

SECTION 01 45 00.00 20

QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191 **Americans with Disabilities Act (ADA)
Accessibility Guidelines for Buildings and
Facilities; Architectural Barriers Act
(ABA) Accessibility Guidelines
(Amendment 2)**

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)**

ASHRAE 52.2 (2007; Addenda B 2008; Errata 2009, Errata
2010; INT 2010; Errata 2011) Method of
Testing General Ventilation Air-Cleaning
Devices for Removal Efficiency by Particle
Size

ASTM INTERNATIONAL (ASTM)

ASTM D6245 (2007) Using Indoor Carbon Dioxide
Concentrations to Evaluate Indoor Air
Quality and Ventilation

ASTM D6345 (2010) Selection of Methods for Active,
Integrative Sampling of Volatile Organic
Compounds in Air

**SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)**

ANSI/SMACNA 008 (2007) IAQ Guidelines for Occupied
Buildings Under Construction, 2nd Edition

1.2 SUBMITTALS

Government approval by the SRE/CO is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval; the Government reserves the right to review and comment on submittals not having a "G" designation; and submittals with an "L" are for LEED review. LEED review shall be performed by the Contractor's LEED Coordinator and the LEED Administrator. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, and Section 01 33 29 LEED(TM) DOCUMENTATION as applicable:

SD-01 Preconstruction Submittals

Construction Quality Control (QC) Plan; G

Submit a Construction QC Plan prior to start of construction.

Indoor Air Quality (IAQ) Management Plan; G, L
Basis of Design and Design Intent

1.3 INFORMATION FOR THE SENIOR RESIDENT ENGINEER/CONTRACTING OFFICER
(SRE/CO)

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the SRE/CO. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control (CQC) Report, (CQC) Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log.

Deliver the following to the (SRE/CO) during Construction:

- a. CQC Report: Mail or hand-carry the original (wet signatures) and one copy by 10:00 AM the next working day after each day that work is performed and for every 7 consecutive calendar days of no-work.
- b. Contractor Production Report: Submit the report electronically by 10:00 AM the next working day after each day that work is performed and for every 7 consecutive calendar days of no-work. Mail or hand-carry the original (wet signatures) and one copy by 10:00 AM the next working day after each day that work is performed and for every 7 consecutive calendar days of no-work, attached to the CQC Report.
- c. Preparatory Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Preparatory Phase held.
- d. Initial Phase Checklist: Submit the report electronically in the same manner as the CQC Report for each Initial Phase held.
- f. Field Test Reports: Within two working days after the test is performed, submit the report as an electronic attachment to the CQC Report.
- g. Monthly Summary Report of Tests: Submit the report as an electronic attachment to the CQC Report at the end of each month.
- h. Testing Plan and Log: Submit the report as an electronic attachment to the CQC Report, at the end of each month.
- i. Rework Items List: Submit lists containing new entries daily, in the same manner as the CQC Report.
- j. CQC Meeting Minutes: Within two working days after the meeting is held, submit the report as an electronic attachment to the CQC Report.
- k. QC Certifications: As required by the paragraph entitled "QC Certifications".

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. **This QC program is a key element in meeting the objectives of VA's Commissioning requirements, compliance with contract documents, and applicable codes and regulations. (Amendment 2)** The QC program consists of a QC Organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program must cover on-site and off-site work and be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager must report to an officer of the firm and not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job.

1.4.1 Commissioning

Commissioning (Cx) is a systematic process of ensuring that all building systems meet the requirements and perform interactively according to the Contract. The QC Program is a key to this process by coordinating, verifying and documenting measures to achieve the following objectives:

- a. Verify and document that the applicable equipment and systems are installed in accordance with the design intent as expressed through the Contract and according to the manufacturer's recommendations and industry accepted minimum standards.
- b. Verify and document that equipment and systems receive complete operational checkout by the installing Contractors.
- c. Verify and document proper performance of equipment and systems.
- d. Verify that Operation and Maintenance (O&M) documentation is complete.
- e. Verify the Training Plan and training materials are accurate and provide correct instruction and documentation on the critical elements of the products, materials, and systems in the constructed facility. Verify that all identified Government operating personnel are trained.

1.4.2 Acceptance of the Construction Quality Control (QC) Plan

Acceptance of the QC Plan is required prior to the start of construction. The (SRE/CO) reserves the right to require changes in the QC Plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The (SRE/CO) reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organization personnel are subject to acceptance by the (SRE/CO). The (SRE/CO) may require the removal of any individual for non-compliance with quality requirements specified in the Contract.

1.4.3 Preliminary Construction Work Authorized Prior to Acceptance

The only construction work that is authorized to proceed prior to the acceptance of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.4 Notification of Changes

Notify the (SRE/CO), in writing, of any proposed changes in the QC Plan or changes to the QC organization personnel, a minimum of 10 work days prior to a proposed change. Proposed changes are subject to acceptance by the (SRE/CO).

1.4.5 Compliance with Architectural Barriers Act Accessibility Standards

The Architectural Barriers Act (ABA) requires all construction, renovation, or leasing with federal funds to meet the Architectural Barriers Act Accessibility Standard (ABAAS). The Contractor is required to know and apply these Standards, 36 CFR 1191, and program requirements. The Contractor shall engage an individual(s) qualified in the application of ABA standards to oversee, test, and document the Contractor's compliance with these regulations and the contract documents. The individual(s) shall have field experience applying objective design, research, industry conventions and standards. The individual(s) may also serve as one of the other QC Managers. (Amendment 2)

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. The only duties and responsibilities of the QC Manager are to manage and implement the QC program on this Contract. The QC Manager shall report directly to the Project Manager and Company President. The QC Manager shall be on-site when work is being performed by the prime and/or sub-contractors. The QC Manager shall document all non-conforming conditions, items and/or workmanship.

