2. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
 3. Sealing System: Dual seal.
 4. Spacer Specifications: Manufacturer's standard spacer material and construction.
 - a. Corner Construction: Manufacturer's standard corner construction.

2.4 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
1. Neoprene, ASTM C 864.
 2. EPDM, ASTM C 864.
 3. Silicone, ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:
1. Neoprene.
 2. EPDM.
 3. Silicone.

2.5 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 3. Colors of Exposed Glazing Sealants: Black, unless otherwise indicated.

- B. Elastomeric Glazing Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

2.6 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
 - 1. Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.7 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

2.8 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.9 MONOLITHIC FLOAT-GLASS UNITS

- A. Uncoated Clear Float-Glass Units (G-1): Class 1 (clear) annealed or Kind HS (heat-strengthened) float glass where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with system performance requirements Kind FT (fully tempered) float glass.
1. Thickness: 6.0 mm.
 - a. Coordinate film installation.

PART 3 - EXECUTION

3.1 GLAZING

- A. General: Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
1. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
 2. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
 3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
 4. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
 5. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
 6. Provide spacers for glass lites where length plus width is larger than 50 inches.
 7. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- B. Tape Glazing: Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
1. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
 2. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
 3. Apply heel bead of elastomeric sealant.
 4. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
 5. Apply cap bead of elastomeric sealant over exposed edge of tape.

- C. Gasket Glazing (Dry): Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
1. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
 2. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
 3. Install gaskets so they protrude past face of glazing stops.
- D. Sealant Glazing (Wet): Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
1. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
 2. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.2 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- B. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

END OF SECTION 08 80 00



SECTION 08 83 00 - MIRRORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the following types of silvered flat glass mirrors:
 - 1. Annealed monolithic glass mirrors.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:
 - 1. Product Data for Adhesives: For adhesives, documentation including printed statement of VOC content.
- C. Shop Drawings: Include mirror elevations, edge details, mirror hardware, and attachments to other work.

1.3 QUALITY ASSURANCE

- A. Glazing Publications: Comply with GANA's "Glazing Manual" and "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which mirror manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.
 - 1. Warranty Period: Five years from date of manufacture.

PART 2 - PRODUCTS

2.1 SILVERED FLAT GLASS MIRRORS

- A. Glass Mirrors, General: ASTM C 1503; manufactured using copper-free, low-lead mirror coating process.
- B. Clear Glass: Mirror Glazing Quality.

1. Nominal Thickness: 4.0 mm.

2.2 MISCELLANEOUS MATERIALS

- A. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- B. Edge Sealer: Approved by mirror manufacturer.
- C. Mirror Mastic: An adhesive setting compound, asbestos-free, produced specifically for setting mirrors.
 1. Adhesive shall have a VOC content of not more than 70 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 2. Adhesive shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.
- E. Mirror Clips: Manufacturer's standard.

2.3 FABRICATION

- A. Mirror Edge Treatment: Flat polished. Seal edges of mirrors with edge sealer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance of the Work.
 1. Verify compatibility with and suitability of substrates, including compatibility of mirror mastic with existing finishes or primers.
 2. Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.
- B. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.
- C. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.
- D. Protect mirrors from breakage and contaminating substances resulting from construction operations.
- E. Do not permit edges of mirrors to be exposed to standing water.

- F. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.
- G. Wash exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash mirrors as recommended in writing by mirror manufacturer.

END OF SECTION 08 83 00



SECTION 09 29 00 - GYPSUM BOARD ASSEMBLIES

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum wallboard.
 - 2. Tile backer panels.
 - 3. Fiberglass composite bullet resistant wall panels.
 - 4. Non-load-bearing steel framing.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured material, its source, and the cost.
 - 3. Product Data for Adhesives: For adhesives used to laminate gypsum board panels to substrates, including printed statement of VOC content.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Georgia Pacific.
 2. National Gypsum.
 3. US Gypsum.

2.3 STEEL FRAMING

- A. Steel Framing, General: Comply with ASTM C 754 for conditions indicated.
1. Steel Sheet Components: Metal complying with ASTM C 645 requirements.
 - a. Protective Coating:
 - 1) Interior Applications: ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating.
 - 2) Exterior Applications: ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating.
- B. Suspended Ceiling and Soffit Framing:
1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- diameter wire, or double strand of 0.0475-inch- diameter wire.
 2. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
 3. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch, a minimum 1/2-inch- wide flange, and in depth indicated.
 4. Furring Channels (Furring Members):
 - a. Cold Rolled Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, 3/4 inch deep.
 - b. Steel Studs: ASTM C 645, in depth indicated.
 - 1) Minimum Base Metal Thickness: 0.0312 inch.
 - c. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

- 1) Minimum Base Metal Thickness: 0.0312 inch.

C. Partition and Soffit Framing:

1. Steel Studs and Runners: ASTM C 645, in depth indicated.
 - a. Minimum Base Metal Thickness: 0.0179 inch.
2. Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch- deep flanges.
3. Proprietary Deflection Track: Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs.
 - a. Products:
 - 1) Delta Star, Inc., Superior Metal Trim; Superior Flex Track System (SFT).
 - 2) Metal-Lite, Inc.; Slotted Track.
4. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - a. Minimum Base Metal Thickness: 0.0312 inch.
5. Cold-Rolled Channel Bridging: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, and in depth indicated.
 - a. Clip Angle: 1-1/2 by 1-1/2 inch, 0.068-inch-thick, galvanized steel.
6. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.4 PANEL PRODUCTS

- A. Panel Size, General: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 36.
 1. Minimum Recycled Content: 5 percent.
 - a. Regionally located gypsum board plants often offer different percentages of post and pre-consumer recycled content materials. It is the contractor's responsibility to weigh the recycled content credit against the regional materials credit in order to fulfill the project LEED goals.
 2. Regular Type: In thickness indicated and with long edges tapered and featured (rounded or beveled).
 3. Type X: In thickness indicated and with long edges tapered and featured (rounded or beveled).
 4. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M, with core type and in thickness indicated.

