

# **PROJECT MANUAL**

Lincoln High School  
Renovations and Additions  
Lincoln, Rhode Island 02865

## **Signage Package**

**Lincoln High School**  
135 Old River Road  
Lincoln, Rhode Island 02865

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*February 26, 2020*

OWNER

**Town of Lincoln, RI**  
100 Old River Road  
Lincoln, Rhode Island 02865

OWNER'S PROJECT MANAGER

**Colliers International Group Inc.**  
135 New Road  
Madison, Connecticut 06443

*Submitted by*

**SMMA**  
400 Westminster Street  
Providence, Rhode Island 02903

SMMA No. 15061.03

DOCUMENT 00 01 10  
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- Key: ● Issued  
○ Issued for Reference Only

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SECTION 01 11 16  
CONSTRUCTION PHASING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section provides a detailed description of phasing to supplement the Summary of Work and the Phasing Drawings. The work and designated areas described in this Section are summary in nature and complimentary to the work described in the Drawings and Specifications. Refer to the Drawings and Specifications for full scope of Work. Refer to the Phasing Diagrams for the Phase Area of work.
- B. Bidders shall base their bids on the sequence of work described in the Phasing Diagrams and in this Section.
- C. Related Work:
  - 1. Dates for Substantial Completion of each Phase of the Work are set forth in the General Conditions of the Contract.

1.03 SUBMITTALS

- A. Contractor's Phasing Plan: Prior to or concurrent with the Start-Up Construction Schedule, submit a detailed phasing plan and schedule for review. Coordinate the Phasing Plan and Schedule with the Contractor's Construction Schedule.
- B. In preparing the Contractor's Phasing Plan, the Contractor may propose changes to the plan as described in this Section, provided that the Contractor believes the changes will result in an earlier Project completion date or will reduce disturbances when school is in session. Highlight changes and attach a narrative explaining in detail the impact of each change.
  - 1. The OPM, Architect and Owner will review the Contractor's Phasing Plan and may accept those changes which they believe to be of benefit to the Owner, but they shall be under no obligation to accept the Contractor's proposed changes.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 GENERAL

- A. Make fire protection, plumbing, mechanical, security, and electrical systems fully operational. Complete required inspections and tests. The energy management system which controls the HVAC systems shall be fully operational and shall have been running continuously for at least 10 days prior to Owner occupancy.

3.02 MILESTONE SCHEDULE DATES

- 1. Phase 1
  - a. Anticipated Date of Contract Award – 03/18/2020.
  - b. Submittals Due – 03/25/2020.
  - c. Installation of Phase 1 – 05/08/2020
  - d. Punch List Complete Phase 1 – 06/16/2020
- 2. Phase 2
  - a. Installation of Phase 2 – 09/25/2020.
  - b. Punch List Complete – 11/06/2020.
- 3. Phase 3
  - a. Installation of Phase 3 – 04/20/2021.
  - b. Punch List Complete – 06/01/2021.
- 4. Final Phase
  - a. Installation of Final Phase – 07/08/2021.
  - b. Punch List Complete – 08/19/2021

END OF SECTION 01 11 16

SECTION 01 23 00  
ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.03 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.
  - 3. Include in alternate amount:
    - a. Miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
    - b. General Conditions, superintendence, overhead and profit.
    - c. Adjustment to the costs of the Performance and Payment Bonds.
    - d. Coordination with, modification of, and adjustment of other Work to accommodate the alternate.

1.04 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted or rejected.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES

- A. Descriptions of work in this Schedule clarify the scope of each alternate, but are not complete in detail, nor limit the Work of the Alternate. The descriptions shall not relieve the Contractor and Sub-Contractors of their responsibility for identifying and performing all Work required to make the alternate complete.
- B. Alternate No. 1: Cast Plaque.
  - 1. Base Bid: No Cast Plaque is installed.
  - 2. Alternate: Provide and install Cast Plaque as specified in Section 10 14 00 "Signage" on existing brick wall and as located on Drawings; refer to Drawing A-101c-T for location.
- C. Alternate No. 2: Exterior Applied Vinyl Numbers at Windows.
  - 1. Base Bid: No exterior applied vinyl numbers at windows installed.
  - 2. Alternate: Provide and install Exterior Applied Vinyl Numbers at 30 exterior windows facing parking lot per Homeland Security Guidelines specified in Section 10 14 00 "Signage" and as indicated on Drawings; refer to Drawing A-401 for full extent required.
- D. Alternate No. 3: Corridor Wayfinding Signage.
  - 1. Base Bid: No Corridor Wayfinding Signage, as identified as 'F2' on A-607-T.
  - 2. Alternate: Install Corridor Wayfinding Signage, as identified as 'F2' on A-607-T and as specified in Section 10 14 00 "Signage".
- E. Alternate No. 4: Exterior Dimensional Characters.
  - 1. Base Bid: Provide and install exterior dimensional characters as specified in Section 10 14 00 "Signage" on existing brick wall. Refer to Drawing A-261-T for full extent required.
  - 2. Alternate: Deduct material and installation costs for exterior dimensional characters as specified in Section 10 14 00 "Signage", and shown on Drawing A-261-T.
- F. Alternate No. 5: Interior Dimensional Characters at School Store, Media Center, and Gymnasium.
  - 1. Base Bid: No Interior Dimensional Characters installed at School Store, Media Center, and Gymnasium.
  - 2. Alternate: Install Interior Dimensional Characters at School Store, Media Center, and Gymnasium as specified in Section 10 14 00 "Signage" on existing masonry or sheetrock walls. Refer to Drawing A-261-T for full extent required.
- G. Alternate No. 6: Egress Exit Path Graphic Inserts:
  - 1. Base Bid: Provide colored graphic plan as specified in Section 10 14 00.
  - 2. Alternate: Provide black and white graphic plan of the building with paths to exits highlighted or overlaid on building plan to fit sign holders in each classroom. Add red sticker marking on each plan identifying the room in which it is mounted using a red dot and the text "You are here." Provide Egress Exit Path Sign Holder as specified in Section 10 14 00.

END OF SECTION 01 23 00

SECTION 01 33 00  
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1. Submittal schedule.
2. Administrative and procedural requirements for submitting.
3. Shop Drawings.
4. Product Data.
5. Samples.
6. Informational submittals.
7. Delegated-Design Services.
8. Contractor's Review.
9. Architect's Action.

- B. Related Requirements:

1. Section 01 31 00 "Project Management and Coordination" for submitting coordination drawings.
2. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 01 40 00 "Quality Requirements" for submitting test and inspection reports and schedules.
4. Project Closeout Submittals: Refer to requirements in Section 01 77 00 "Closeout Procedures."
5. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
6. Section 01 81 13 "Sustainable Design Requirements" for individual submittal requirements.

1.03 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Project Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Project Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.



- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.04 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Project Manager and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
  - 4. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Submittal category: Action, informational.
    - d. Name of subcontractor.
    - e. Description of the Work covered.
    - f. Scheduled date for Architect's and Project Manager's final release or approval.
    - g. Scheduled date of fabrication.
    - h. Scheduled dates for purchasing.
    - i. Scheduled dates for installation.
    - j. Activity or event number.

#### 1.05 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
  - 1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available in Autodesk Revit 2013, with portions in prepared in AutoCAD 2013.
    - c. If the Contractor requires conversion from the current software the costs for the Architects resources to perform this conversation will be borne by the Contractor.

- d. Contractor shall execute a data licensing agreement in the form of the Architect's standard release form.
  - e. The following digital data files will be furnished for each appropriate discipline:
    - 1) Floor plans.
    - 2) Reflected ceiling plans.
    - 3) Site plans.
    - 4) Structural plans.
    - 5) Electrical plans.
    - 6) Fire Protection plans.
    - 7) Plumbing plans.
    - 8) Mechanical plans.
  2. Drawings will be in Architect's standard format and will be the Drawings as issued for bidding.
  3. Do not extract dimensions from the CAD drawings; refer to the written dimensions, and check for internal consistency; verify in field as work progresses. The Contractor and the subcontractor, fabricator, or other entity preparing shop drawings, remain responsible for the information on the shop drawings.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
  5. Schedule submittals in sequence which reflects logical sequence of Work, anticipated lead times, and appropriate sequence of decision making when one decision is dependent on another one. Schedule submittals to permit Architect to review related submittals for a single assembly or integrated assemblies together, at the same time.
  6. Color Sections of Finishes: Coordinate submittal of samples for selection of finishes so that related, color-coordinated, or matching finishes can be selected at the same time; including but not limited to flooring, base, paint colors and plastic laminate colors in the same room or space. Architect will make color selections after manufacturers and products have been selected and approved. Make color sample submittals in a timely fashion so that color selection can be completed by the Architect before the items have to be fabricated or purchased by the Contractor.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 21 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 21 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties, allow 30 days for initial review of each submittal.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Architect and Project Manager.
    - d. Name of Contractor.
    - e. Name of subcontractor.
    - f. Name of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Location(s) where product is to be installed, as appropriate.
    - l. Other necessary identification.
- E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect and Project Manager.