The QC Manager is required to attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by testing laboratory personnel and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities including all Subcontractors.

1.5.1.2 Qualifications

An individual with a minimum of 5 years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual must have at least two years experience as a QC Manager. The individual must have experience in the areas of hazard identification, safety compliance, and sustainability.

1.5.2 Contractor's Commissioning Coordinator (CCC)

Provide an individual on the Contractor's staff who is regularly and frequently on site and shall be responsible for managing the Contractors in their day-to-day performance of the specified commissioning work. Required qualifications for the CCC include relevant process management experience and ability to schedule, coordinate and manage mechanical and electrical subcontractors. The CCC's responsibilities are further defined in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS.

1.5.3 Contractor's LEED Coordinator (CLC)

The individual on the Contractor's staff responsible for ensuring construction-related LEED credits and prerequisites are properly documented. This individual shall be a LEED Accredited Professional (LEED AP) and shall be identified in the LEED Implementation Plan. This individual will coordinate with the LEED Consultant to ensure complete documentation for submission to Green Building Certification Institute (GBCI) for validation of credits and project certification. The CLC's responsibilities are further defined in Section 01 33 29 LEED(TM) DOCUMENTATION.

1.5.4 LEED Administrator

Individual hired by the Government to administer documentation for submission to the GBCI to achieve the project accreditation goal. The LEED Administrator will review the LEED submittals as listed under Section 01 33 00.00 20 SUBMITTAL PROCEDURES and as described under Section 01 33 29 LEED(TM) DOCUMENTATION. This individual will be responsible for the final submission to the GBCI once all credits have been fully documented and administers the project team members registered under the LEED online project. This individual will coordinate with the Contractor's LEED Coordinator to compile project documentation.

1.5.5 Commissioning Authority

Individual hired as a third party directly by the Government who coordinates, plans, and schedules with the Contractor's Commissioning Coordinator (CCC) to implement the Commissioning Plan.

1.5.6 LEED Commissioning Authority

1.5.6.1 Duties

Provide an independent, third party Commissioning Authority (CA) as key person for the Cx and documentation thereof, who is subordinate to the QC Manager. The CA directs and coordinates Cx activities and submits Cx reports to the (SRE/CO) to meet the submittal and reporting requirements of the LEED EA Prerequisite Requirement for Fundamental Commissioning. The CA coordinates the actions of the Testing Laboratory personnel and other inspection and testing personnel required by this Contract for building Cx.

1.5.6.2 Qualifications

The CA must be certified as a commissioning professional by the AABC Commissioning Group (AGC), Association of Energy Engineers (AEE), the Building Commissioning Association (BCA), the National Environmental Balancing Bureau (NEBB), or the University of Wisconsin - Madison (UWM).

CA resume is required, providing education, experience and management capabilities on at least two similar size and type contracts. The CA may not have been involved with the project design, construction management, or supervision and must be with a third-party firm that is not on the design team.

1.5.7 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager must have completed the course entitled "Construction Quality Management (CQM) for Contractors". If the QC Manager does not have a current certification, they must obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the agencies for information on the next scheduled class.

1.5.8 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager must be the same as for the QC Manager.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Construction Quality Control (QC) Plan

1.6.1.1 Requirements

Provide, for acceptance by the (SRE/CO), a Construction QC Plan submitted in a three-ring binder that includes a table of contents, with major sections identified with tabs, with pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing commissioning activities during the construction of the project:

- a. QC ORGANIZATION: A chart showing the QC organizational structure.
- b. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, for each person in the QC organization. Include the CQM for Contractors course certifications for the QC Manager and Alternate QC Manager as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QC Manager Duties and Qualifications".
- c. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.
- d. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide.
- e. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this Contract. Include in this letter the

responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work which is not in compliance with the Contract. Letters of direction are to be issued by the QC Manager to all other QC Specialists outlining their duties, authorities, and responsibilities. Include copies of the letters in the QC Plan.

- f. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify for completeness submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section 01 33 00 SUBMITTAL PROCEDURES.
- g. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs entitled "Accreditation Requirements", as applicable.
- h. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test. Use Government forms to log and track tests.
- i. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track, and complete rework items. Use Government forms to record and track rework items.
- j. DOCUMENTATION PROCEDURES: Use Government form.
- k. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines and is an item or activity on the construction schedule. Include in the list of DFOWs, but not be limited to, all critical path activities on the NAS. Include all activities for which this specification requires QC Specialists or specialty inspection personnel. Provide separate DFOWs in the Network Analysis Schedule for each design development stage and submittal package.
- l. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL: Identify procedures used to ensure the three phases of control to manage the quality on this project. For each DFOW, a Preparatory and Initial phase checklist will be filled out during the Preparatory and Initial phase meetings. Conduct the Preparatory and Initial Phases and meetings with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.
- m. PERSONNEL MATRIX: Not Applicable.
- n. PROCEDURES FOR COMPLETION INSPECTION: Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.
- o. TRAINING PROCEDURES AND TRAINING LOG: Not Applicable.