- C. Sag-Resistant Gypsum Wallboard: ASTM C 36, manufactured to have more sag resistance than regular-type gypsum board, 1/2 inch thick, and with long edges tapered. Apply on ceiling surfaces.
- D. Tile Backing Board: Subject to compliance with requirements, provide the following:
 - 1. Georgia Pacific; Dens-Shield Tile Fireguard Type X.
- E. Fiberglass Composite Bullet Resistant Wall Panels: Multiple layers of woven roving ballistic grid fiberglass cloth impregnated with thermoset polyester resin.
 - 1. Basis of Design: Armortex; Bullet Resistant Fiberglass Composite.
 - 2. Thickness: 1 3/16 inch.
 - 3. Weight: 13.7 lbs/sq.ft.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.
 - 3. L-Bead: Use where indicated.
 - 4. U-Bead: Use where indicated.
 - 5. Expansion (Control) Joint: Use where indicated and as approved by Architect.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Tile Backerboard: Per manufacturer's written instructions.
 - 3. Fiberglass Composite Bullet Resistant Wall Panels: Per manufacturer's written instructions.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, flanges of trim accessories, and fasteners, use drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Acoustical Sealant for Exposed and Concealed Joints: VOCs compliant, nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

PART 3 - EXECUTION

3.1 NON-LOAD-BEARING STEEL FRAMING INSTALLATION

- A. General: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Suspended Ceiling and Soffit Framing:
 - 1. Suspend ceiling hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Provide wind struts to resist vertical displacement of exterior soffits and ceilings, and ceilings with 10 feet of exterior door openings.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 - 4. Attach hangers to structural members. Do not support ceilings from or attach hangers to permanent metal forms, steel deck tabs, steel roof decks, ducts, pipes, or conduit.
 - 5. Wire-tie furring channels to supports, as required to comply with requirements for assemblies indicated.
 - 6. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- C. Partition and Soffit Framing:

1. Where studs are installed directly against exterior walls, install isolation strip between studs and wall.
2. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
3. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb, unless otherwise indicated.
 - b. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
4. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

3.2 PANEL PRODUCT INSTALLATION

A. Gypsum Board: Comply with ASTM C 840 and GA-216.

1. Space screws a maximum of 12 inches o.c. for vertical applications.
2. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.
3. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
4. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
5. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
6. Multilayer Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.3 FINISHING

- A. Installing Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Finishing Gypsum Board Panels: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
 1. Prefill open joints, rounded or beveled edges, and damaged surface areas.
 2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
 3. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.

- C. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 2. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view and to received wall covering, unless otherwise indicated.
 3. Level 5: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound over entire surface where indicated.

END OF SECTION 09 29 00



SECTION 09 30 00 - TILING

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Paver tile.
 - 2. Crack-suppression membrane for thin-set tile installations.

1.3 SUBMITTALS

- A. Product data.
- B. Shop drawings showing pattern, joints, and transitions.
- C. LEED Submittal:
 - 1. Product Data Adhesives and Sealants: For adhesives and sealants, including printed statement of VOC content.
 - 2. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating coast for each product having recycled content.
 - 3. Product Data for Regional Material: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured material, its source, and cost.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 TILE PRODUCTS

- A. Products: Subject to compliance with requirements, provide products as indicated on Finish Schedule.

2.3 ACCESSORY MATERIALS

- A. Crack-Suppression Membranes for Thin-Set Tile Installations: Manufacturer's standard product that complies with ANSI A118.10.
 - 1. Two-component, liquid rubber fiber reinforced membrane.
 - a. Product: Laticrete International, Inc.; Blue 92 Anti-Fracture Membrane.

2.4 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 - 1. Prepackaged, dry-mortar mix combined with liquid-latex additive.
 - 2. Color: As indicated on finish schedule.

2.5 GROUT MATERIALS

- A. Water-Cleanable Epoxy Grout: ANSI A118.3, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D.
 - 1. Color: As indicated on finish schedule.
- B. Elastomeric Sealants: Elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 07 Section "Joint Sealants."
- C. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials.
- D. Temporary Protective Coating: Product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damage or staining to grout or tile.
 - 1. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- E. Prefabrications Sealant Joints: Prefabricated aluminum joint with two part chemically cured non-sag polyurethane sealant.
 - 1. Size: 8 foot lengths.
 - 2. Finish: Clear anodized, sealant to match grout.
 - 3. Products:
 - a. Ceramic Tool Company; CTC Joint.
 - b. Schluter Systems, Inc.; Surface expansion joint.

- F. Prefabricated Edge: Prefabricated aluminum edge
 - 1. Size: 8 foot lengths.
 - 2. Finish: Clear anodized.
 - 3. Products:
 - a. Ceramic Tool Company; CTC Edge.
 - b. Schluter Systems, Inc.; Trims.

- G. Prefabricated Transitions: Prefabricated aluminum transition strip with two part, chemically cured non-sag polyurethane sealant joint.
 - 1. Size: 8 foot lengths.
 - 2. Color: Clear anodized, sealant to match grout.
 - 3. Products:
 - a. Schluter Systems, Inc.; Reno U.
 - b. Schiene.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions.
- C. Remove protrusions, bumps, and ridges by sanding or grinding.
- D. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.