- d. Name of Contractor.
  - e. Name of firm or entity that prepared submittal.
  - f. Names of subcontractor, manufacturer, and supplier.
  - g. Category and type of submittal.
  - h. Submittal purpose and description.
  - i. Specification Section number and title.
  - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Related physical samples submitted directly.
  - n. Indication of full or partial submittal.
  - o. Transmittal number, numbered consecutively.
  - p. Submittal and transmittal distribution record.
  - q. Other necessary identification.
  - r. Remarks.
5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
- a. Project name.
  - b. Number and title of appropriate Specification Section.
  - c. Manufacturer name.
  - d. Product name.
- F. Options: Identify options requiring selection by Architect.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.
- K. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

## PART 2 - PRODUCTS

### 2.01 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
    - a. Architect, through Project Manager, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  2. Action and Informational Submittals: In addition to electronic submittal, submit one paper copy of each submittal when original size is 11 by 17 inches or larger.
    - a. Do not submit paper copies for submittals smaller than 11 by 17 inches.
    - b. Submit structural steel shop drawings on 11 by 17 or larger size sheets.
    - c. Architect will not return paper copies.
  3. Submittals for Commissioned Systems: Concurrent with submittal to Architect, submit to the Owner's commissioning agent electronic copies of product data and shop drawings for systems to be commissioned.
  4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

### 2.02 ACTION SUBMITTAL PROCEDURES

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. "Sustainable Materials Attributes Submittal Form" attached to Section 01 81 13 "Sustainable Design Requirements" with supporting documentation required.
    - h. Notation of coordination requirements.
    - i. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.

- d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before or concurrent with Samples.
  6. Submit Product Data in the following format:
    - a. PDF electronic file.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. Provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. Architect and Project Manager will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
  - D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
    1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
    2. Manufacturer and product name, and model number if applicable.
    3. Number and name of room or space.
    4. Location within room or space.
    5. Submit product schedule in the following format:
      - a. PDF electronic file.
  - E. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- 2.03 INFORMATIONAL SUBMITTAL PROCEDURES
- A. NE-CHPS Submittals: Comply with requirements specified in Section 01 81 13 "Sustainable Design Requirements."
  - B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
  - C. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

- D. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- E. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- F. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- G. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- H. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- I. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- J. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- K. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- L. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- M. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.



## 2.04 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## PART 3 - EXECUTION

### 3.01 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Project Manager.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.02 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action. In reviewing submittals, the Architect shall be entitled to rely upon the Contractor's representation that the information given is correct and accurate.
  - 1. In reviewing submittals, the Architect shall be entitled to rely upon the Contractor's representation that the information given is correct and accurate.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:
  - 1. "Approved": Contractor may proceed with procurement, fabrication, or installation, as applicable.
  - 2. "Approved as Corrected": Make changes noted to the actual item prior to fabrication and installation; the shop drawing, product data or sample need not be resubmitted.
  - 3. "Revise and Resubmit": Make corrections or changes indicated by the Architect in the submittals and resubmit.
  - 4. "Not approved": Indicates non-conformance with requirements. Resubmit in conformance with Contract Documents.

- C. Project Manager's Review of Action Submittals: Project Manager will provide separate review of each submittal and affix separate stamp.
- D. Informational Submittals: Architect and Project Manager will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect and Project Manager will forward each submittal to appropriate party.
- E. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect and Project Manager.
- F. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- G. Submittals not required by the Contract Documents will not be reviewed and may be discarded or returned without action.
- H. The Architect will return paper submittals by first class or priority mail, which may take up to 3 days for delivery, unless the Contractor specifically requests and pays the costs of courier, Express Mail, or other expedited delivery service.

END OF SECTION 01 33 00

SECTION 01 78 23  
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Product maintenance manuals.
  - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Section 01 91 13 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.

1.03 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.04 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect and Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

- a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  - b. Enable inserted reviewer comments on draft submittals.
  2. Paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
1. List of documents.
  2. List of systems.
  3. List of equipment.
  4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Subcontractors and Suppliers: List major subcontractors and suppliers with addresses and telephone numbers. Organize alphabetically by systems and subsystems, and alphabetically by name of entity.
- D. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- E. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- F. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

## 2.02 REQUIREMENTS FOR OPERATION, EMERGENCY, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
  2. Table of contents.
  3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Project manager.
  7. Name and contact information for Architect.
  8. Name and contact information for Commissioning Authority.
  9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf or post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with

clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
  - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
  4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
  5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.03 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  1. Type of emergency.
  2. Emergency instructions.
  3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  1. Fire.
  2. Flood.
  3. Gas leak.
  4. Water leak.
  5. Power failure.
  6. Water outage.
  7. System, subsystem, or equipment failure.
  8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
  1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.

3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

## 2.04 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.05 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning. Include recommendations for sustainable cleaning products complying with NE-CHPS.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

## 2.06 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.



2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  3. Identification and nomenclature of parts and components.
  4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.01 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- G. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 81 13  
SUSTAINABLE DESIGN REQUIREMENTS – BASE BUILDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain Northeast Collaborative for High Performance Schools certification; (NE-CHPS Version 3.1), Criteria for New Construction and Renovation.
- B. This Project is committed to meeting selected prerequisites and credits where indicated. Comply with specific sustainability requirements where indicated in this Section, and in other Sections. Certification will be required through the Rhode Island School Building Authority.
  - 1. Additional NE-CHPS prerequisites and credits needed to obtain the designated points depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.
  - 2. NE-CHPS prerequisites and credits needed to obtain NE-CHPS certification may not be specifically identified as NE-CHPS requirements.
  - 3. Compliance with requirements needed to obtain NE-CHPS prerequisites and credits will be used as criteria to evaluate substitution requests and comparable product requests.
  - 4. Definitions included in the "NE-CHPS Version 3.1 for New Construction and Renovations" and online amendments apply to this Section.
- C. Related Sections:
  - 1. Divisions 01 through 28 Sections identify sustainability requirements specific to the work of each of these Sections. Requirements may or may not include reference to NE-CHPS.
  - 2. Section 01 32 00 "Construction Progress Documentation" for construction photographic and video documentation.
  - 3. Section 01 33 00, "Submittal Procedures."
  - 4. Section 01 50 50, "Temporary Facilities and Controls" for erosion and sedimentation control during construction.
  - 5. Section 01 50 60, "Temporary Heating, Ventilating and Moisture Control" for dust control and moisture and mold control during construction.
  - 6. Section 01 57 33 "Indoor Air Quality Control for Occupied Facilities."
  - 7. Section 01 74 19 "Construction Waste Management and Disposal."
  - 8. Section 01 78 23, "Operation and Maintenance Data."

1.03 DEFINITIONS

- A. Airborne Toxic Control Measure (ATCM), established by California Air Resources Board (CARB), for the emissions testing and requirements of reduced formaldehyde emissions from composite wood products including no-added formaldehyde (NAF) and ultra-low emitting formaldehyde (ULEF) products.

- B. **Bio-Based Materials:** Materials that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials shall be tested using ASTM D 6866 and be legally harvested, as defined by the exporting and receiving country.
- C. **CDPH Standard Method v1.1:** California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, v. 1.1–2010, for the emissions testing and requirements of furniture, furnishings, flooring systems, ceiling systems, wall systems, adhesives, sealants, paints and coatings.
- D. **Chain-of-Custody (COC):** A procedure that tracks a product from the point of harvest or extraction to its end use, including all successive stage of processing, transformation, manufacturing, a distribution.
- E. **Chain-of-Custody Certificates:** Certificates signed by manufacturers and fabricators 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.
- F. **Composite Wood and Agrifiber:** Products made of wood particles and/or plant material pressed and bonded with adhesive or resin such as particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores.
- G. **Health Product Declaration Open Standard (HPD):** A standard format for reporting product content and associated health information for building products and materials.
- H. **Indoor Air Quality (IAQ) Management Plan:** Plan developed by the Contractor to provide a healthy indoor environment for workers and building occupants during construction. Plan must meet or exceed the recommendations of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction."
- I. **Material Cost:** The dollar value of materials being provided to the site, after Contractor mark-ups, including transportation costs, taxes, fees, and shop labor, but excluding field equipment and field labor costs.
- J. **Materials Reuse:** Reuse includes salvaged, refurbished, or reused products.
- K. **Recycled Content:** Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost. 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. "Postconsumer" 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. "Preconsumer" 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.

- L. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 500 miles from the Project site.
- M. South Coast Air Quality Management District (SCAQMD) Standard Method Rule 1113 (2011), for the emissions testing and requirements of paints and coatings.
- N. South Coast Air Quality Management District (SCAQMD) Standard Method Rule 1168 (2011), for the emissions testing and requirements of adhesives and sealants.
- O. Volatile Organic Compounds (VOC) Emissions Test: Refer to CDPH Standard Method v1.1 definition.