- p. ORGANIZATION AND PERSONNEL CERTIFICATIONS LOG: Procedures for coordinating, tracking and documenting all certifications on Subcontractors, testing laboratories, suppliers, personnel, etc. QC Manager will ensure that certifications are current, appropriate for the work being performed, and will not lapse during any period of the contract that the work is being performed.

1.7 QC PLAN MEETINGS

Prior to submission of the QC Plan, the QC Manager will meet with the (SRE/CO) to discuss the QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of DFOWs.

1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to the start of construction, the QC Manager will meet with the (SRE/CO) to present the QC program required by this Contract. When a new QC Manager is appointed, the coordination and mutual understanding meeting shall be repeated.

1.8.1 Purpose

The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, design intent, Cx, environmental requirements and procedures, coordination of activities to be performed, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Contractor will be required to explain in detail how three phases of control will be implemented for each DFOW, as well as how each DFOW will be affected by each management plan or requirement as listed below:

- a. Waste Management Plan.
- b. IAQ Management Plan.
- c. Procedures for noise and acoustics management.
- d. Environmental Protection Plan.
- e. Environmental regulatory requirements.
- f. Cx Plan.
- g. Architectural Barriers Act Accessibility Standard. (Amendment 2)**

1.8.2 Coordination of Activities

Coordinate activities included in various sections to assure efficient and orderly installation of each component. Coordinate operations included under different sections that are dependent on each other for proper installation and operation. Schedule construction operations with consideration for indoor air quality as specified in the IAQ Management Plan. Coordinate prefunctional tests and startup testing with Cx.

1.8.3 Attendees

As a minimum, the Contractor's personnel required to attend include an

officer of the firm, the Project Manager, Project Superintendent, QC Manager, Alternate QC Manager, A/E, CA, Environmental Manager, and Subcontractor representatives. Each Subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor and the (SRE/CO). Provide a copy of the signed minutes to all attendees and shall be included in the QC Plan.

1.9 QC MEETINGS

After the start of construction, conduct QC meetings once every two weeks by the QC Manager at the work site with the Project Superintendent, the CA, and the foremen who are performing the work of the DFOWs. The QC Manager is to prepare the minutes of the meeting and provide a copy to the (SRE/CO) within two working days after the meeting. The (SRE/CO) may attend these meetings. As a minimum, accomplish the following at each meeting:

- a. Review the minutes of the previous meeting.
- b. Review the schedule and the status of work and rework.
- c. Review the status of submittals.
- d. Review the work to be accomplished in the next two weeks and documentation required.
- e. Resolve QC and production problems (RFI, etc.).
- f. Address items that may require revising the QC Plan.
- g. Review Accident Prevention Plan (APP).
- h. Review environmental requirements and procedures.
- i. Review Waste Management Plan.
- j. Review IAQ Management Plan.
- k. Review Environmental Management Plan.
- l. Review the status of training completion.
- m. Review Cx Plan and progress.

1.10 DESIGN REVIEW AND DOCUMENTATION

1.10.1 Basis of Design and Design Intent

Review the basis of design received from the (SRE/CO).

1.10.2 Design Review

Review design documents to verify that each commissioned system meets the design intent relative to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. Fully document review in written report.

1.10.3 Contract Document Review

Review the Contract documents to verify that Cx is adequately specified, and that each commissioned system is likely to meet the design intent relative to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts.

1.11 THREE PHASES OF CONTROL

Adequately cover both on-site and off-site work with the Three Phases of Control and include the following for each DFOW.

1.11.1 Preparatory Phase

Notify the (SRE/CO) at least two work days in advance of each preparatory phase meeting. The meeting will be conducted by the QC Manager and attended by the Project Superintendent, the CA, and the foreman responsible for the DFOW. When the DFOW will be accomplished by a Subcontractor, that Subcontractor's foreman shall attend the preparatory phase meeting. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report and in the Preparatory Phase Checklist. Perform the following prior to beginning work on each DFOW:

- a. Review each paragraph of the applicable specification sections.
- b. Review the Contract drawings.
- c. Verify that field measurements are as indicated on construction and/or shop drawings before confirming product orders, in order to minimize waste due to excessive materials.
- d. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required.
- e. Review the testing plan and ensure that provisions have been made to provide the required QC testing.
- f. Examine the work area to ensure that the required preliminary work has been completed.
- g. Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- h. Arrange for the return of shipping/packaging materials, such as wood pallets, where economically feasible.
- i. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data.
- j. Discuss specific controls used and construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW.
- k. Review the APP and appropriate Activity Hazard Analysis (AHA) to

ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.

1. Review the Cx Plan and ensure all preliminary work items have been completed and documented.

1.11.2 Initial Phase

Notify the (SRE/CO) at least two work days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the initial phase with the Project Superintendent, and the foreman responsible for that DFOW. Observe the initial segment of the DFOW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily CQC Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each DFOW:

- a. Establish the quality of workmanship required.
- b. Resolve conflicts.
- c. Ensure that testing is performed by the approved laboratory.
- d. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.
- e. Review the Cx Plan and ensure all preparatory work items have been completed and documented.