3.2 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Grind cut edges of tile abutting trim, finish, or built-in items. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
- F. Expansion Joints: Locate expansion joints and other sealant-filled joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
- G. Grout tile to comply with requirements of ANSI A108.10, unless otherwise indicated.
- H. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
 - 1. Tile floors composed of tiles 8 by 8 inches or larger.
- I. Install tile on floors with the following joint widths:
 - 1. Paver Tile: 3/16 inch.

3.3 TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor
 - 1. Tile Installation F125-Full: Thin-set mortar on crack isolation membrane; TCA F125-Full.
 - a. Tile Type: Paver tile.
 - b. Thin-Set Mortar: Latex-portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
- B. Interior Wall Installations, Metal Studs
 - 1. Tile Installation W245: Organic adhesive on coated glass-mat, water-resistant gypsum backer board; TCA W245.
 - a. Tile Type: Wall tile.
 - b. Thin-set Mortar: Latex-portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.

END OF SECTION 09 30 00

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2. Product for Cradle to Cradle: Cradle to Cradle Certification, product cradle to cradle certification certificates or number for products.
 - 3. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured materials, its source, and cost.
 - 4. Product Data for Sealants: For sealants, including printed statement of VOC content.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics:
 - 1. Fire-Resistance Ratings: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Ratings are indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
 - a. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 2. Surface-Burning Characteristics: Acoustical panels complying with ASTM E 1264 for Class A materials, when tested per ASTM E 84.

- B. Seismic Standard: Comply with the following:
 - 1. ASTM E 580.
 - 2. CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings."
 - 3. Requirements of local authorities having jurisdiction.

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size units equal to 2.0 percent of quantity installed, but not fewer than not fewer than three cases.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 GENERAL

- A. Acoustical Panel Standard: Comply with ASTM E 1264.
- B. Metal Suspension System Standard: Comply with ASTM C 635.
- C. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 1. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.
- D. Seismic struts and seismic clips.
- E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.3 ACOUSTICAL PANELS

- A. Product: Subject to compliance with requirements, provide products as indicated on Finish Schedule.

2.4 METAL SUSPENSION SYSTEM

- A. Products: Subject to compliance with requirements, provide by of the following:
 - 1. Armstrong World Industries; Prelude 15/16 inch.
- B. Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16-inch- wide metal caps on flanges.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. End Condition of Cross Runners: Butt-edge type.
 - 3. Cap Material: Steel or aluminum cold-rolled sheet.
 - 4. Cap Finish: Painted to match color of acoustical unit.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and Cisca's "Ceiling Systems Handbook."
- B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders.
- C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers, use trapezes or equivalent devices.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate with concealed fasteners at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
- E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
- G. Install composite core acoustical panels in strict accordance with manufacturer's written instructions. Hand protection is to be worn during installation so not to soil panels.

3.2 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and

touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 65 13 - RESILIENT WALL BASE

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wall base.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. LEED Submittals:
 - 1. Product Data for Adhesives: For adhesives, including printed statement of VOC content.
 - 2. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 3. Product Data for Regional Material: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured materials, its source, and cost.
 - 4. Product Data for Rapidly Renewable Materials: Documentation including printed statement for each rapidly renewable material.
 - 5. FloorScore: FloorScore Complaint resilient base.

1.4 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 RESILIENT WALL BASE

- A. Wall Base: ASTM F 1861.
 - 1. Products: Subject to compliance with requirements, provide products as indicated on Finish Schedule.
- B. Type (Material Requirement): TS (rubber, vulcanized thermoset) or TP (rubber, thermoplastic).
- C. Group (Manufacturing Method): I (solid, homogeneous) or II (layered).
- D. Profile: Coved.
- E. Minimum Thickness: 0.125 inch.
- F. Height: 4 inch and 6 inch as indicated.
- G. Lengths: Coils in manufacturer's standard length.
- H. Outside Corners: Job formed.
- I. Inside Corners: Job formed.
- J. Color: As indicated on Finish Schedule
- K. Extra Material: Two of total material furnished.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturers for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated. VOC limits of 3 g/L maximum.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates for Accessories: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - 3. Moisture Testing:
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 - 1. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 RESILIENT WALL BASE INSTALLATION

- A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- D. Do not stretch wall base during installation.
- E. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.
2. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

3.3 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
 1. Remove adhesive and other blemishes from exposed surfaces.
 2. Sweep and vacuum surfaces thoroughly.
 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash surfaces until after time period recommended by manufacturer.
- B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 09 65 13

SECTION 09 65 19 - RESILIENT TILE FLOORING

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Vinyl composition floor tile.
 - 2. Luxury vinyl tile.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:
 - 1. Product Data for Credit EQ 4.1: For adhesives and chemical-bonding compounds, including printed statement of VOC content and chemical components.
- C. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 1. Show details of special patterns.
- D. Samples for Verification: Full-size units of each color and pattern of floor tile required.
- E. Product Schedule: For floor tile. Use same designations indicated on Drawings.
- F. Qualification Data: For qualified Installer.
- G. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation indicated.
 - 1. Engage an installer who employs workers for this Project who are trained or certified by manufacturer for installation techniques required.

- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

- 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.6 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 RESILIENT TILE FLOORING

- A. Product: Subject to compliance with requirements, provide named product as indicated on Finish Schedule.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
 - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Vinyl Composition Floor Tile Adhesives: Not more than 50 g/L.
- C. Seamless-Installation Accessories:
 - 1. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.
 - a. Use chemical-bonding compound that has a VOC content of 350 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75% relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are same temperature as space where they are to be installed.
 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 1. Lay tiles in pattern indicated.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 1. Lay tiles in pattern of colors and sizes indicated.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- I. Seamless Installation:
 - 1. Chemically Bonded Seams: Bond seams with chemical-bonding compound to permanently fuse sections into a seamless floor covering. Prepare seams and apply compound to produce tightly fitted seams without gaps, overlays, or excess bonding compound on floor covering surfaces.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.
 - 1. Apply two coat(s).
- E. Cover floor tile until Substantial Completion.

END OF SECTION 09 65 19

**WELLS
FARGO**

SECTION 09 68 13 – TILE CARPETING

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes tile carpeting.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. LEED Submittal:
 - 1. Product Data Green Label Plus: For carpet tile, documentation indicating compliance with testing and product requirements of Carpet and Rug Institute's "Green Label Plus" program. For installation adhesive, including printed statement of VOC content.
 - 2. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 3. Product for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials.
- C. Shop Drawings: Show the following:
 - 1. Carpet type, color, and dye lot.
 - 2. Pattern type, repeat size, location, direction, and starting point.
 - 3. Edge, transition, and other accessory strips.
 - 4. Transition details to other flooring materials.
- D. Product Schedule: For carpet Use same designations indicated on Drawings.
- E. Maintenance data.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project is occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.7 WARRANTY

- A. Special Warranty for Carpet: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet installation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, excess static discharge, and delamination.
 - 1. Warranty Period: Lifetime from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 CARPET

- A. Products: Subject to compliance with requirements, provide products as indicated on Finish Schedule.
- B. Provide five percent of extra carpet material.

2.3 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: VOCs compliant, latex-modified, hydraulic-cement-based formulation provided or recommended by carpet manufacturer.
- B. Adhesives: VOCs compliant, water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpet manufacturer.
- C. Transition Strip: Provide the following transition strip where tile meets another flooring type:
 - 1. Manufacturer: Genotek; Klein and Company, Inc. Phone: 800-241-0681.
 - a. Tile to Carpet Product: Refer to Section "Tiling".
 - b. Carpet to Resilient Floor Tile Product: Ridged Reducer; Product Code 530.61.
 - 1) Size: 5/16 inch.
 - 2) Finish: Satin aluminum mill finish.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with CRI 104 and carpet manufacturer's written installation instructions for the following:
 - 1. Direct-Glue-Down Installation: Comply with CRI 104, Section 14, "Carpet Modules" and with carpet tile manufacturer's written installation instructions.
 - 2. Taper carpet substrate height with leveling compound at transition areas to achieve flush transition to tile.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Lay tile carpeting in pattern as indicated on drawings.
- D. Maintain dye lot integrity. Do not mix dye lots in same area.
- E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture.

3.2 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installation".

- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Using protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09 68 13

SECTION 09 91 00 - PAINTING (PROFESSIONAL LINE PRODUCTS)

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Architectural woodwork.
 - b. Metal toilet enclosures.
 - c. Finished mechanical and electrical equipment.
 - d. Light fixtures.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Furred areas.
 - b. Ceiling plenums.
 - 3. Finished metal surfaces include the following:
 - a. Painted and/or anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.

4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.3 SUBMITTALS

- A. Product Data: For each paint system indicated. Include primers.
 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).
- B. LEED Submittal:
 1. Product Data for Paints: For paints, including printed statement of VOC content and chemical components.
 2. Product Data for Regional Materials: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials. Identify each regionally manufactured materials, its source, and cost.
- C. Qualification Data: For Applicator, if requested by Architect.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. VOC content.

- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.6 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.7 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
 - 1. Extra Material: One gallon per color and sheen.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide the products listed in other Part 2 articles.
- B. Manufacturer: Subject to compliance with requirements, provide products by the following: No substitutions.
 - 1. Benjamin Moore & Company.

2.3 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: As indicated by manufacturer's designations on Finish Drawings.

2.4 EXTERIOR PRIMERS

- A. Exterior Ferrous-Metal and Galvanized Primer (Metal Doors): Factory-formulated rust-inhibitive metal primer for exterior application.
 - 1. Benjamin Moore; Super Spec HP Acrylic Metal Primer P04.

2.5 INTERIOR PRIMERS

- A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.
 - 1. Benjamin Moore; 231 Eco-Spec Interior Latex Primer Sealer
- B. Interior Wood Primer for Acrylic-Enamel and Semigloss Acrylic-Enamel Finishes: Factory-formulated acrylic-latex-based interior wood primer.
 - 1. Benjamin Moore; 231 Eco-Spec Interior Latex Primer Sealer
- C. Interior Metal Primer: Factory-formulated quick-drying rust-inhibitive acrylic-based metal primer.
 - 1. Benjamin Moore; M04 MooreSpec Industrial Coating Acrylic Metal Primer.

2.6 EXTERIOR FINISH COATS

- A. Exterior Semigloss Acrylic Enamel for Ferrous and Zinc-Coated Metal (Metal Doors): Factory-formulated semigloss waterborne acrylic-latex enamel for exterior application.
 - 1. Benjamin Moore; C363 Iron Clad Arcylic Latex.
- B. Exterior Gloss Urethane Enamel for Concrete Paving: Factory-formulated gloss single-component urethane enamel for exterior application.
 - 1. Benjamin Moore; M58 Safety and Zone Marking Latex.

- a. Color: White.

