aes adaptwall

1/2 INCH MODULAR WALL PANELS

13040 – CLEANROOM

HALF INCH PRE-ENGINEERED MODULAR WALL LINING SYSTEM

1. RELATED DOCUMENTS

All documents and general provisions of contract, including general and supplementary conditions, apply to this section.

2. DIVISION 2 THROUGH 16

A. Work covered by Divisions, as applicable, of the Specifications and as shown on the drawings, consists of furnishing equipment (except equipment furnished by others), materials, labor and services, and performing operations necessary to complete general construction work of the project.

3. APPLICABLE CODES AND REGULATIONS

A. The cleanroom systems shall be designed in accordance with the following:

1) ASTM – American Society for Testing and Materials
2) NFPA – National Fire Protection Association
   Stds 13, 70, 72, 101, 110, 780
3) UL – Underwriters Laboratories
4) ADA – Americans with Disabilities Act
   Accessibility Guidelines
5) IBC – International Building Code
6) ISO STANDARDS
   a) ISO 14644 Cleanrooms and Associated Controlled Environments
      Classification of Air Cleanliness
7) INSTITUTE OF ENVIRONMENTAL SCIENCES (IES) RECOMMENDED PRACTICES
   IES-RP-CC001: HEPA and ULPA Filters
   IES-RP-CC006.2 (1993): Testing Cleanrooms
8) ISO – International Standards Organization
9) ISPE – International Society of Pharmaceutical Engineers
10) FDA – Food and Drug Administration
11) FM – Factory Mutual Guidelines for Cleanrooms

4. SUMMARY

A. Provide design and engineering, manufacturing, labor, materials, equipment, components, installation, services and perform operations, testing, certification required for complete installation of cleanrooms. Cleanrooms shall be designed and constructed by AES Clean Technology, Inc. of Montgomeryville, PA.

5. PERFORMANCE CRITERIA

A. Surface burning performance: Flame spread 15 or less. Smoke development 30 or less, per ASTM E-84.

B. Provide low wall return and/or exhaust openings per plans utilizing Modular System Air Wall detail.

C. Provide removable wall panels in areas designated per plans to accommodate future expansion.

6. CONSTRUCTION SCHEDULE

A. Contractor shall prepare a written construction schedule, showing the basic elements of construction. Schedule shall be coordinated with Owner's construction team.

7. SUBMITTALS

As a means of obtaining User Agency Approval and implementing the coordination responsibilities, provide the following prior to start of manufacturing: Modular System fabrication plans.

A. Shop Drawings: Plans, elevations and details of construction and erection including all special conditions required to complete installation and coordination with other trades. Indicate materials and finishes and provide drawings including but not limited to:

1. General Arrangement
2. Ceiling Layout
3. Wall layout
4. Door Schedule
5. Process Equipment Interface Details

8. QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The cleanroom architectural system and components shall be as manufactured by AES Clean Technology, Inc. with the brand name "Adapt Wall™". All components of wall and ceiling panels shall be manufactured in the AES Facilities.

2. Pre-engineering: The entire cleanroom shall be completely pre-engineered by AES. AES shall design the cleanroom to the required physical dimensions and performance criteria utilizing modular factory-built components.

3. Quality Planning: Cleanroom contractor shall provide a written Quality Plan for Construction Activities per contract scope of work to include, but not limited, to the following:

a) Safety
b) Installation Control
c) Records
d) Internal Audits
e) Training
f) Material and Equipment Management
g) Receiving and Inspection of Materials
h) Build Clean Methodology
i) Architectural Wall and Ceiling Inspections
j) Mechanical Inspection
k) Electrical Inspections
l) Punch Lists Procedures
m) Cleanroom System Start-up
n) Final Close Out
o) As-Built Drawings
p) Cleanroom Air Balancing and Certification

9. DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original packages, containers or bundles. AES names and brand name shall be intact.

B. Storage: Protect all products from elements of weather and product abuse.

C. Receipt Verification: Adhere to all Receipt Verification procedures established by project team.

10. PROTECTION OF WORK AND PROPERTY

10.1 GENERAL

A. Refer to various provisions of the Standard Terms and Conditions for Construction Contract.

10.2 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

A. The Contractor shall receive, check, unload, handle, store and adequately protect equipment and materials to be installed as part of this Contract Store in areas as directed by the Owner's Representative.

B. The Contractor shall be responsible for safekeeping of his own and of his subcontractors' property on job site, such as field offices and equipment and materials stored on the job site.

10.3 PROTECTION OF OWNER'S FACILITIES

A. Effectively protect the Owner's facilities, equipment, materials, etc., from dust, dirt, water penetration, unsafe, unhealthful conditions and damage during construction.

B. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.

C. Remove protection at completion of the Work.

11. CLEANROOM ENCLOSURE SYSTEM

A. Components include, but are not limited to:

1. Pre-finished, factory fabricated, modular un-plasticized UPVC coated modular wall panels with flush welded UPVC joints.
2. Doors and door frames complete with hinges and other hardware.
3. Ceiling panels.
4. Windows
5. Miscellaneous un-plasticized uPVC coated trim and accessories.