1.11.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFOW and document in the daily CQC Report:

- a. Ensure the work is in compliance with Contract requirements.
- b. Maintain the quality of workmanship required.
- c. Ensure that testing is performed by the approved laboratory.
- d. Ensure that rework items are being corrected.
- e. Assure manufacturers representatives have performed necessary inspections if required and perform safety inspections.
- f. Review the Cx Plan and ensure all work items, testing, and documentation has been completed.

1.11.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW is resumed after substantial period of inactivity, or if other problems develop.

1.11.5 Notification of Three Phases of Control for Off-Site Work

Notify the (SRE/CO) at least two weeks prior to the start of the preparatory and initial phases.

1.12 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section 01 33 00 SUBMITTAL PROCEDURES.

1.13 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.13.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

1.13.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at <http://ts.nist.gov/ts/htdocs/210/214/214.htm>, the American Association of State Highway and Transportation Officials (AASHTO) program at <http://www.transportation.org/aashto/home.nsf/frontpage>, International Accreditation Services, Inc. (IAS) at <http://www.iasonline.org>, U. S. Army Corps of Engineers Materials Testing Center (MTC) at <http://www.wes.army.mil/SL/MTC/>, the American Association for Laboratory Accreditation (A2LA) program at <http://www.a2la.org/>, the Washington Association of Building Officials (WABO) at <http://www.wabo.org/> (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) at <http://www.wacel.org/labaccred.html> (Approval authority by WACEL is limited to projects within Facilities Engineering Command (FEC) Washington geographical area).

1.13.3 Capability Check

The (SRE/CO) retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.13.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the (SRE/CO) immediately. Conspicuously

stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results must be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the (SRE/CO) via the QC Manager. Furnish a summary report of field tests at the end of each month, per the paragraph entitled "INFORMATION FOR THE CONTRACTING OFFICER".

1.13.5 Test Reports and Monthly Summary Report of Tests

Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the (SRE/CO). Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month. Provide a copy of the signed test reports and certifications to the OMSI preparer for inclusion into the OMSI documentation.

1.14 QC CERTIFICATIONS

1.14.1 CQC Report Certification

Contain the following statement within the CQC Report: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report".

1.14.2 Invoice Certification

Furnish a certificate to the (SRE/CO) with each payment request, signed by the QC Manager, attesting that as-built drawings are current, coordinated and attesting that the work for which payment is requested, including stored material, is in compliance with Contract requirements.

1.14.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the (SRE/CO) attesting that "the work has been completed, inspected, tested and is in compliance with the Contract". Provide a copy of this final QC Certification for completion to the OMSI preparer for inclusion into the OMSI documentation.

1.15 COMPLETION INSPECTIONS

1.15.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work", or stated elsewhere in the specifications, the QC Manager and the CA must conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications and Contract. Include in the punch list any remaining items on the "Rework Items List", which were not corrected prior to the Punch-Out Inspection. Include within the punch list the estimated date by which the deficiencies will be corrected. Provide a copy of the punch list to the (SRE/CO). The QC Manager, or staff, must make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished, notify the Government that the facility is ready for the Government "Pre-Final Inspection".

1.15.2 Pre-Final Inspection

The Government and QCM will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" will be documented by the QCM as a result of this inspection. The QC Manager will ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the Client can be scheduled. Any items noted on the "Pre-Final" inspection must be corrected in a timely manner and be accomplished before the contract completion date for the work, or any particular increment thereof, if the project is divided into increments by separate completion dates.

1.15.3 Final Acceptance Inspection

Notify the (SRE/CO) at least 14 calendar days prior to the date a final acceptance inspection can be held. State within the notice that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The Contractor must be represented by the QC Manager, the Project Superintendent, the CA, and others deemed necessary. Attendees for the Government will include the (SRE/CO), other VA/NCA personnel, and personnel representing the Client. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the (SRE/CO) to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction".

1.16 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.16.1 Construction Documentation

Reports are required for each day that work is performed and must be attached to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER" will be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the Contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work must be identified by terminology consistent with the construction schedule. In the "remarks" sections of the reports, enter pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

1.16.2 Quality Control Validation

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders must be

readily available to the (SRE/CO) during all business hours.

- a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.
- b. All milestone inspections, arranged by Activity Number.
- c. An up-to-date copy of the Testing Plan and Log with supporting field test reports, arranged by specification section.
- d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
- e. An up-to-date copy of the Rework Items List.
- f. Maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and Sub-Contractors and all punch lists issued by the Government.
- g. Commissioning documentation including Cx checklists, schedules, tests, and reports.

1.16.3 Testing Plan and Log

As tests are performed, the CA and the QC Manager will record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the (SRE/CO). Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month, per the paragraph "INFORMATION FOR THE CONTRACTING OFFICER". Provide a copy of the final "Testing Plan and Log" to the OMSI preparer for inclusion into the OMSI documentation.

1.16.4 Rework Items List

The QC Manager must maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily CQC Report of each month. The Contractor is responsible for including those items identified by the (SRE/CO).

1.16.5 As-Built Drawings

The QC Manager is required to ensure the as-built drawings are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager must initial each revision. Upon completion of work, the QC Manager will furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the (SRE/CO).

1.17 NOTIFICATION ON NON-COMPLIANCE

The (SRE/CO) will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such

notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the (SRE/CO) may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time for excess costs or damages by the Contractor.