2.7 INTERIOR FINISH COATS

- A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.
 1. Benjamin Moore; 219 Eco-Spec Interior Flat Latex.
- B. Interior Low-Luster Acrylic Enamel for Gypsum Board: Factory-formulated eggshell acrylic-latex interior enamel.
 1. Benjamin Moore; Eco-Spec Interior Eggshell Latex.
- C. Interior Epoxy Coating for Gypsum Board: Factory-formulated eggshell epoxy interior paint.
 1. Benjamin Moore; Super Spec Acrylic Epoxy.
- D. Interior Semigloss Acrylic Enamel for Wood, Hardboard, Ferrous and Zinc-Coated Metal: Factory-formulated semigloss acrylic-latex enamel for interior application.
 1. Benjamin Moore; Eco-Spec Interior Semi-Gloss Latex.
- E. Interior Exposed Wood: Semi-transparent penetrating exterior wood stain.
 1. Benjamin Moore: Moorewood C328.
- F. Concrete Sealer: Factory-formulated sealer densifier.
 1. LM Chemical; Seal Hard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime.
 2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 3. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
 - a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
 4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush or roller according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
 2. Uninsulated plastic piping.
 3. Pipe hangers and supports.
 4. Tanks that do not have factory-applied final finishes.
 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- H. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. Architect reserves the right to invoke the following test procedure at any time and as often as Architect deems necessary during the period when paint is being applied:
1. Architect will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 2. Testing agency will perform appropriate tests.
 3. Architect may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 EXTERIOR PAINT SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
 - 1. Semigloss Acrylic-Enamel Finish: Two finish coats over a rust-inhibitive primer.
 - a. Primer: Exterior ferrous-metal primer.
 - b. Finish Coats: Exterior semigloss acrylic enamel.
- B. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated metal surfaces:
 - 1. Semigloss Acrylic-Enamel Finish: Two finish coats.
 - a. Primer: Exterior galvanized metal primer.
 - b. Finish Coats: Exterior semigloss acrylic enamel.
- C. Concrete Curb Pavement: Provide the following finish systems over exterior concrete surfaces:
 - 1. Single Component Latex: Two finish coats.
 - a. Finish Coats: Self-priming exterior latex enamel.

3.8 INTERIOR PAINT SCHEDULE

- A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
 - 1. Flat Acrylic-Enamel Finish: Two finish coats.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior flat acrylic enamel.

2. Low-Luster Acrylic-Enamel Finish: Two finish coats.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior low-luster acrylic enamel.
 3. Low-Luster Epoxy Finish: Two finish coats.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior low-luster epoxy.
 4. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior gypsum board primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- B. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces:
1. Semigloss Acrylic-Enamel Finish: Two finish coats over a wood undercoater.
 - a. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
 - b. Finish Coats: Interior semigloss acrylic enamel.
 2. Semi-transparent Acrylic Stain: Two coats.
- C. Ferrous Metal: Provide the following finish systems over ferrous metal:
1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior ferrous-metal primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- D. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - a. Primer: Interior zinc-coated metal primer.
 - b. Finish Coats: Interior semigloss acrylic enamel.
- E. Concrete: Provide the following finish system over interior concrete:
1. Clear Sealer/Densifier: Two finish coats.

END OF SECTION 09 91 00

SECTION 10 14 23 - SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 01 - General Requirements, and Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Provide materials as scheduled and as installed by provisions of this Section.
 - 1. Door number/room identification signs.

1.2 SUBMITTALS

- A. Samples: At the same time shop drawings are submitted, submit full-sized sample of each sign or letter conforming to specification requirements as to letter size, spacing and style.
- B. Shop Drawings and Manufacturers' Brochures:
- C. Template: Submit full-size template drawing for approval of letter size, stock, spacing, setting screws, etc.
- D. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements indicated, provide products of one of the following:
1. ASI Sign Systems, Grand Prairie, TX.
 2. Best Manufacturing Company, Kansas City, Missouri.
 3. Nelson-Harkins, Chicago, Illinois.

2.2 DOOR NUMBER/ROOM IDENTIFICATION SIGNS

- A. General: Provide room identification signs on walls adjacent to doors of core areas.
- B. Adhesively attach as recommended by sign manufacturer.
- C. Plaque: Melamine plastic laminate, approximately 1/8 inch thick with contrasting core color, non-static, fire-retardant and self-extinguishing, impervious to most acids, alkalies, alcohol, solvents, abrasives, and boiling water.
- D. Graphic Process
1. Raise tactile characters 1/32 inch from sign face by sandblasting process. Glue-on letters and etched backgrounds are not acceptable.
 2. Provide Grade 2 braille for each text immediately below text.
 3. Finish: Non-glare for background and characters.
- E. Letterform: Helvetica medium.
- F. Composition:
1. Provide 1 each toilet room identification sign with handicapped accessibility symbol and "MEN" or "WOMEN" as appropriate at each toilet room.
- G. Door signs will be placed on the public side of the door except where noted otherwise.
- H. Signs shall have edges properly finished and with letters and numbers evenly and accurately cut. Spacing of letters and numbers shall be optically correct.
- I. Acceptable Products: ASI Unframed Room Identification Signs, ADA Ready.

PART 3 - EXECUTION

3.1 DELIVERY AND STORAGE

- A. Deliver and store identifying devices in protective wrappings until ready for installation.

3.2 INSTALLATION

- A. Install signs plumb, level and square and in proper planes with other work, at heights as indicated.
- B. Anchor each sign with mechanical anchor as recommended by manufacturer.

- C. Attach as recommended by sign manufacturer.