11.1 MATERIALS

A. Aluminum support members to be encased within the panel system with no exposed aluminum in the cleanroom.

B. Fastening devices composed of stainless steel specified herein and shall conform to ASTM F468.

1. Machine screws: Federal Specification FF-S-92
2. Nuts and bolts: ASTM A307.

C. Wall Lining Panels:

1. Provide wall lining panels at a height to allow for the appropriate clear inside dimension from floor to ceiling.
2. Codes and Standards: Panels shall meet Class A (ASTM E84) and shall comply with applicable building code requirements.
3. Panel Construction: Panels shall be constructed and finished in the manufacturer's facility. Panels shall be designed to allow for future configuration. Panels shall be erected side to side utilizing a single joint detail and shall be sealed with manufacturer's joint sealant.
4. Form vertical edges of panels to align and form a tight single line joint without the use of exposed fasteners or braces.
5. The panels shall be manufactured to provide for both field modifications and ancillary equipment installation without requiring additional support blocking.
6. Provide cutouts for all known mechanical, electrical and plumbing. Provide for additional onsite panel openings, as required.
7. Panel Thickness: 1/2" nominal.
8. Panel Construction: Wall panels shall have a smooth unplasticized PVC coated, galvanized sheet steel surface. Steel sheets shall be homogeneously bonded to an aluminum honeycomb core. Panels shall have removable protective laminate sheet covering.
9. Standard lining panels shall be clip mounted on horizontal extruded aluminum support sections secured to stud framework (by others when applicable). Clip system components shall be ¼" thick X 1-3/8" sections and fastened to the back of the cleanroom panel and facing of stud framework, Style MF625. The stud framework and panel arrangement will be configured to accept a coved resilient (vinyl) (epoxy) flooring detail flush to the panel surface, utilizing flooring angles or applied molding.
10. Use a single panel height for all rooms without horizontal wall panel joints up to 12'.
11. Tolerances:

    a. Thickness: plus/minus 0.018 inch.
    b. Length: plus 1/8 inch, minus 0 inch.

D. Door Panel Units:

1. Provide AES standard integral UPVC faced cleanroom door units with required hardware; including door closer, stainless steel hinges, pull handles and push plates. Door Module size to be 7′ high x 3′ wide (or custom sized as required for the project). See plans. Door frames shall be flush with wall surface per design.
2. Observation Windows: Provide AES standard observation window in the doors with tempered glass. Windows should be a 2″ double glazed unit without edge trim. Window frames shall be flush with door surface per design.
3. Door panel units exceeding 2″ thick shall be incorporated flush to wall liner surface. All seams shall receive food grade sealant.

DI. Windows:

1. Observation Windows: Provide AES standard observation window in the walls with tempered glass. Windows should be a 2″ double glazed unit without edge trim. Window dimension to be 3′-3″ high x 3′ wide(or custom sized as required for the project). Window frames shall be flush with wall surface per design. Frames shall have desiccant infill around perimeter.
2. Windows exceeding 2″ thick shall incorporate a stainless steel window angled flashing trim. All seams shall receive food grade sealant.

DII. Cove/Trims:

1. Base: Maximum 5-1/2″ inches high with an aluminum sheet metal backing.
2. All wall-to-wall junctions shall be trimmed with a white extruded PVC coving system with vacuum formed corner pieces.
3. The PVC cove shall be retained in position with a continuous extruded aluminum section. Mechanically connected to adjoining panels.
4. Joint sealant: Liquid uPVC or approved equal for all panel joints. Food safe caulk for sealant at window details, DOW 795 or equal.

DIII. GENERAL INSTALLATION REQUIREMENTS

12.1 EXAMINATION

A. Verify that areas and conditions are ready for installation of cleanroom components.

B. Report any unsatisfactory conditions in writing to the Contractor.

C. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

1. Starting of cleanroom installation will be construed as acceptance of surfaces and conditions.

D. Verify all dimensions by field measurements.

12.2 INSTALLATION

A. Deliver to job site, uncrate, place in proper locations and assemble all equipment specified herein. Remove debris, crating materials, etc.

B. Install wall panels and ceiling system in complete accordance with the latest recommendations of manufacturer and in conformance with this specification.

C. Install system plumb and square in conformance with configuration shown on drawings. Doors shall close and seal without binding.

D. Install system under Modular System manufacturer direct supervision.

E. Seal all joints where indicated and/or required for a complete and manufacturer-approved installation.

F. Seal sprinkler pipe penetrations.

12.4 CLEANING

A. Clean up debris resulting from work on a daily basis during construction. Keep premises in a clean and orderly fashion at all times.

B. Conduct final inspection of work and make adjustments as required.

C. Touch up all minor blemishes and defects.

END OF SECTION