1.18 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

Submit an IAQ Management Plan within 15 days after Contract award and not less than 10 days before the preconstruction meeting. Revise and resubmit Plan as required by the (SRE/CO). Make copies of the final plan available to all workers on site. Include provisions in the Plan to meet the requirements specified below and to ensure safe, healthy air for construction workers and building occupants.

1.18.1 Requirements During Construction

Provide for evaluation of indoor Carbon Dioxide concentrations in accordance with ASTM D6245. Provide for evaluation of volatile organic compounds (VOCs) in indoor air in accordance with ASTM D6345. Use filters with a Minimum Efficiency Reporting Value (MERV) of 8 in permanently installed air handlers during construction.

1.18.1.1 Control Measures

Meet or exceed the requirements of ANSI/SMACNA 008, Chapter 3, to help minimize contamination of the building from construction activities. The 5 requirements of this manual which must be adhered to are described below:

- a. HVAC protection: Isolate return side of HVAC system from surrounding environment to prevent construction dust and debris from entering the duct work and spaces.
- b. Source control: Use low emitting paints and other finishes, sealants, adhesives, and other materials as specified. When available, cleaning products shall have a low VOC content and be non-toxic to minimize building contamination. Utilize cleaning techniques that minimize dust generation. Cycle equipment off when not needed. Prohibit idling motor vehicles where emissions could be drawn into building. Designate receiving/storage areas for incoming material that minimize IAQ impacts.
- c. Pathway interruption: When pollutants are generated use strategies such as 100 percent outside air ventilation or erection of physical barriers between work and non-work areas to prevent contamination.
- d. Housekeeping: Clean frequently to remove construction dust and debris. Promptly clean up spills. Remove accumulated water and keep work areas dry to discourage the growth of mold and bacteria. Take extra measures when hazardous materials are involved.
- e. Scheduling: Control the sequence of construction to minimize the absorption of VOCs by other building materials.

1.18.1.2 Moisture Contamination

- a. Remove accumulated water and keep work dry.
- b. Use dehumidification to remove moist, humid air from a work area.
- c. Do not use combustion heaters or generators inside the building.
- d. Protect porous materials from exposure to moisture.
- e. Remove and replace items which remain damp for more than a few hours.

1.18.2 Requirements after Construction

After construction ends and prior to occupancy, conduct a building flush-out or test the indoor air contaminant levels. Flush-out must be a minimum two-weeks with MERV-13 filtration media as determined by ASHRAE 52.2 at 100 percent outside air, or in accordance with LEED GBDC. Air contamination testing must be consistent with EPA's current Compendium of Methods for the Determination of Air Pollutants in Indoor Air, and with the LEED GBDC. After building flush-out or testing and prior to occupancy, replace filtration media. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

-- End of Section --

SECTION 08 43 26

ALL-GLASS STOREFRONTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA/WDMA/CSA 101/I.S. 2/A440 (2007) Standard/Specification for Windows, Doors, and Unit Skylights

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE/SEI 7-05 (2005; R 2006) Minimum Design Loads for Buildings and Other Structures

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1 (2009; Errata 2010) Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test

ASTM INTERNATIONAL (ASTM)

ASTM E1886 (2005) Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

ASTM E1996 (2009) Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

ASTM E330 (2002; R 2010) Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC (2009; Errata First Printing) International Building Code

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)

NAAMM AMP 500 (2006) Metal Finishes Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101 (2012; Amendment 1 2012) Life Safety Code

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

16 CFR 1201 Safety Standard for Architectural Glazing
Materials

36 CFR 1191 Americans with Disabilities Act (ADA)
Accessibility Guidelines for Buildings and
Facilities; Architectural Barriers Act
(ABA) Accessibility Guidelines

1.2 SUBMITTALS

Government approval by the SRE/CO is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval; the Government reserves the right to review and comment on submittals not having a "G" designation; and submittals with an "L" are for LEED review. LEED review shall be performed by the Contractor's LEED Coordinator and the LEED Administrator. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, and Section 01 33 29 LEED(TM) DOCUMENTATION as applicable:

SD-02 Shop Drawings

All-Glass Storefronts

Submit complete shop drawings for acceptance. Shop drawings shall include large scale detail sections of every typical composite member. Also show method of anchorage, joint systems, expansion provisions, glazing details, hardware, and its attachment and other pertinent details, and indicate all materials and finishes. Do not fabricate prior to acceptance.

SD-03 Product Data

All-Glass Storefronts

Submit complete manufacturer's technical literature, including full description of all materials and hardware.

SD-04 Samples

Finish

Submit samples of required finish of all metal components.

SD-07 Certificates

Glazing

Submit certificate of testing and certification of impact resistance.

Warranty

1.3 QUALITY ASSURANCE

1.3.1 Standards

Comply with the applicable provisions of Metal Curtain Wall, Window, Storefront, and Entrance Guide Specifications Manual" of the Architectural Aluminum Manufacturers Association (AAMA).

1.3.2 Manufacturer

Provide systems produced by a firm with at least 5 years of experience in the fabrication of all-glass doors and window wall, of the types required for this project.

1.3.3 Testing Criteria for Door Rail

The door rail shall be tested to perform 1,000,000 cycles without any failures. The door rail shall also be subject to a temperature pulloff test at temperatures from 40 degrees F to 150 degrees F. The rail shall remain stationary throughout this test while a 500 pound pressure is applied.

1.3.4 Accessibility

Perform work in accordance with 36 CFR 1191, Section 404.2.7 and NFPA 101, as applicable. (Amendment 2)

1.4 PERFORMANCE REQUIREMENTS

Submit evidence of compliance to the following minimum requirements.