#### 1.04 INFORMATIONAL SUBMITTALS

- A. Prerequisite II 1.0.1 Preconstruction Construction Documents Workshop:
  - 1. Submit Preconstruction Meeting Minutes, to document coordination reviews of high performance features into the project.
- B. NE-CHPS Action Plan: Provide preliminary submittals within 14 days of date established for the Notice to Proceed indicating how the following requirements will be met:
  - 1. Credit MW 2.1.1: Construction and demolition waste management plan; to recycle, reuse, and/or salvage at least 75% of non-hazardous construction and demolition waste (by weight) and complying with Division 01 Section "Construction Waste Management and Disposal."
  - 2. Credits EQ 1.1, EQ 5.1.1, EQ 5.1.2, EQ 5.1.3, EQ 5.2 and EQ 6.1: Construction indoor-air-quality management plan complying with Section 01 50 00 "Temporary Facilities and Controls" and Section 01 57 33 "Temporary Indoor Air Quality Control."
    - a. Submit Product Data for materials used to partition off and clean construction or adjacent occupied areas.
      - 1) HEPA Filters
      - 2) Vacuum Cleaners
      - 3) Plastic Partitions
      - 4) Cleaning Solvents
      - 5) Temporary Ventilation
    - b. Submit Schedule for cleaning of the site signed by Superintendent.
    - c. Describe flush out procedures: Plan must comply with EQ 5.1.3.
      - 1) Provide narrative of compliant flush methods used signed by site superintendent certifying the events will occur after the completion of Phases 1C, 2 and 3 and during the application of volatile materials.
      - 2) Provide a schedule of dates that building filters were changed after construction phases prior to occupancy.
      - 3) Product data for filtration media used during flush-out and during occupancy.
      - 4) IAQ testing reports.
  - 3. Prerequisite EQ 8.1 Low Radon: Construction Site Testing Plan complying with EPA 402-R-92-014.

- a. Owner to coordinate how and when testing is to confirming compliant radon air concentrations at the end of Phase 3. Coordinate testing needs with Action Plan.
- C. NE-CHPS submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated NE-CHPS requirements, with completed NE-CHPS Submittal Form attached to this Section.
1. NE-CHPS "Scorecard" is provided with this specification listing Prerequisites and Credits required.
  2. Submit "Sustainable Materials Attributes Submittal Form" provided reporting for each prerequisite and credit listed within the Scorecard.
  3. Submittals received without a completed Sustainable Materials Attributes Submittal Form will be returned marked "No Action."
  4. Submit Documentation for the following Prerequisites and Credits:
    - a. Sustainable Material Attributes Requiring Reporting:
      - 1) Prerequisite EQ 7.0, Credit EQ 7.1: Low Emitting Materials
        - a) Product Type
        - b) Product Name
        - c) Manufacturer
        - d) Certification Program
        - e) Certificate Number
        - f) Expiration Date
        - g) VOC Content in g/l
        - h) List Compliance Criteria Reference from Below
      - 2) Credit MW 3.1 Single Attribute – Recycled Content
        - a) Product Type
        - b) Product Name
        - c) Manufacturer
        - d) Weight of All Material
        - e) Total Cost of Material
        - f) Percentage Pre-Consumer Recycled Material
        - g) Percentage Post-Consumer Recycled Material
      - 3) Credit MW 5.1 Single Attribute – Certified Wood
        - a) Product Type
        - b) Product Name
        - c) Manufacturer
        - d) Forest Stewardship or NWFA Responsible Procurement Program
        - e) Chain of Custody Certificate Number
        - f) Material Cost
      - 4) Credit MW 11.1 Locally Produced Materials
        - a) Product Type
        - b) Product Name
        - c) Manufacturer
        - d) Location of Final Point of Assembly
        - e) Distance from Project Site
        - f) Material Cost
- D. Project Materials Cost Data: Provide statement indicating total cost for building materials used for Project.

- E. NE-CHPS Progress Report Submittal: Concurrent with each Application for Payment, submit Sustainable Design Form A comparing actual construction and purchasing activities with NE-CHPS action plans for the following:
1. Credit MW 2.1.1: Waste reduction progress reports complying with Section 01 74 19 "Construction Waste Management and Disposal."
  2. Credit MW 3.1:
    - a. Materials with recycled content.
  3. Credits EQ 5.1.1 & EQ 5.1.2:
    - a. Submit photographs of erosion and sedimentation control measures to minimize site dust.
    - b. Photographs are to be labeled with the date and captioned to describe methods used.
  4. Credit EQ 6.1
    - a. Submit photographs of staff vacuuming soft surfaces around construction site, schedule of daily cleaning activities, signed by site superintendent.
  5. Credits EQ 5.1.1, EQ 5.1.2 and EQ 6.1
    - a. Construction indoor-air-quality reports complying with Section 01 50 00 "Temporary Facilities and Controls."
    - b. Photographic Documentation: Submit annotated and dated photographs of the following.
      - 1) Prevent mold problems during construction.
      - 2) Use IAQ best practices.
      - 3) Construction management – provide ventilation.
      - 4) Construction management – protect ductwork.
      - 5) Construction management- HEPA vacuuming.
      - 6) Construction management – Building Flushout
        - a) Provide narrative of compliant flush methods used signed by site superintendent certifying the events occurred.
        - b) Provide a schedule of dates that building filters were changed after construction phases prior to occupancy.
        - c) Product data for filtration media used during flush-out and during occupancy.
        - d) IAQ testing reports.
        - e) Provide annotated and dated photographs of the strategies used.
- F. NE-CHPS Audit and Close Out Documentation Submittal:
1. Prerequisite II 1.0.1, II 1.0.2 and Credit II 1.1.1
    - a. Submit Preconstruction Meeting Minutes, to document coordination reviews of high performance features into the project.
    - b. Submit Coordination Review Workshop minutes and coordination review documentation.
  2. Prerequisite OM 1.0 Facility Staff Training
    - a. Refer to Section 01 78 23 "Operation and Maintenance Data" for more information.
    - b. Submit Training Manual used for Facility Staff and Faculty Training.

- a) Digital Presentations submitted to be printed with instructions on how to access online link.
  - c. Submit sign-in sheet, agenda, and meeting minutes from staff training presentations.
  - d. Systems Manual, as outlined under 3.04 Enhanced Commissioning, shall be submitted to the Design Team for review in conjunction with Training Manual.
3. Credit OM 2.1 Post-Occupancy Transition
  - a. Refer to Section 01 77 00 Close Out Procedures
  - b. Attend meeting one weather season after completion of project to assess building performance after each project phase.
  - c. Submit sign-in sheet, agenda, meeting minutes and action items list from post occupancy meeting.
4. Credit OM 5.1 Systems Maintenance Plan
  - a. Submit an inventory of building systems, including
    - a) Mechanical
    - b) Electrical
    - c) Plumbing
    - d) Building Envelope
  - b. Submit a maintenance plan that includes information on preventative maintenance presented in a tabular format featuring the follow items: Schedule of tasks, frequency to perform task, priority ranking for each task, date task to be completed, possible problems for trouble shooting, and special training required for specific tasks.
5. Prerequisite EQ 1.0 HVAC Design, EQ 1.1 Enhanced Filtration, EQ 1.2 Dedicated Outdoor Air System
  - a. Submit approved submittal for compliant air filters.
6. Credit EQ 2.0.1, 2.0.2, 2.0.3, 2.0.4, & 2.0.6
  - a. Submit photographs & shop drawings showing associated equipment
7. Prerequisite EQ 3.0 Outdoor Moisture Management
  - a. Submit letter signed by installer that the drain trap and gravity drainage system have been tested to show that water flows as designed.
  - b. Submit pictures of installed system elements.
8. Credits EQ 5.2, EQ 5.1.1, EQ 2.1, EQ 5.1.2, EQ 6.1:
  - a. Photographic Documentation: Submit annotated and dated photographs of the following.
    - 1) Prevent mold problems during construction.
    - 2) Use IAQ best practices.
    - 3) Construction management – provide ventilation.
    - 4) Construction management – protect ductwork.
    - 5) Construction management- HEPA vacuuming.
    - 6) Construction management – Building Flush-out
      - a) Provide narrative of compliant flush methods conducted, signed by site superintendent certifying the events occurred.
      - b) Provide a schedule of dates that building filters were changed after construction phases after flush-out and prior to occupancy.