3.3 CLEANING

- A. Remove protective materials and clean all signs. Clean surfaces with plain water or water with soap or household detergent.

END OF SECTION 10 14 23



SECTION 10 26 13 - CORNER GUARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 01 General Requirements, and the Drawings are collectively applicable to this Section.
- B. Procedures for compliance with listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.
- C. Section Includes:
 - 1. Corner Guards

1.2 PERFORMANCE REQUIREMENTS

- A. Performance Requirements
 - 1. Meet ASTM E 84 characteristics as follows
 - a. Flame Spread: 25 Maximum.
 - b. Smoke Developed: 450 Maximum.
 - 2. When used as part of a fire rated assembly, devices must be capable of maintaining the specified or indicated hourly rating when tested in accordance with ASTM E 119.
- B. Installed component assembly to support vertical live load of 100 pounds per lineal foot with deflection not to exceed 1/50 of span between supports.
- C. Corner guards to resist lateral impact force of 100 pounds at any point without permanent damage.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's descriptive technical data including test performance data and performance characteristics for each product proposed for use.
- B. Samples: Submit actual samples of scheduled colors and finishes.
- C. Certificates: Submit certificates indicating product's compliance with referenced standards and tests.
- D. Manufacturer's Instructions: Submit manufacturer's recommended installation instructions and suggested fastener types/patterns for each substrate encountered.
- E. LEED Submittals:

- 1. Product Data for Adhesives and Sealants: For adhesives and sealants including printed statement of VOC content and chemical components.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacture and fabrication of wall protection devices with five years experience.

1.5 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Shop Drawings.

1.6 COORDINATION

- A. Coordinate the work with wall or partition Sections for installation of concealed blocking or anchor devices.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products in accordance with Section 01 60 00 "Product Requirements."

1.8 SEQUENCING AND SCHEDULING

- A. Begin work only after substrate work is complete and attachment devices in hollow walls are verified as being accurately placed.

PART 2- PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 CORNER GUARDS

- A. Surface Mounted Clear Corner Guards

- 1. Product: Koroseal Interior Products; Koroguard Lexan No. CCWF-1
 - a. Color: Clear.
 - b. Length: 48 inches.
 - c. Wing Size: 1-1/8 inches with 90 degree angle.
 - d. Mounting: Surface.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Examine conditions and proceed with Work when complete.
- B. Verify that substrate finishes are complete and attachment devices in hollow walls are accurately located.

3.2 INSTALLATION

- A. Install using skilled workmen in accordance with manufacturer's printed instructions.
- B. Located devices as shown on the Drawings.
- C. Stop corner guards at heights indicated. If no heights are indicated, carry device to 48 inch above finish floor.
- D. Use attachment devices as recommended by manufacturer on adhesive applied devices.

3.3 ADJUSTING

- A. On flush mounted devices, verify that device is flush with adjacent wall surface. Adjust as required for proper fit and appearance.

3.4 CLEANING

- A. Remove protective coverings on devices only at final cleaning stage.

END OF SECTION 10 26 13



SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Public-use washroom accessories.
 - 2. Underlavatory guards.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule:
 - 1. Identify products using designations indicated on Drawings.
- C. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products indicated on the drawings.

2.3 FABRICATION

- A. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturer's written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.
- C. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.

END OF SECTION 10 28 00

SECTION 10 44 13 – FIRE EXTINGUISHERS AND CABINETS

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Portable fire extinguishers.
 - 2. Fire extinguisher cabinets.
 - 3. Mounting brackets for fire extinguishers.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Fire Extinguishers: Include rating and classification.
- B. Maintenance data.
- C. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

1.4 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers:
 1. J.L. Industries.
 2. Larsen Manufacturing, Co.
 3. Walter Kidde & Co.

2.3 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- B. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
 1. Sheet: ASTM B 209.
 2. Extruded Shapes: ASTM B 221.
- C. Stainless-Steel Sheet: ASTM A 666, Type 304.

2.4 PORTABLE FIRE EXTINGUISHERS

- A. Manufacturers:
- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.5 CABINETS

- A. Cabinets: Baked Enamel, formed sheet steel, 20 gage, semi recessed type.

- B. Trim: Return to wall surface.
- C. Door: 20 gage thick steel, reinforced for flatness and rigidity lock with break glass access. 1/8 inch tempered glass.
- D. Graphic: Applied decal.

2.6 MOUNTING BRACKETS

- A. Manufacturers:
 - 1. General Fire Extinguisher Corporation.
 - 2. JL Industries, Inc.
 - 3. Larsen's Manufacturing Company.
 - 4. Potter Roemer; Div. of Smith Industries, Inc.
- B. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 - 1. Color: Black.
- C. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging. Remove and replace damaged, defective, or undercharged units.
- B. Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- C. Install cabinets securely recessed in designated wall. Install in compliance with accessibility requirements.
- D. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.
- E. Identification: Apply decals at locations indicated.

END OF SECTION 10 44 13



SECTION 10 51 13 - METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Welded lockers.

1.2 ACTION SUBMITTALS

A. Product data.

B. LEED Submittals:

1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

1.3 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.

1. Warranty Period for Welded Metal Lockers: Lifetime from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERRED PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operations performance. EPP's include products that have low VOC content, high recycled content, and are manufactured, fabricated, or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Requirements: For lockers indicated to be accessible, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1.

2.3 WELDED LOCKERS

A. Products: Subject to compliance with requirements, provide the following:

1. School Lockers; Triple Tier School Locker No. 63121572QS1.

- a. Tier Type: Triple tier.
- b. Thickness: 16 gauge.
- c. Hardware: Stainless steel.
- d. Base: 6 inch legs.
- e. Finish: Powder coated.