- a. Thermal Movement: Fabricate exterior components from manufacturer's stock systems which have been designed to provide for expansion and contraction resulting from ambient temperature range of 120 degrees F.
- b. Wind Loading: Fabricate exterior components from manufacturer's stock systems which have been tested at 1.5 times design load in accordance with ASTM E330, to withstand wind velocity as indicated in accordance with current ICC IBC with a deflection of not more than 1/175 times the length of the member.
- c. Loading: Fabricate components from manufacturer's stock systems which have been tested at 1.5 times design load in accordance with ASTM E330, with a deflection of not more than 1/175 times the length of the member.
- d. Wind Pressure Requirements: Exterior components shall have been tested, rated, and factory marked for the positive and negative wind pressures as indicated or as calculated in accordance with ASCE/SEI 7-05 for the windspeed, exposure, and importance factor for this project and ICC IBC.
- e. Windborne Debris Requirements (Hurricane): Glazing shall be tested and certified for impact resistance under ASTM E1886 and ASTM E1996 to comply with minimum Missile Level C and ICC IBC Section 1609, Wind Loads.

1.5 ALL-GLASS STOREFRONT REQUIREMENTS

Extent of all-glass doors and window wall work are shown on the drawings.

1.5.1 Related Work Specified in Other Sections

- a. Sealants shall be moving joints as specified in Section 07 92 00 JOINT SEALANTS.
- b. All hardware for entrance doors is provided under Section 08 71 00 DOOR HARDWARE.
- c. Glazing requirements for all-glass doors and window wall, including components specified to be factory fabricated, are included in Section 08 81 00 GLAZING.
- d. Field Measurement: Wherever possible, take field measurements prior to preparation of shop drawings and fabrication, to ensure proper fitting of work. However, proceed with fabrication and coordinate installation tolerances as necessary when field measurements might delay work.

1.6 WARRANTY

Provide a written warranty from the manufacturer or his authorized representative and countersigned by the Contractor, that the completed work will not be defective in workmanship, materials, or installation for a period of 10 years from the date of final acceptance and that repair or replacement of any defective work will be done promptly. This warranty does not extend to defects caused by unusual abuse.

1.7 DELIVERY, STORAGE, AND HANDLING

Materials delivered to the jobsite shall be inspected for damage and shall be unloaded with a minimum of handling. Use care in handling all-glass doors and window wall during transportation and at the jobsite. Store all-glass doors and window wall and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the materials. Metal components shall not be covered with tarps, polyethylene film, or similar coverings. Damaged all-glass doors and window wall shall be repaired to an "as new" condition as approved. If materials cannot be repaired, provide a new unit. Handle manufactured materials as recommended by the manufacturer.

1.7.1 Protective Covering

Prior to shipment from the factory, finished surfaces of exposed metal fittings and hardware shall receive a protective covering. Covering shall not chip, peel, or flake due to temperature or weather, and shall protect against discoloration and surface damage from transportation, storage, and construction activities. Covering shall be readily removable without affecting the finish. Covering shall be either adhesive paper, waterproof tape, or strippable plastic.

1.7.2 Identification

Prior to deliver, mark wall components to correspond with shop and erection drawings placement location and erection.

PART 2 PRODUCTS

2.1 BUY AMERICAN ACT

This solicitation is subject to the Buy American Act requirements as defined in the Federal Acquisition Regulation (FAR) Clauses 52.225-9 and 52.225-10.

2.2 ALL-GLASS STOREFRONTS

2.2.1 Framing System

Continuous rail fitting top and bottom, square design, stainless steel clad dry glazing system.

2.2.2 Glass

1/2-inch thick, laminated safety glass with ground and polished edges to comply with performance requirements and conforming to 16 CFR 1201 for Category II, ANSI Z97.1, and Section 08 81 00 GLAZING.

2.2.3 Glazing Sealant

Silicone, one part as recommended by the manufacturer.

2.2.4 Fittings

Provide fittings of the profile and arrangement as indicated. Comply with requirements indicated for kind and form of metal and finish of fittings.

2.2.5 Anchors and Fastenings

Provide manufacturer's standard concealed anchors and fastenings. Perimeter anchors shall be stainless steel or galvanized steel.

2.2.6 Weatherstripping

Provide manufacturer's standard sweep type weatherstripping on exterior doors.

2.3 FABRICATION

2.3.1 General

Fabricate all-glass entrance components to designs and sizes indicated. Sizes of door and profile requirements of fittings and hardware shall be as indicated on the Drawings.

- a. Locate and provide holes and cutouts in glass to receive hardware before tempering glass. Do not permit cutting, drilling, or other alterations to glass after tempering.
- b. Fabricate work to accommodate required fittings, hardware, anchors, reinforcement, and accessory items.

2.3.2 Prefabrication

Complete fabrication, assembly, finishing, hardware application, and other work to the greatest extent possible before shipment to the site.

Disassemble components only as necessary for shipment and installation.

2.3.3 Continuity

Maintain accurate relation of planes and angles with hairline fit of contacting members.

2.4 FINISH

All exposed stainless steel surfaces shall be free of scratches and other blemishes. Provide stainless steel with No. 4 finish conforming to NAAMM AMP 500, "Metal Finishes Manual" unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Site Verification of Conditions

Verify substrate conditions (which have been previously installed under other Sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive all-glass door and window wall units and sill is level in accordance with manufacturer's acceptable tolerances. Verify field measurements for all-glass door and window wall installation.