- c) Product data for filtration media used during flush-out and during occupancy.
  - d) IAQ testing reports.
  - e) Provide annotated and dated photographs of the strategies used.
9. Credit EQ 7.0, 7.1: Product data for the following categories of materials indicating VOC content of each product used. Indicate VOC content in g/L calculated according to the following performance guidelines for products used inside the weatherproofing system:
- a. South Coast Air Quality Management District (SCAQMD) Rule 1113 for the following:
    - 1) Paints and Coatings
      - a) Sealers
      - b) Stains
      - c) Clear Wood Finishes
      - d) Floor Sealers and Coatings
      - e) Waterproofing Sealers
      - f) Non-Flat Paints and Coatings
      - g) Rust Preventative Coatings
  - b. CDPH Standard Method V1.1 (2010) for:
    - 1) Flooring Systems
  - c. South Coast Air Quality Management District (SCAQMD) Rule 1168 and CDPH Standard Method V1.1 (2010) for the following:
    - 1) Adhesives & Sealants including, but not limited to:
      - a) Carpet, Resilient, and Wood Flooring adhesives
      - b) Aerosol Adhesives
      - c) Adhesive Primers
      - d) Acoustical Sealants
      - e) Fire Stop Sealants
      - f) HVAC Duct Sealants
      - g) Sealant Primers
      - h) Caulks
  - d. Formaldehyde Emission Standards: Product data for the following material must comply with applicable CARB ATCM formaldehyde emission standards:
    - 1) Products include, but not limited to:
      - a) Hardwood Plywood (HWPW)
      - b) Particleboard (PB)
      - c) Medium Density Fiberboard (MDF)
      - d) Engineered Wood Floors, Doors, Trim/Molding, Cabinetry, and Countertop
    - 2) Submit product data including the items below:
      - a) No-added formaldehyde (NAF) or ultra-low emitting formaldehyde (ULEF).
      - b) Product Labels
      - c) Product Data Sheets
      - d) Chain-of-Custody Documentation
  - e. Agrifiber Products: Product data for the following material must comply with applicable CARB ATCM formaldehyde emission standards:
    - 1) Products include:
      - a) Engineered wood floors

- b) Doors
- c) Trim/molding
- d) Cabinetry
- e) Countertops.
- 2) Submit product data including the items below:
  - a) No-added formaldehyde (NAF)
  - b) Product Labels
  - c) Product Data Sheets
  - d) Chain-of-Custody Documentation
- 10. Credit EQ 10.1: Controllability of Systems
  - a. Submit photographs of installed temperature control devices and/or operable windows.
- 11. Credit EQ 11.1: Daylighting:
  - a. Submit photographs of installed light controls.
- 12. Credit EQ 13.2: Superior Electric Lighting Performance
  - a. Submit receipts, proof of purchase or installation for the required lighting system.
  - b. Submit pictures of installed lighting system in typical classroom.
- 13. Prerequisite EE 7.0: Local Energy Efficiency Incentives and Assistance
  - a. Complete, File, and Distribute documentation demonstrating compliance and participation with local incentive provider. Local incentive provider is to be selected by the owner prior to the start of the project.
- 14. Prerequisite WE 1.0: Minimum Reduction in Indoor Potable Water Use
  - a. Submit photographs of installed fixtures and metering systems, manufacturer receipts, proof of purchase, and approved submittals for the water-efficient products purchased.
- 15. Credit SS 11.1: Reduce Heat Islands: Cool Roofs
  - a. Submit pictures of the installed cool roof.
- 16. Credit SS 12.1 Avoid Light Pollution and Unnecessary Lighting:
  - a. Submit manufacturer receipts or proof of purchase for compliant light fixtures.
  - b. Submit pictures of installation.
- 17. Prerequisite MW 2.01: Waste reduction progress reports complying with Section 01 74 19 "Construction Waste Management and Disposal."
  - a. Submit All Waste and Recycling Weight Slips
  - b. Submit Final Recycling Rate in Tabular Form.
    - 1) Table to include the following information:
      - a) Waste Removal Date
      - b) Name of Waste or Recycling Material Hauler
      - c) Location of Recycling Center
      - d) Location of Landfill
      - e) Waste Receipt Number
      - f) Type of Waste
      - g) Total Garbage Material (in Tons) in each collection instance
      - h) Total Salvaged Material (in Tons) in each collection instance
      - i) Total Recycled Material (in Tons) in each collection instance
      - j) Total Overall Garbage Material (in Tons)
      - k) Total Overall Salvaged Material (in Tons)

- l) Total Overall Recycled Material (in Tons)
  - m) Total Project Recycled Percentage Rate (in Tons)
18. Credit MW 3.1 – Single Attribute – Recycled Content, Performance Approach, achieving weighted average recycled-content value of at least 10%.
- a. Submit product data, including quantity of each material component, cost of material, percentage of pre-consumer and post-consumer recycled content.
    - 1) Exceptions include:
      - a) Fly Ash generated from municipal solid waste incinerators
      - b) Fly Ash generated from a plant fired by hazardous waste, medical waste, or tire-derived fuel.
      - c) Materials with a mercury concentration of more than 5.5 ppb (.0055mg/L).
    - b. Submit Final Weighted Average of Recycled Value demonstrating achievement of at least 10% over the project.
      - 1) Table to include the following information:
        - a) Product Name
        - b) Product Manufacturer
        - c) Specification Section
        - d) Material Cost
        - e) Percentage of Pre-Consumer Recycled Content
        - f) Weighted Average Recycled Content Value for Pre-Consumer Recycled Content
        - g) Percentage of Post-Consumer Recycled Content
        - h) Weighted Average Recycled Content Value for Post-Consumer Recycled Content
        - i) Total Material Cost
        - j) Total Recycled Content Value
        - k) Weighted Value of Recycled Content Value Percentage
19. Credit MW 5.1 – Single Attribute – Certified Wood, achieving use of at least 50% of certified wood based materials, by cost.
- a. Submit product data for all materials, Certificates of Chain-of-Custody signed by manufacturers, proof of purchase.
  - b. Submit Final Wood Material Portion Percentage in tabular format.
    - 1) Table to include the following information:
      - a) Product Type
      - b) Product Name
      - c) Destination of Product
      - d) Manufacturer
      - e) Forest Stewardship or NWFA Responsible Procurement Program Affiliation
      - f) Chain of Custody Certificate Number
      - g) Certified Wood Material Cost for each instance
      - h) Non-Certified Wood Material Cost for each instance
      - i) Total Overall Cost of Total New Wood for the Project
      - j) Total Overall Cost of Total Certified Wood for the Project
      - k) Total Certified Wood Percentage, by cost
20. Credit MW 11.1 – Locally Produced Materials – achieving use of at least 20% of building materials by cost that are manufactured within a 500-mile radius.

- a. Submit product data for all materials and proof of purchase.
  - b. Submit Final Local Product Percent in tabular format.
    - 1) Table to include the following information:
      - a) Product Type
      - b) Product Name
      - c) Manufacturer
      - d) Location of Final Point of Assembly
      - e) Distance from Project Site
      - f) Local Product Material Cost for each instance
      - g) Overall Local Product Material Cost
      - h) Overall Material Cost, including all products
      - i) Overall Local Product Percentage, by cost
21. Green Building Post Construction Certification Form: Submit signed "Green Building Post Construction Certification Form" state that all prerequisites and credits noted in the Contract Documents have been carried out.
22. Low VOC products must be certified by one of the programs below or equivalent:
  - a. Greenguard Certification Program.
  - b. Scientific Certification Systems.
  - c. Indoor Advantage – Gold.
  - d. Carpet and Rug Institute.
  - e. Green Label Plus.
23. Materials Selection: Product data for composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.
- G. Green Building Post Construction Certification Form – Provide signed "Green Building Post Construction Certification Form." State that specified prerequisites and credits have been completed.
- H. Photographic Documentation of Prerequisites and Credits: Submit photographs required by each prerequisite and credit for record. Annotate photographs as specified in Section 01 32 33 Photographic Documentation.

#### 1.05 QUALITY ASSURANCE

- A. Pre-Construction Meeting: Conduct conference at the Project site in accordance with Division 01 Section "Project Management and Coordination," to discuss NE-CHPS requirements. Require representatives of all affected subcontractors to attend. Discuss the prerequisites and credits which are part of the Contract, how they will be achieved and how conformance will be documented. Schedule meeting at a time convenient to Owner and Architect within 21 days prior to commencement of the work. Advise Architect, Owner's Commissioning Authority, and Owner's Project Manager of scheduled meeting dates.
1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Project Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss NECHPS plan for the project, submittal procedures, and Contractor's action plan for achieving and documenting prerequisites and credits for the project.

3. Minutes: Record and distribute minutes to attendees and other entities with responsibilities for obtaining NECHPS Prerequisites and Credits.

B.

PART 2 - PRODUCTS

2.01 RECYCLED MATERIALS

- A. Credits MW 3.1, Recycled Content: Provide materials with recycled content. Calculate individual materials' and overall project recycled content in accordance with NECHPS performance method.

2.02 LOW-EMITTING MATERIALS

- A. Prerequisite and Credit EQ 7.0, EQ 7.1, Low-Emitting Materials: Provide low-VOC materials where specified in individual Sections, and for the following products where not indicated in other Sections.

1. Adhesives, sealants and concrete sealers
2. Paint and Coatings applied to walls, floors and ceilings.
3. Furniture & Furnishings
4. Flooring Systems
5. Composite Wood and Agrifiber Products
6. Ceiling & Wall Systems

- B. Low-Emitting Materials, General Emissions Requirements: Products must demonstrate they have been tested and determined compliant in accordance with California Department of Public Health, (CDHP), Standard Method v1.1-2010, using the applicable exposure scenario. Manufacturer's documentation demonstrating compliance must state the range of total VOCs (tVOC) after 14 days measured as specified in the CDPH Standard Method v1.1 as follows:

1. 0.5mg/m<sup>3</sup> or less,
2. between 0.5 and 5.0 mg/m<sup>3</sup> or,
3. 0.50 mg/m<sup>3</sup> or more.