1) Color: Beige.

2.4 FABRICATION

A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments. Factory weld frame members of each metal locker together to form a rigid, one-piece assembly.

C. Equipment: Provide each locker with an identification plate and the following equipment:

1. Triple-Tier Units: One double-prong ceiling hook.

D. Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds flush.

E. Accessible Lockers: Fabricate as follows:

1. Locate bottom shelf no lower than 15 inches above the floor.

F. Finished End Panels: Designed for concealing unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install lockers level, plumb, and true; shim as required, using concealed shims.

- 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
- 2. Anchor single rows of metal lockers to walls near top and bottom of lockers.

B. Welded Lockers: Connect groups together with standard fasteners, with no exposed fasteners on face frames.

END OF SECTION 10 51 13

SECTION 11 31 00 - RESIDENTIAL APPLIANCES

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Microwave ovens.
 - 2. Refrigerator/freezers (SEE DRAWING).

1.3 SUBMITTALS

- A. Product Data: For each appliance type required indicating compliance with requirements. Include complete operating and maintenance instructions for each appliance.
- B. LEED Submittal:
 - 1. Product Data Energy Star Equipment: For appliances, documentation indicating that products are ENERGY STAR rated.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is an authorized representative of the residential appliance manufacturer for both installation and maintenance of appliances required for this Project.
- B. Source Limitations: Obtain residential appliances through one source from a single manufacturer.
- C. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of residential appliances and are based on the specific types and models indicated. Other manufacturers' appliances with equal performance characteristics may be considered
- D. Electrical Appliances: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- E. UL and NEMA Compliance: Provide electrical components required as part of residential appliances that are listed and labeled by UL and that comply with applicable NEMA standards.

- F. AHAM Standards: Provide appliances that comply with the following AHAM standards:
 - 1. Refrigerators and Freezers: Total volume and shelf area ratings certified according to ANSI/AHAM HRF-1.
- G. Energy Ratings: Provide residential appliances that carry labels indicating energy-cost analysis (estimated annual operating costs) and efficiency information as required by the FTC Appliance Labeling Rule.
 - 1. Provide appliances that qualify for the EPA/DOE ENERGY STAR product labeling program.

1.5 DELIVERY

- A. Deliver appliances only after utility rough-in is complete and construction in the spaces to receive appliances is substantially complete and ready for installation.

1.6 WARRANTIES

- A. General Warranty: 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. Special Warranties: Written warranties, executed by manufacturer of each appliance specified agreeing to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
 - 1. Microwave Oven: 10-year limited warranty for in-home service on defects in the magnetron tube.
 - 2. Refrigerator/Freezer: Five-year limited warranty on the sealed refrigeration system.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PRODUCTS AND MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide the appliances indicated in the Residential Appliance Schedule at the end of Part 3.
- B. Residential appliances to be purchased at Lowe's.

2.3 RESIDENTIAL APPLIANCES

- A. Microwave Oven: Freestanding microwave oven, listed by UL, and complying with requirements specified in the Residential Appliance Schedule.

2.4 FINISHES

- A. Porcelain-Enamel Finish: Provide manufacturer's standard factory-applied porcelain-enamel finish over cleaned and pretreated steel sheet.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for plumbing, mechanical, and electrical services, with Installer present, to verify actual locations of services before residential appliance installation.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions.
- B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- C. Utilities: Refer to Divisions 22 and 26 for plumbing and electrical requirements.

3.3 ADJUSTING AND CLEANING

- A. Test each item of residential appliances to verify proper operation. Make necessary adjustments.
- B. Verify that accessories required have been furnished and installed.
- C. Remove packing material from residential appliances and leave units in clean condition, ready for operation.

3.4 RESIDENTIAL APPLIANCE SCHEDULE

- A. Residential Appliances: Subject to compliance with requirements, provide the following (or approved equal):
 - 1. Microwave:
 - a. Manufacturer: GE Profile Series
 - b. Model: PEB7227DLWW
 - c. Watts: 1100 watts.
 - d. Color: White.
 - e. Size: 2.2 cu. ft.

2. Refrigerator/Freezer:
 - a. Manufacturer: GE Energy Star
 - b. Model: GIE18ETHWW
 - c. Color: White.
 - d. Size: 18.2 cu. ft. top-freezer

END OF SECTION 11 31 00

SECTION 12 36 23.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section includes plastic-laminate countertops.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including high-pressure and decorative laminate adhesive for bonding plastic laminate.
 - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. LEED Submittals:
 - 1. Product Data Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
 - 2. Product Certificates Regional: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
 - 3. Certificates for FSC: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification and chain-of-custody requirements. Include statement indicating cost for each certified wood product.
 - 4. Product Data for Adhesives: For installation adhesives, including printed statement of VOC content.
 - 5. Product Data for Composite Woods: For adhesives and composite wood products, documentation indicating that products contain no urea formaldehyde.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, electrical switches and outlets and other items installed in plastic-laminate countertops.
 - 2. Apply AWI Quality Certification Program label to Shop Drawings.