3.2 PREPARATION

Protect adjacent work areas and finish surfaces from damage during product installation.

3.3 INSTALLATION

- a. Install component parts level, plumb, and true to line with uniform joints. Do not use defective parts (warped, twisted, bowed, dented, or abraded). Secure to structure with non-staining non-corrosive shims, anchors, fasteners, spacers, and fillers. Use care in erection so as not to mar, abrade, or stain finished surfaces. Where aluminum is to be placed in contact with steel, concrete, and other dissimilar surfaces, back paint the aluminum before erection with an acceptable bituminous paint.
- b. Anchors of the sizes and shapes required shall be provided for securing frames to adjacent construction. Anchor exterior components for wind pressure requirements.
- c. Doors shall be accurately hung with proper clearances.
- d. Seal frames with an elastomeric sealant in color as selected by the SRE/CO, making a neat fully weatherproof job complying with requirements of Section 07 92 00 JOINT SEALANTS.
- e. Provide separation of aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points by complying with AAMA/WDMA/CSA 101/I.S. 2/A440.

3.4 TOLERANCES

3.4.1 Maximum Variation from Plumb

0.06-inch every 3 feet non-cumulative or 0.5-inch per 100 feet, whichever is less.

3.4.2 Maximum Misalignment of Two Adjoining Glass Panes Abutting Plane

1/32-inch.

3.5 PROTECTION

After erection, protect by masking or other acceptable covering all exposed parts of the work from damage by grinding and polishing machines and/or by cement, acid, or other harmful substances. Initiate and maintain all protection and other precautions required to ensure that all-glass doors and window wall units will be without damage or deterioration at time of project acceptance.

3.6 ADJUST AND CLEAN

3.6.1 Adjust

Adjust doors and hardware to provide uniform gap around perimeter and for smooth operations. Adjust closers to operate noiselessly and evenly and to conform to ADAAG Section 404.2.8 and Section 404.2.9 (36 CFR 1191).

3.6.2 Cleaning

Clean surfaces promptly after installation, exercising care to avoid damage to protective finishes. Remove temporary coverings and protection from adjacent surfaces. Remove excess sealant compounds, dirt, and other substances. Lubricate hardware and moving parts. Repair or replace damaged installed materials. After completion of all other work in the vicinity of the all-glass doors and window wall, remove all masking and/or other covering used to protect the work and thoroughly clean the glass and metal surfaces with plain water or a commercial product as recommended by the manufacturer. Do not use abrasive cleaning agents.

-- End of Section --

SECTION 10 51 14

LAMINATE CLAD LOCKERS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

INTERNATIONAL CODE COUNCIL (ICC)

ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191 Americans with Disabilities Act (ADA)
Accessibility Guidelines for Buildings and
Facilities; Architectural Barriers Act
(ABA) Accessibility Guidelines

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

WDMA I.S. 1-A (2007) Architectural Wood Flush Doors

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED GBDC (2009) LEED Reference Guide for Green
Building Design and Construction

LEED NC (2009) Leadership in Energy and
Environmental Design(tm) New Construction
Rating System

1.2 SUBMITTALS

Government approval by the SRE/CO is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval; the Government reserves the right to review and comment on submittals not having a "G" designation; and submittals with an "L" are for LEED review. LEED review shall be performed by the Contractor's LEED Coordinator and the LEED Administrator. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, and Section 01 33 29 LEED(TM) DOCUMENTATION as applicable:

SD-02 Shop Drawings

Types
Location
Installation
Numbering System

SD-03 Product Data

Material
Plastic Laminate
Locker Components

SD-03 Product Data (LEED NC)

Material; L (LEED NC)
Locker Components; L (LEED NC)

Submit documentation indicating percentage of post-industrial and/or post-consumer recycled content per unit of product. Indicate dollar value of product.

Provide Manufacturer's data sheet. Highlight VOC content.

SD-03 Product Data (LEED NC)

Particleboard; L (LEED NC)

Provide a copy of the FSC certificate.

Provide manufacturer's data sheet. Highlight the use of non-urea formaldehyde bonding agents.

Provide Manufacturer's data sheet. Highlight VOC content.

Plastic Laminate; L (LEED NC)
Adhesives, Caulks, and Sealants; L (LEED NC)

Provide Manufacturer's data sheet. Highlight VOC content.

SD-04 Samples

Color Chips; G

SD-11 Closeout Submittals (LEED NC)

Material; L (LEED NC)
Locker Components; L (LEED NC)

LEED documentation relative to recycled content materials credit in accordance with the LEED GBDC. Include in the LEED Documentation Notebook.

Particleboard; L (LEED NC)

LEED documentation relative to certified wood credit in accordance with the LEED GBDC. Include in the LEED Documentation Notebook.

LEED documentation relative to low-emitting materials credit in accordance with the LEED GBDC. Include in the LEED Documentation Notebook.

Plastic Laminate; L (LEED NC)
Adhesives, Caulks, and Sealants; L (LEED NC)

LEED documentation relative to low-emitting materials credit in

accordance with the LEED GBDC. Include in the LEED Documentation Notebook.