- C. Low VOC Requirements for Adhesives, and Sealants Used on the Project in Quantities of 2.5 Gallons or more: For field applications that are inside the weatherproofing system, use adhesives, sealants, and concrete sealers that comply with the following limits for VOC content when calculated according to South Coast Air Quality Management District Rule 1168, requirements in effect on July 1, 2005, and rule amendment date January 7, 2005:

Architectural Applications:	Allowable VOC Content (g/L):
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesives	100

Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single ply roof membrane adhesives	250
Specialty Applications:	Allowable VOC Content (g/L):
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Computer diskette manufacturing	350
Contact adhesive	80
Special purpose contact adhesive	250
Tire retread	100
Adhesive primer for traffic marking tape	150
Structural wood member adhesive	140
Sheet applied rubber lining operations specialty	850
Top and Trim adhesive	250
Substrate Specific Applications:	Allowable VOC Content (g/L):
Metal to metal substrate specific adhesives	30
Plastic foam substrate specific adhesives	50
Porous material (except wood) substrate specific adhesives	50
Wood substrate specific adhesives	30
Fiberglass substrate specific adhesives	80
Sealants:	
Architectural sealant	250
Marine deck sealant	760
Nonmember roof sealant	300
Roadway sealant	250
Single-ply roof membrane sealant	450
Other sealant	420
Sealant Primers:	Allowable VOC Content (g/L):
Architectural non-porous sealant primer	250
Architectural porous sealant primer	775
Modified bituminous sealant primer	500
Marine deck sealant primer	760
Other sealant primer	750
Other	

Other adhesives, adhesive bonding primers, adhesive primers or any other primers	250
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- D. Low VOC Requirements for Adhesives, and Sealants for Flooring, Wall Covering, Wall Base Adhesives, and Sealants shall demonstrate compliance with CDPH Standard Method v1.1 and South Coast Air Quality Management (SCAQMD) Rule 116, Adhesive and Sealant Applications, and rule amendment January 7,2005.
- E. VOC Requirements for Paints and Coatings: For field applications, use paints and coatings that comply with the following limits for VOC content when calculated according to South Coast Air Quality Management District Rule 1113, effective June 3, 2011, amended September 6, 2013:

Product Type:	Allowable VOC Content (g/L):
Bond Breaker	350
Clear wood finishes - Varnish	275
Clear wood finishes – Sanding Sealer	275
Clear wood finishes - Lacquer	275
Concrete – Curing compounds	100
Concrete – Curing compounds for roadways & bridges	350
Concrete surface retarder	50
Driveway Sealer	50
Dry-fog coatings	50
Faux finishing coatings - Clear topcoat	100
Faux finishing coatings – Decorative Coatings	350
Faux finishing coatings - Glazes	350
Faux finishing coatings - Japan	350
Faux finishing coatings – Trowel applied coatings	50
Fire-proof coatings	150
Flats	50
Floor coatings	50
Form release compounds	100
Graphic arts (sign) coatings	150
Industrial maintenance coatings	100
Industrial maintenance coatings – High temperature IM coatings	420
Industrial maintenance coatings – Non-sacrificial anti-graffiti coatings	100
Industrial maintenance coatings – Zinc rich IM primers	100
Magnesite cement coatings	450
Mastic coatings	100
Metallic pigmented coatings	150
Multi-color coatings	250
Non-flat coatings	50
Pre-treatment wash primers	420
Primers, sealers and undercoaters	100

Product Type:	Allowable VOC Content (g/L):
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Roof coatings, aluminum	100
Roof primers, bituminous	350
Rust preventative coatings	100
Stone consolidant	450
Sacrificial anti-graffiti coatings	50
Shellac- Clear	730
Shellac – Pigmented	550
Specialty primers	100
Stains	100
Stains, interior	250
Swimming pool coatings – repair	340
Swimming pool coatings – other	340
Traffic Coatings	100
Waterproofing sealers	100
Waterproofing concrete/masonry sealers	100
Wood preservatives	350
Low solids coatings	120

- F. 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).
- G. VOC Requirements for Furniture and Furnishings for classrooms and administrative spaces: Furniture, shall be tested following the procedures in ANSI/BIFMA M7.1 (2011) and CDPH Standard Method V1.1 (2010). Student Seating and Workstations shall be tested individually. Administrative area and teacher workstations and seating.
- H. VOC Requirements for Flooring Systems all spaces: Furniture, shall be tested following the procedures in CDPH Standard Method V1.1 (2010).
- I. VOC Requirements for Composite Wood and Agrifiber: Composite Wood and Agrifiber products shall be made using no-added formaldehyde (NAF) or ultra-low emitting formaldehyde (ULEF) resins as defined in the California Air Resources Board’s “Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products” or shall be made with no added formaldehyde. Products affected include:
  - a. Composite Wood:
    - i. Composite core plywood
    - ii. Veneer hardwood plywood
    - iii. Particleboard (PB)
    - iv. Medium density fiberboard (MDF)
  - b. Agrifiber:
    - i. Material free of formaldehyde (NAF based resins)



- c. Do not use composite wood or agri-fiber products or adhesives that contain urea-formaldehyde resin.
- J. CLEANING EQUIPMENT & MATERIALS
- 1. Vacuum Cleaners must include HEPA filtration certified by The Carpet and Rug Institute's Seal of Approval from the Green Label Vacuum Cleaner Program, achieving 'Energy Efficient Rated – Gold Level'.
    - a. HVAC Filtration
      - 1) Credit EQ 1.1 – Enhanced Filtration, Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13 or higher.

### PART 3 - EXECUTION

#### 3.01 NONSMOKING BUILDING

- A. Environmental Tobacco Smoke Control: Smoking, vaping, and other use of tobacco products is not permitted in the building, on the project site, or within 25 feet (8m) of entrances, operable windows, or outdoor-air intakes.
  - 1. Refer to Section 01 57 31, "Indoor Air Quality Management."

#### 3.02 CONSTRUCTION WASTE MANAGEMENT

- A. Prerequisite MW 2.01: Refer to Division 01 Section "Construction Waste Management and Disposal."

#### 3.03 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

- A. Comply with Division 01 Section "Temporary Indoor Air Quality."
- B. Credit EQ 5.1.1: 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 Division 01 Section "Temporary Facilities and Controls," install filter media having a MERV 8 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.
- C. Credit EQ 5.1.2: Duct Protection:
  - 1. During construction, seal HVAC supply and return openings to protect them from dust infiltration (for example, from gypsum board installation or wood floor sanding).
  - 2. Where new duct systems are being installed, follow SMACNA guidelines "Duct Cleanliness for New Construction Guidelines," 2000 edition, according to "Advanced" levels of cleanliness. Comply with requirements for protecting ductwork during transportation and storage and during installation in accordance with provisions of Division 23 Section "Metal Ducts."

3.04 CREDIT EQ 5.1.3: BUILDING FLUSH OUT

- A. During and after installation of VOC emitting materials.
  - 1. Provide maximum amount of outdoor air (design maximum outdoor air flow rate for maximum occupancy) from the air handler/energy recovery unit/makeup air unit serving the area for the maximum amount of time feasible, but not less than continuously (i.e. 24hrs/day) for seven days.
  - 2. Provide documentation of day/time that VOC emitting material is installed along with report detailing run-time of HVAC unit, total cfm delivered, percent outside air, temperature in space, humidity in space.
  
- B. After construction ends, prior to occupancy
  - 1. Provide flush-out calculations detailing phase 1C, 2, and 3 and which HVAC unit is being utilized for approval prior to flush-out. For each HVAC unit, include area, volume, start date, end date, total air flow, percent outside air, total volume of outside air delivered. Each area served must be provide a minimum of 14,000 cu. Ft. of outdoor air per sq. ft. of gross floor area while maintaining an internal temperature of at least 60 deg. F and no higher than 80 deg. F and a relative humidity no higher than 60 percent, for all spaces except storage and corridors.
  - 2. Perform flush-out per HVAC unit and per phase. Record start/finish, run-time, total air flow, percent outside air, temperature, and humidity utilizing an approved method.
  - 3. Submit report showing compliance with flush-out calculation.
  - 4. Replace air filters with new filters and provide two sets of additional replacement filters prior to occupancy for all HVAC units.
  
- C. Alternate – during occupancy
  - 1. Prior to occupancy, the square root of the total number of classrooms in the phase being occupied must be tested for compliance with IAQ testing. Conduct IAQ testing using the current versions of ASTM standard methods, EPA compendium methods or ISO methods for levels shown in Table 1. If there are any non-compliant rooms, they must be remedied and re-tested until they are compliant. Two additional classrooms per non-compliant classroom must also be tested in all items in Table 1 in the event of non-compliance.