- D. Samples for Initial Selection:
 - 1. Plastic laminates.
- E. Samples for Verification:
 - 1. Plastic laminates, 12 by 12 inches, for each type, color, pattern, and surface finish, with one sample applied to core material.
- F. Qualification Data: For Installer.
- G. Product Certificates: For each type of product.
 - 1. Composite wood and agrifiber products.
 - 2. High-pressure decorative laminate.
 - 3. Chemical-resistant, high-pressure decorative laminate.
 - 4. Adhesives.
- H. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- I. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who is experience with custom millwork and the ability to become an AWI Certified Fabricator. Minimum three years documented experience required.
- B. Installer Qualifications: Fabricator of products.
- C. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

- B. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
 - 1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom.
- C. Regional Materials: Plastic-laminate countertops shall be manufactured within 500 miles of Project site.
- D. Certified Wood: Plastic-laminate countertops shall be made from wood products certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
- E. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS.
 - 1. Manufacturers: Subject to compliance with requirements provide products as indicated on drawings.
- F. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated by manufacturer's designations on Finish Schedule.
- G. Edge Treatment: 2-mm PVC edging.
- H. Core Material: Particleboard or medium-density fiberboard.

- I. Core Material at Sinks: Exterior-grade plywood.
- J. Core Thickness: 3/4 inch.
- K. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.
- L. Paper Backing: Provide paper backing on underside of countertop substrate.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
 - 1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Recycled Content of Medium-Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
 - 2. Composite Wood and Agrifiber Products: Products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 - 3. Medium-Density Fiberboard: ANSI A208.2, Grade 130, made with binder containing no urea formaldehyde.

2.4 ACCESSORIES

- A. Grommets for Cable Passage through Countertops: 2-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.

2.5 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.
- B. VOC Limits for Installation Adhesives and Sealants: Use products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Multipurpose Construction Adhesives: 70 g/L.
 - 3. Structural Wood Member Adhesive: 140 g/L.
 - 4. Architectural Sealants: 250 g/L.

2.6 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

- B. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:
 - 1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.
- C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- D. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
 - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
 - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches.

Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 3. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 12 36 23.13

SECTION 12 36 61 - SIMULATED STONE COUNTERTOPS

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.
- B. Procedures for compliance with the listed US Green Building Council (USGBC) LEED prerequisites and credits required for this Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-surface-material countertops.

1.3 ACTION SUBMITTALS

- A. Product Data: For countertop materials.
- B. LEED Submittals:
 - 1. Product Data for Recycled Content: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- C. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- D. Samples for Verification: For the following products:
 - 1. Countertop material, 6 inches square.
 - 2. One full-size solid-surface-material countertop, with front edge, 8 by 10 inches, of construction and in configuration specified.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.5 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 SOLID SURFACE COUNTERTOPS

- A. Product: Subject to compliance with requirements, provide the product as indicated in Finish Schedule.
- B. Configuration: Provide countertops with the following front and backsplash style:
 - 1. Front: Straight, slightly eased at top.
- C. Countertops: 2 cm thick, solid surface material.
- D. Fabrication: Fabricate tops in one piece with shop-applied edges unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
- E. Solid Surface Material: Homogeneous solid sheets of filled with recycled material and resin complying with ANSI SS1.
 - 1. Type: Provide Standard Type or Veneer Type made from material complying with requirements for Standard Type, as indicated unless Special Purpose Type is indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet.
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Pre-drill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 12 36 61

SECTION 12 90 10 – EXTERIOR AND INTERIOR BUILDING ACCESSORIES

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.
- B. Procedures for compliance with certain US Green Building Council's (USGBC) LEED prerequisites and credits needed for the Project to obtain LEED certification apply to this Section.

1.2 SUMMARY

- A. Provide building accessories.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances, proper installation, adjustment, operation, cleaning, and servicing of accessories.

PART 2 - PRODUCTS

2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

- A. Provide environmentally preferable products (EPP) to the greatest extent possible. Provide products and materials that promote stewardship of the earth's resources, promote good indoor environmental quality, and promote efficiencies in operational performance. EPP's include products that have low VOC content, high recycled content, and are manufactured or extracted within 500 miles of the construction site, and are listed in the USGBC Directory of Products and Services.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide accessories by the following:
 - 1. Waste Receptacle: Provide a 17 gallon freestanding litter receptacle made of heavy-gauge steel with adjustable legs, rigid plastic liner finished with polyester powder-coating.

- a. Rubbermaid Commercial Products; Architek A17SU Radius Urn Top Waste Receptacle No. FGA17SUABZPL
 - a) Color: Bronze.
2. Warranty/Manual Holder:
 - a. McMaster-Carr.
 - 1) Wall-mount steel file pocket 7 by 12-3/4 by 2-1/2 inch, McMaster-Carr catalog number 12255T21.
 - a) To be installed on available wall space in the electrical room.
3. Queue Line: Subject to compliance with requirements, provide products as indicated on Finish Schedule.
 - a. Socket and Head: Standard, satin stainless-steel or aluminum
 - b. Post: Removable, satin stainless steel or aluminum.
 - c. Wall Receiver: Attached at each end of millwork queue line ledge.
 - d. Caps: Flush fit with surface for safe closure when posts are removed. Satin, stainless-steel or aluminum.
 - e. Accessories: Provide manufacturer's recommended accessories to alleviate post sloppiness.
 - f. Adhesive: Manufacturer's LEED compliance low-voc adhesive.
4. Storage Cart: Subject to compliance with requirements, provide the following storage cart:
 - a. Office Depot; Medium Plastic 6 Drawer Storage Cart.
 - 1) Item Number: 551048.
 - 2) To be placed in restrooms.
5. Recycling Bin:
 - a. 23 Gallon U-Line Slim Recycling Bin:
 - 1) https://www.uline.com/BL_2719/Slim-Jim-Recycling-Containers

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturer's written instructions and approved submittals.
- B. Install accessories in proper relation with adjacent construction and with uniform appearance.
- C. Coordinate installation with work of other sections.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 12 90 10