1.3 DELIVERY, HANDLING, AND STORAGE

Deliver lockers and associated materials in their original packages, containers, or bundles bearing the manufacturer's name and the name of the material. Protect from weather, soil, and damage during delivery, storage, and construction.

1.4 REGULATORY REQUIREMENTS

Conform to ICC/ANSI A117.1 code and 36 CFR 1191 for access for the handicapped operation of accessible locker door and hardware.

In each area, provide 36 CFR A-A-6000 compliant units, including compliance with the following: (Amendment 2)

- a. Number of Units: Paragraph F225.2.1. (Amendment 2)**
- b. Reach Ranges: Paragraph 309 and related paragraphs for frontal or side reach.
- c. Hardware: Paragraph 404.2.7.

1.5 FIELD MEASUREMENTS

To ensure proper fit, make field measurements of wall recess and coordinate with locker size prior to the preparation of drawings and fabrication. Verify correct location

1.6 QUALITY ASSURANCE

1.6.1 Color Chips

Provide a minimum of 3 color chips, not less than 3 inches square, of each color indicated.

PART 2 PRODUCTS

2.1 BUY AMERICAN ACT

This solicitation is subject to the Buy American Act requirements as defined in the Federal Acquisition Regulation (FAR) Clauses 52.225-9 and 52.225-10.

2.2 TYPES

Locker must have the following type and size in the location and quantities indicated. Locker finish colors will be as scheduled.

2.2.1 Double-Tier

Double-tier lockers must be as follows: Double-tier locker, 12 inches wide, 18 inches deep, and 72 inches high, attached to 4-inch high base.

2.3 MATERIAL

See Section 01 33 29 LEED(TM) DOCUMENTATION for cumulative total recycled

content requirements. Material may contain post-industrial and/or post-consumer recycled content.

2.3.1 Construction

Lockers shall be industrial grade particleboard and covered on all exposed and semi-exposed surfaces with plastic laminate.

See Section 01 33 29 LEED(TM) DOCUMENTATION for cumulative FSC wood requirement.

2.3.2 Plastic Laminate Finish (PL-#)

Plastic laminate as indicated.

See Section 01 81 19 INDOOR AIR REQUIREMENTS for compliant VOC limits. Plastic laminate must meet the requirements of LEED low emitting materials credit.

2.4 ADHESIVES, CAULKS, AND SEALANTS

See Section 01 81 19 INDOOR AIR REQUIREMENTS for compliant VOC limits. Adhesives, caulks, and sealants must meet the requirements of LEED low emitting materials credit.

2.4.1 Adhesives

Adhesives shall be of a formula and type recommended by AWI. Adhesives shall be selected for their ability to provide a durable, permanent bond and shall take into consideration such factors as materials to be bonded, expansion and contraction, bond strength, fire rating, and moisture resistance. Adhesives shall meet local regulations regarding VOC emissions and off-gassing.

2.4.1.1 Wood Joinery

Adhesives used to bond wood members shall be a Type II for interior use urea-formaldehyde resin formula or polyvinyl acetate resin emulsion. Adhesives shall withstand a bond test as described in WDMA I.S. 1-A.

2.4.1.2 Laminate Adhesive

Adhesive used to join high-pressure decorative laminate to wood shall be adhesive consistent with AWI and laminate manufacturer's recommendations.

2.4.2 Caulk

Caulk used to fill voids and joints between laminated components and between laminated components and adjacent surfaces shall be clear, 100 percent silicone.

2.4.3 Sealant

Sealant shall be of a type and composition recommended by the substrate manufacturer to provide a moisture barrier at sink cutouts and all other locations where unfinished substrate edges may be subjected to moisture.

2.5 COMPONENTS

Wood locker manufacturer's standards are indicated herein below, except as required to provide ADAAG compliant units. ADAAG compliant hardware shall match typical hardware.

See Section 01 33 29 LEED(TM) DOCUMENTATION for cumulative total recycled content requirements. Components may contain post-industrial and/or post-consumer recycled content.

2.5.1 Built-In Locks

Provide a recessed padlock eye in the door latching mechanism.

2.5.2 Ceiling Hook

Equip each locker with double prong hook at top of locker.

2.5.3 Hinges

European concealed adjustable type.

2.5.4 Sloping Locker Tops

Provide sloping locker tops in addition to the locker-section flat tops. Sloping tops must be continuous in length. Fabricate sloping tops to match lockers.

2.5.5 Shelves

Fabricate 5 inch deep plastic laminate faced shelf for each locker.

2.5.6 Base Panels

Black plastic laminate faced base.

2.5.7 Number Plates

- a. Provide consecutive numbers as standard with the manufacturer.
- b. For ADAAG locker units only, provide ADAAG compliant numbers with tactile Braille on same material and finish as required for standard plates.

PART 3 EXECUTION

3.1 INSTALLATION

Align lockers horizontally and vertically. Secure base and lockers to floor and wall as recommended by the manufacturer. Adjust doors to operate freely without sticking or binding and to ensure they close tightly.

3.2 NUMBERING SYSTEM

Install number plates on lockers consecutively with odd numbers on top and even numbers on bottom.

3.3 FIELD QUALITY CONTROL

3.3.1 Repairing

Remove and replace damaged and unacceptable portions of completed work with new.

3.3.2 Cleaning

Clean surfaces of the work, and adjacent surfaces soiled as a result of the work, in an approved manner. Remove equipment, surplus materials, and rubbish from the site.

-- End of Section --