Table 1. Maximum Concentration Levels, by Contaminant and Testing Method

Contaminant	Maximum Concentration	ASTM and US EPA methods	ISO method
Formaldehyde	27 ppb	AST D5197; EPA TO 011 or EPA Compendium Method IP-6	ISO 16000-3
Particulates (PM10 & PM 2.5)	PM10: 20 micrograms per cubic meter PM2.5: 12 micrograms per cubic meter	EPA Compendium Method IP-10	ISO 7708
Total volatile organic compounds (TVOCs)	500 micrograms per cubic meter	EPA TO-1, TO-15, TO-17, or EPA Compendium Method IP-1	ISO 16000-3
Target chemicals listed in CDPH Standard Method v1.1, Table 4-1, except formaldehyde	CDPH Standard Method v1.1-2010, Allowable Concentrations, Table 4-1	ASTM D5197; EPA TO-1, TO-15, TO-17, or EPA Compendium Method IP	ISO 16000-3 ISO 16000-6
Carbon monoxide	9 ppm; no more than 2 ppm above outdoor levels	EPA Compendium Method IP-3	ISO 4224
Ppb = parts per billion; ppm-parts per million; µg/cm = micrograms per cubic meter.			

2. Conduct the flush-out for 24 hours a day continuous ventilation for a 14-day flush-out during occupancy.
  - a. Supply fans at maximum.
  - b. Outdoor air dampers at design maximum.
  - c. Thermal comfort shall be maintained per criteria in ASHRAE Standard 55.
  - d. During the unoccupied hours, internal temperatures shall be maintained at the most energy efficient level above 60 deg. F and relative humidity shall be maintained no higher than 60%.
    - 1) Adjust fan to achieve criteria if necessary and record difference in air flow from full air flow. Extend run-time past 14-days to compensate for reduce outside air flowrate.
3. Record start/finish, run-time, total air flow, percent outside air, temperature, and humidity utilizing an approved method.
4. Submit report demonstrating compliance.

D. Post -occupancy ventilation

1. After any touch up work is performed (after or during flush-out), provide temporary ventilation during application and extend the building flush-out (per HVAC unit/phase) by a minimum of 4 days after touch-up application, with 100% tempered outdoor air for 24 hours each day.
2. Record touchup activity and start/finish day/time, flush-out start/finish, run-time, total air flow, percent outside air, temperature, and humidity utilizing an approved method.
3. Submit report demonstrating compliance.

### 3.05 RADON TESTING

- A. Owner to coordinate Radon Testing at the Completion of the of the final phase of work. Testing to comply with EPA 402-R-92-014.

### 3.06 ENHANCED COMMISSIONING

- A. Systems Manual: A system-focused composite document that includes the operations manual, maintenance manual, and additional information of use to the Owner during the occupancy and operations phase.
- B. Provide a systems manual in addition to the O&M manuals. The systems manual should include the following for each commissioned system:
  1. Final version of basis of design
  2. System single line diagram
  3. As built sequence of operations
  4. Operating instructions for integrated building systems
  5. Recommended schedule of maintenance reflective of the schedule of maintenance in the O&M manual
  6. Recommended schedule for retesting commissioned systems
  7. Recommended schedule for recalibrating sensors and actuators.
- C. Systems Manuals shall be submitted to the Design Team for review in conjunction with Training Manual.

### 3.07 FACILITY STAFF TRAINING

- A. Training Manuals used for Facility Staff and Faculty Training.
  1. Format: Digital Presentations submitted to be printed with instructions on how to access online link.
  2. Training Manual for Facility Staff to include the following content:
    - a. Operation and Maintenance of all Building Systems
    - b. Operation and Maintenance System Manual Organization
    - c. Scheduling for Maintenance Procedures
    - d. Overview of Project Warranties
    - e. Recommendations for Development of Systems Maintenance Plan
  3. Training Manual for Teachers to include the following content:
    - a. Basic Operation of Classrooms Systems
    - b. Window and Door Impacts on Systems
    - c. Observing Maintenance Needs and Coordinating with Facility Staff

END OF SECTION 01 81 13

- B. NE-CHPS Submittals:
  - 1. Complete “Sustainable Materials Attributes Submittal Form” attached to Section 01 81 13 “Sustainable Design Requirements”.
  - 2. Provide supporting documentation, as required in Section 01 81 13, from manufacturer for materials attributes data submitted.
- C. Shop Drawings: Show fabrication and installation details for signs.
  - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
  - 2. Provide message list, timesteps, graphic elements, including tactile characters and Braille, and layout for each sign.
  - 3. Graphic Design Services: Provide drawings for graphic design of egress paths signage. Indicate orientation, egress paths, and “You are Here” designations for all scheduled rooms. Final approval by authorities having jurisdiction required.
  - 4. Wiring Diagrams: Power, signal, and control wiring.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
  - 1. Aluminum.
  - 2. Acrylic sheet.
  - 3. Plastic sheet.
  - 4. Die-cut vinyl characters and graphic symbols. Include representative samples of available timesteps and graphic symbols.
- E. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
  - 1. Plaque: 6 inches square including border.
  - 2. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).
  - 3. Panel Signs: Not less than 12 inches square.
  - 4. Accessories: Manufacturer's full-size unit.
- F. Sign Schedule: Use same designations indicated on Drawings. ve for specific room use name. Provide "note holder" at bottom of sign. Insure room numbers and names are approved prior to fabrication and are consistent with fire alarm and automation system naming. *Addendum No.2*

#### 1.05 INFORMATIONAL SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.
- B. Warranty: Special warranty specified in this Section.

#### 1.06 QUALITY ASSURANCE

- A. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- B. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines.

SECTION 10 14 00  
SIGNAGE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
1. Commemorative plaques.
  2. Installation of salvaged plaques.
  3. Dimensional characters.
    - a. Aluminum cutout type.
    - b. Aluminum, dimensional shoebox construction, characters and silhouettes for exterior building signage.
  4. Die-cut vinyl characters and graphic symbols
  5. Photopolymer acrylic panel signs for room identification and wayfinding.
  6. Display Rails (DR) installed with signage.
  7. Aluminum panel signs.
  8. Framed paper signs:
    - a. Building plan graphics.
- B. Related Sections include the following:
1. Division 01 Section "Temporary Facilities and Controls," for temporary Project identification signs and for temporary information and directional signs.
  2. Section 10 11 00 "Visual Display Surfaces" for display rails that are part of signage.
  3. Division 14 Section "Hydraulic Elevators" for code-required elevator signage.
  4. Division 22 Section "Identification, for Plumbing Piping and Equipment," for labels, tags, and nameplates for plumbing systems and equipment.
  5. Division 23 Section "Identification for HVAC Piping and Equipment," for labels, tags, and nameplates for HVAC systems and equipment.
  6. Division 26 Section "Identification for Electrical Systems," for labels, tags, and nameplates for electrical equipment.
  7. Division 26 Section "Interior Lighting," for illuminated Exit signs.

1.03 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. NE-CHPS Submittals:
  - 1. Complete “Sustainable Materials Attributes Submittal Form” attached to Section 01 81 13 “Sustainable Design Requirements”.
  - 2. Provide supporting documentation, as required in Section 01 81 13, from manufacturer for materials attributes data submitted.
- C. Shop Drawings: Show fabrication and installation details for signs.
  - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
  - 2. Provide message list, timesteps, graphic elements, including tactile characters and Braille, and layout for each sign.
  - 3. Graphic Design Services: Provide drawings for graphic design of egress paths signage. Indicate orientation, egress paths, and “You are Here” designations for all scheduled rooms. Final approval by authorities having jurisdiction required.
  - 4. Wiring Diagrams: Power, signal, and control wiring.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
  - 1. Aluminum.
  - 2. Acrylic sheet.
  - 3. Plastic sheet.
  - 4. Die-cut vinyl characters and graphic symbols. Include representative samples of available timesteps and graphic symbols.
- E. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
  - 1. Plaque: 6 inches square including border.
  - 2. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).
  - 3. Panel Signs: Not less than 12 inches square.
  - 4. Accessories: Manufacturer's full-size unit.
- F. Sign Schedule: Use same designations indicated on Drawings. ve for specific room use name. Provide "note holder" at bottom of sign. Insure room numbers and names are approved prior to fabrication and are consistent with fire alarm and automation system naming. *Addendum No.2*

#### 1.05 INFORMATIONAL SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.
- B. Warranty: Special warranty specified in this Section.

#### 1.06 QUALITY ASSURANCE

- A. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- B. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines.



1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.08 COORDINATION

- A. Coordinate placement of anchorage devices with templates for installing signs.

1.09 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Deterioration of metal and polymer finishes beyond normal weathering.
    - b. Deterioration of embedded graphic image colors and sign lamination.
  - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.
- B. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- C. Aluminum Extrusions: ASTM B 221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.
- D. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
- E. Polycarbonate Sheet: Of thickness indicated, manufactured by extrusion process, coated on both surfaces with abrasion-resistant coating:
  - 1. Impact Resistance: 16 ft-lbf/in. per ASTM D 256, Method A.
  - 2. Tensile Strength: 9000 lbf/sq. in. per ASTM D 638.
  - 3. Flexural Modulus of Elasticity: 340,000 lbf/sq. in. per ASTM D 790.
  - 4. Heat Deflection: 265 deg F at 264 lbf/sq. in. per ASTM D 648.
  - 5. Abrasion Resistance: 1.5 percent maximum haze increase for 100 revolutions of a Taber abraser with a load of 500 g per ASTM D 1044.

- F. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.

## 2.02 PLAQUES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Advanced Signing LLC.
  - 2. A. R. K. Ramos.
  - 3. Gemini Incorporated.
  - 4. Matthews International Corporation; Bronze Division.
  - 5. Metal Arts; Div. of L&H Mfg. Co.
  - 6. Mills Manufacturing Company.
  - 7. Nelson-Harkins Industries.
  - 8. Southwell Company (The).
- B. Cast Plaques: Provide castings, in shapes indicated and scheduled, free of pits, scale, sand holes, and other defects, as follows:
  - 1. Plaque Material: Aluminum.
  - 2. Plaque Thickness: 0.50 inch.
  - 3. Size: 24 inches by 36 inches.
  - 4. Finish:
    - a. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard, in color as selected by Architect from manufacturer's full range.
    - b. Clear organic coating.
  - 5. Background Texture: As selected by Architect from manufacturer's full range.
  - 6. Text and Artwork: by Owner.
  - 7. Typeface: Century Gothic.
  - 8. Mounting: Concealed studs, noncorroding, for substrates encountered.  
(ASI 015)

## 2.03 DIMENSIONAL CHARACTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. ACE Sign Systems, Inc.
  - 2. ASI-Modulex, Inc.
  - 3. Gemini Incorporated.
  - 4. Innerface Sign Systems, Inc.
  - 5. Southwell Company (The).
- B. Exterior Stainless Steel Cutout Characters: Provide 12" high x 1-1/2" deep fabricated stainless steel, brushed, clear anodized finish. Century Gothic font.
  - 1. Mounting: Flush noncorroding studs mount to exterior brick wall with drill pattern.
- C. Interior Aluminum Cutout Characters: Provide characters with square-cut, smooth edges. Comply with the following requirements:
  - 1. Aluminum Sheet: 0.125 inch thick for letters up to 8 inches high; 0.250 inch thick for letters over 6 inches high, larger sizes as indicated. Size as scheduled on the drawings.

2. Finish: clear anodized, after fabrication.
3. Mounting: Flush with concealed noncorroding studs for substrates encountered, or as indicated.

D. Entry Sign at Exterior Wall: Provide aluminum cutout sign mounted on masonry entry wall fabricated as indicated on drawings.

#### 2.04 VINYL, APPLIED FILM

- A. Exterior Door Graphics: 6-inch-high square white background with 4-inch-high number centered in square. Print graphic in reverse and apply to inside of transom lites, centered on glass, to be readable from exterior. At door locations without transom lite, provide cut aluminum dimensional characters.
1. Color: As selected by the Architect from manufacturer's full range.
  2. Coordinate numbering sequence local fire department.
- B. Vinyl Film lettering and graphics at other locations: Provide sizes and colors indicated.

#### 2.05 TACTILE PANEL SIGNS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACE Sign Systems, Inc.
  2. Advance Corporation; Braille-Tac Division.
  3. ASI-Modulex, Inc.
  4. Seton Identification Products.
  5. ASE Manufacturing.
  6. Supersine Company (The).
  7. Southwood Corp.
- B. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
1. Laminated, Etched Photopolymer: Raised graphics with Braille 1/32 inch above surface with contrasting colors in finishes and color combinations as selected by Architect from manufacturer's full range and laminated to acrylic back.
    - a. Edge: Square cut.
    - b. Corner: Square.
    - c. Custom Paint Colors: Match sample provided by the Architect.
    - d. Braille: Dome-shaped to comply with ADA. Braille with flat tops is not acceptable.
    - e. Pictograms: 6 inches high.
    - f. Room Number Text: 1-1/4 inches high.
    - g. Room Name Text: 5/8 inch high.
    - h. Insert Height: 1 inch.
  2. Mounting: Unframed, wall mounted with two-face tape.
    - a. Mounting Methods: Use double-sided vinyl tape and silicone fabricated from materials that are not corrosive to sign material and mounting surface. Provide at:
      - 1) Tactile sign with slot for paper insert.

- 2) Tactile sign without slot for paper insert.
  - 3) Pictogram signage installed as part of signage mounted to glass.
  - 4) Display Rail (DR) installed as part of signage mounted to glass.
  - 5) Framed Sign Holder installed as part of signage mounted to glass.
3. Changeable Message Inserts: Where indicated, fabricate signs to allow insertion of changeable messages in the form of transparent covers with paper inserts printed by Owner.
- a. Furnish insert material and software for creating text and symbols for PC-Windows computers for Owner production of paper inserts.
  - b. Furnish insert material cut-to-size for changeable message insert.

C. Display Rails (DR): Display Rail with clip strip: See Section 10 11 00 "Visual Display Surfaces" for manufacturers. Manufacturer's standard, aluminum-framed, fabricated into rail shape and paper holder designed to hold paper by clamping action. Provide at each tactile sign as indicated.

1. Size: Approximately 3/4-inch high by width of sign.
2. Color: To match signage.

#### 2.06 EGRESS EXIT PATH SIGN HOLDERS

- A. Sign Holder: Clear acrylic sign holders, consisting of two-sheets of clear, 1/8-inch-thick, non-yellowing, impact-resistant, acrylic plastic, fabricated with space in between to insert 8-1/2 by 11 inch sheet of paper; and with top border pre-punched to accept two screws for attaching the holder to the wall. Furnish with screws.
- B. Graphic Inserts: Submit for approval color graphic plan of the building with paths to exits highlighted or overlaid on the plan. Make color copies of each unique plan sized to fit sign holders, one for each classroom. Add print marking on each plan identifying the room in which it is mounted using red dot and the text "You are here."

#### 2.07 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

#### 2.08 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
  2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
  3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.

4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

#### 2.09 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

#### 2.10 ALUMINUM FINISHES

- A. Clear Anodic Finish: Manufacturer's standard Class 1 clear anodic coating, 0.018 mm or thicker, over a satin (directionally textured) mechanical finish, complying with AAMA 611.
- B. Finish for Exterior Applications; Baked-Enamel Finish: AA-C12C42R1x. Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
  1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.

#### 2.11 COPPER-ALLOY FINISHES

- A. Cast-Bronze Plaque Finishes: Exposed surfaces free of porosity, burrs, and rough spots; with returns finished with fine-grain air blast.
- B. Clear Protective Coating: Coat exposed surfaces of copper alloys with manufacturer's standard, clear organic coating specially designed for coating copper-alloy products.

#### 2.12 ACRYLIC SHEET FINISHES

- A. Colored Coatings for Acrylic Sheet: For copy colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

- B. Verify that items, including anchor inserts, are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Posting of Use and Occupancy: A copy of the certificate of occupancy shall be posted at the main entry or be made readily available for inspection.
- B. Required Egress Posting: A suitably designed placard, approved by the building official shall be posted by the owner at elevator lobbies and on all floors of every building and structure, as defined in IBC Chapter 3: Use and Occupancy
- C. Classification: In addition to the per floor requirement, all rooms used as a place of assembly shall have the required egress posting. Said placard shall be securely fastened to the building or structure in a readily visible place, showing exiting paths per floor.
- D. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
  - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Interior Wall Signs: Install signs on glass sidelights or walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
  - 3. Quantities and Locations: Provide room identification panel signs in the following locations in addition to quantity indicated in schedule:
    - a. At each door to a room accessed from a corridor. Locate sign outside room.
    - b. At each door to a room accessed through another room. Locate sign outside room.
    - c. If room is accessed from two or more rooms, provide sign on each side of all doors.
- E. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
  - 1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
  - 2. Silicone-Adhesive Mounting: Attach signs to smooth, nonporous surfaces; irregular, porous; and vinyl-covered surfaces.
  - 3. Signs Mounted on Glass: Provide vinyl film on glass, cut to same size and shape as sign, to conceal mounting materials. Align vinyl film with sign for complete masking of mounting assembly.
  - 4. Signs Mounted on Glass: Provide matching opaque plate on opposite side of glass to conceal mounting materials.
- F. Dimensional Characters: Mount characters using standard fastening methods to comply with manufacturer's written instructions for character form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish character spacing and to locate holes for fasteners.
  - 1. Flush Mounting: Mount characters with backs in contact with wall surface.

- G. Cast-Metal Plaques: Mount plaques using standard fastening methods to comply with manufacturer's written instructions for type of wall surface indicated.
  - 1. Concealed Mounting: Mount plaques by inserting threaded studs into tapped lugs on back of plaque. Set in predrilled holes filled with quick-setting cement.

3.03 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10 14 00

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.08 COORDINATION

- A. Coordinate placement of anchorage devices with templates for installing signs.

1.09 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Deterioration of metal and polymer finishes beyond normal weathering.
    - b. Deterioration of embedded graphic image colors and sign lamination.
  - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.
- B. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- C. Aluminum Extrusions: ASTM B 221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.
- D. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
- E. Polycarbonate Sheet: Of thickness indicated, manufactured by extrusion process, coated on both surfaces with abrasion-resistant coating:
  - 1. Impact Resistance: 16 ft-lbf/in. per ASTM D 256, Method A.
  - 2. Tensile Strength: 9000 lbf/sq. in. per ASTM D 638.
  - 3. Flexural Modulus of Elasticity: 340,000 lbf/sq. in. per ASTM D 790.
  - 4. Heat Deflection: 265 deg F at 264 lbf/sq. in. per ASTM D 648.
  - 5. Abrasion Resistance: 1.5 percent maximum haze increase for 100 revolutions of a Taber abraser with a load of 500 g per ASTM D 1044.



- F. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.

## 2.02 PLAQUES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Advanced Signing LLC.
  - 2. A. R. K. Ramos.
  - 3. Gemini Incorporated.
  - 4. Matthews International Corporation; Bronze Division.
  - 5. Metal Arts; Div. of L&H Mfg. Co.
  - 6. Mills Manufacturing Company.
  - 7. Nelson-Harkins Industries.
  - 8. Southwell Company (The).
- B. Cast Plaques: Provide castings, in shapes indicated and scheduled, free of pits, scale, sand holes, and other defects, as follows:
  - 1. Plaque Material: Aluminum.
  - 2. Plaque Thickness: 0.50 inch.
  - 3. Size: 24 inches by 36 inches.
  - 4. Finish:
    - a. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard, in color as selected by Architect from manufacturer's full range.
    - b. Clear organic coating.
  - 5. Background Texture: As selected by Architect from manufacturer's full range.
  - 6. Text and Artwork: by Owner.
  - 7. Typeface: Century Gothic.
  - 8. Mounting: Concealed studs, noncorroding, for substrates encountered.  
(ASI 015)

## 2.03 DIMENSIONAL CHARACTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. ACE Sign Systems, Inc.
  - 2. ASI-Modulex, Inc.
  - 3. Gemini Incorporated.
  - 4. Innerface Sign Systems, Inc.
  - 5. Southwell Company (The).
- B. Exterior Stainless Steel Cutout Characters: Provide 12" high x 1-1/2" deep fabricated stainless steel, brushed, clear anodized finish. Century Gothic font.
  - 1. Mounting: Flush noncorroding studs mount to exterior brick wall with drill pattern.
- C. Interior Aluminum Cutout Characters: Provide characters with square-cut, smooth edges. Comply with the following requirements:
  - 1. Aluminum Sheet: 0.125 inch thick for letters up to 8 inches high; 0.250 inch thick for letters over 6 inches high, larger sizes as indicated. Size as scheduled on the drawings.

2. Finish: clear anodized, after fabrication.
3. Mounting: Flush with concealed noncorroding studs for substrates encountered, or as indicated.

D. Entry Sign at Exterior Wall: Provide aluminum cutout sign mounted on masonry entry wall fabricated as indicated on drawings.

#### 2.04 VINYL, APPLIED FILM

- A. Exterior Door Graphics: 6-inch-high square white background with 4-inch-high number centered in square. Print graphic in reverse and apply to inside of transom lites, centered on glass, to be readable from exterior. At door locations without transom lite, provide cut aluminum dimensional characters.
1. Color: As selected by the Architect from manufacturer's full range.
  2. Coordinate numbering sequence local fire department.
- B. Vinyl Film lettering and graphics at other locations: Provide sizes and colors indicated.

#### 2.05 TACTILE PANEL SIGNS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACE Sign Systems, Inc.
  2. Advance Corporation; Braille-Tac Division.
  3. ASI-Modulex, Inc.
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  5. ASE Manufacturing.
  6. Supersine Company (The).
  7. Southwood Corp.
- B. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
1. Laminated, Etched Photopolymer: Raised graphics with Braille 1/32 inch above surface with contrasting colors in finishes and color combinations as selected by Architect from manufacturer's full range and laminated to acrylic back.
    - a. Edge: Square cut.
    - b. Corner: Square.
    - c. Custom Paint Colors: Match sample provided by the Architect.
    - d. Braille: Dome-shaped to comply with ADA. Braille with flat tops is not acceptable.
    - e. Pictograms: 6 inches high.
    - f. Room Number Text: 1-1/4 inches high.
    - g. Room Name Text: 5/8 inch high.
    - h. Insert Height: 1 inch.
  2. Mounting: Unframed, wall mounted with two-face tape.
    - a. Mounting Methods: Use double-sided vinyl tape and silicone fabricated from materials that are not corrosive to sign material and mounting surface. Provide at:
      - 1) Tactile sign with slot for paper insert.

- 2) Tactile sign without slot for paper insert.
  - 3) Pictogram signage installed as part of signage mounted to glass.
  - 4) Display Rail (DR) installed as part of signage mounted to glass.
  - 5) Framed Sign Holder installed as part of signage mounted to glass.
3. Changeable Message Inserts: Where indicated, fabricate signs to allow insertion of changeable messages in the form of transparent covers with paper inserts printed by Owner.
- a. Furnish insert material and software for creating text and symbols for PC-Windows computers for Owner production of paper inserts.
  - b. Furnish insert material cut-to-size for changeable message insert.

#### 2.06 EGRESS EXIT PATH SIGN HOLDERS

- A. Sign Holder: Clear acrylic sign holders, consisting of two-sheets of clear, 1/8-inch-thick, non-yellowing, impact-resistant, acrylic plastic, fabricated with space in between to insert 8-1/2 by 11 inch sheet of paper; and with top border pre-punched to accept two screws for attaching the holder to the wall. Furnish with screws.
- B. Graphic Inserts: Submit for approval color graphic plan of the building with paths to exits highlighted or overlaid on the plan. Make color copies of each unique plan sized to fit sign holders, one for each classroom. Add print marking on each plan identifying the room in which it is mounted using red dot and the text "You are here."

#### 2.07 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

#### 2.08 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
  1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
  2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
  3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
  4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

#### 2.09 FINISHES, GENERAL

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

- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

#### 2.10 ALUMINUM FINISHES

- A. Clear Anodic Finish: Manufacturer's standard Class 1 clear anodic coating, 0.018 mm or thicker, over a satin (directionally textured) mechanical finish, complying with AAMA 611.
- B. Finish for Exterior Applications; Baked-Enamel Finish: AA-C12C42R1x. Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
  - 1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.

#### 2.11 COPPER-ALLOY FINISHES

- A. Cast-Bronze Plaque Finishes: Exposed surfaces free of porosity, burrs, and rough spots; with returns finished with fine-grain air blast.
- B. Clear Protective Coating: Coat exposed surfaces of copper alloys with manufacturer's standard, clear organic coating specially designed for coating copper-alloy products.

#### 2.12 ACRYLIC SHEET FINISHES

- A. Colored Coatings for Acrylic Sheet: For copy colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items, including anchor inserts, are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Posting of Use and Occupancy: A copy of the certificate of occupancy shall be posted at the main entry or be made readily available for inspection.
- B. Required Egress Posting: A suitably designed placard, approved by the building official shall be posted by the owner at elevator lobbies and on all floors of every building and structure, as defined in IBC Chapter 3: Use and Occupancy
- C. Classification: In addition to the per floor requirement, all rooms used as a place of assembly shall have the required egress posting. Said placard shall be securely fastened to the building or structure in a readily visible place, showing exiting paths per floor.
- D. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
  - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Interior Wall Signs: Install signs on glass sidelights or walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
  - 3. Quantities and Locations: Provide room identification panel signs in the following locations in addition to quantity indicated in schedule:
    - a. At each door to a room accessed from a corridor. Locate sign outside room.
    - b. At each door to a room accessed through another room. Locate sign outside room.
    - c. If room is accessed from two or more rooms, provide sign on each side of all doors.
- E. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
  - 1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
  - 2. Silicone-Adhesive Mounting: Attach signs to smooth, nonporous surfaces; irregular, porous; and vinyl-covered surfaces.
  - 3. Signs Mounted on Glass: Provide vinyl film on glass, cut to same size and shape as sign, to conceal mounting materials. Align vinyl film with sign for complete masking of mounting assembly.
  - 4. Signs Mounted on Glass: Provide matching opaque plate on opposite side of glass to conceal mounting materials.
- F. Dimensional Characters: Mount characters using standard fastening methods to comply with manufacturer's written instructions for character form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish character spacing and to locate holes for fasteners.
  - 1. Flush Mounting: Mount characters with backs in contact with wall surface.
- G. Cast-Metal Plaques: Mount plaques using standard fastening methods to comply with manufacturer's written instructions for type of wall surface indicated.
  - 1. Concealed Mounting: Mount plaques by inserting threaded studs into tapped lugs on back of plaque. Set in predrilled holes filled with quick-setting cement.

3.03 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10 14 00