NORTEK™
CLEANROOM SOLUTIONS
SERVICOR

Section 13042

MODULAR STRETCHWALL & HARDWALL CLEANROOM FILTERED CEILING GRID AND INTEGRAL WALL SYSTEM

1. PART 1 – GENERAL

1.1. WORK INCLUDED

A. The purpose of this specification is to provide a product description of, and the work necessary to erect, a filtered ceiling system with an integral wall system. The system will be installed by the Contractor in accordance with cleanroom submittal drawings approved by the owner. Testing and certification of ceiling and wall system shall be conducted by an independent testing agency.

1.2. SYSTEM DESCRIPTION

A. The cleanroom filtered ceiling system shall consist of a continuous, welded 11ga steel, powder coat painted ceiling grid with accessories including: nominal 2'x4' fan filter units or ducted HEPA / ULPA filters, cleanroom rated troffer lights, integrated sprinkler system & associated connectors, Cleanroom rated ceiling tiles and/or blank panels. The wall system shall consist of welded modular frames, bolted mating connections, panel inserts of E-PVC or Sintra expanded PVC, aluminum honeycomb, clear acrylic, clear polycarbonate or other non-particulating and otherwise acceptable .25" panel material, means for attaching vinyl curtains and modular swing and/or sliding door frames. The wall system shall allow for easy expansion of the cleanroom. The wall system shall provide all vertical and lateral support for the grid system. Trusses can be incorporated in the system to allow for larger free spanning rooms. The system can be wet stamped by a licensed structural engineer in the state applicable to the final assembly location.

1.3. QUALITY ASSURANCE

A. Owner's Factory Inspection:
   1. The owner or owner's representative shall maintain the right to tour the manufacturer's plant to inspect the modular cleanroom system while fabrication is being performed on components intended for this project.
   2. Upon owners request, the manufacturer shall notify the owner when production is finished on the first component. Anytime after that date, the owner may exercise the option, giving minimum 24-hour advance notice, to tour the plant and inspect for component assembly, painting, cleaning and packaging to ensure that quality control is being maintained.

1.4. SUBMITTAL

A. The cleanroom submittal shall be by the manufacturer.
B. Required with the Bid: Detailed information on structural, mechanical, electrical, and other services necessary to evaluate installation requirements.
C. Required after execution of Contract: Submittal drawings shall be transmitted to buyer within two weeks of purchase order acceptance and they shall include complete specifications, descriptive drawings, catalog cut sheets and descriptive literature on all components used in the modular cleanroom system including make, model, dimensions, capacity and weight. Manufacturer's information for filters shall be included.

1.5. MANUFACTURER CONTACTS

A. Contact Servicor directly if additional information is required, such as product or material descriptions, layouts, or installation requirements.

2. PART 2 - PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

A. Servicor as manufactured by Huntair, Inc.

2.2. FILTERED CEILING GRID SYSTEM

A. The ceiling grid shall be constructed of welded 11 gauge sheet metal to form a T-grid. The ceiling modules shall be available in nominal 4 foot widths (actual width - 49") and lengths in nominal 2' increments. The entire panel shall be powder coated with a TGIC baked on powder coating. Grid members shall be welded together into modules. Ceiling grid system will be load bearing to approximately 10 lbs. per square foot dead load. Ceiling grid system can be designed to accommodate a 250 lb. point load (walkable) when required.
B. The grid system will incorporate cleanroom rated troffer lights as its primary means of lighting. Light fixtures to be installed by contractor and connection to electrical power supply by others.
C. The support of the grid system shall be accomplished through the bolting connection between the ceiling grid and the modular wall frame system and as such is not a suspended ceiling system.
D. The fire protection for the system can be accomplished through use of blanks that incorporate a sprinkler coupler connection through the blank.
E. Grid system shall include EPDM compressible foam gasketing material for sealing purposes.

2.3. WALL SYSTEM

A. The modular frames shall be manufactured of 2" X 2" X .083" steel tubing with mitered & welded corners. Frames shall be capable of being a maximum of 12 feet tall with 2" X 2" X .083" tubing. Frame heights taller than 12 feet will require thicker or larger size tubing.
B. The entire panel shall be powder coated with a TGIC baked on powder coating capable of withstanding 1500 hours of salt spray test per ASTM B117-97.
C. Where called for, the panels shall have an integrated UL raceway for an electrical switch or electrical outlet.
D. Modular Hardwall frames shall have the ability to accept any non-particulating and otherwise acceptable ¼ inch thick insert panels or welded 16ga panels. The insert panels should be available in Sintra expanded PVC board, clear acrylic, clear polycarbonate and aluminum honeycomb. The panels are attached with a two part PVC extrusion that is attached at the factory. The base extrusion is attached through the use of a strip of 3M VHB tape material. The panel inserts are affixed in the frames by inserting the cover PVC extrusion into the already installed base extrusion creating an airtight seal. When fully assembled, the panel attachment mechanism mounts flush to the tubing, giving a ledge-less room interior. The wall system shall incorporate a bolted connection for the mating grid above.
E. Modular Stretchwall frames shall have the ability to accept any non-particulating and otherwise acceptable flexible PVC or plastic sheeting. The flexible sheeting shall include 16 mil clear PVC, 14 mil yellow PVC welding curtain, 13 mil white suede plastic, 13 mil black suede plastic, 12 mil carbon grid PVC, 16 mil Black/Green "Dura-Tuff" 4798 vinyl coated fabric or 16 mil Black/Blue "Dura-Stat" 3940 vinyl covered fabric.

F. Wall panels can also be designed to incorporate integral wall louvers and be able to support items hung from the frame not to exceed 100 lbs per post.
G. Installing contractor will perform required caulking per the manufactures recommendations to ensure that the system is free from particle migration.

3. PART 3 - EXECUTION

3.1. INSTALLATION – GENERAL

A. Install in accordance with the submittal drawings approved by the owner. The installing contractor shall be responsible for the complete installation of the modular cleanroom system. Certification testing will be by others after installation following specifications issued under separate cover. The installing contractor and/or filter manufacturer will be responsible for the removal, replacement, and re-testing of all filters that failed during the certification tests. All repairs and re-testing cost of the repairs and other related tests that would have to be repeated as a result of repairs done to the system shall be the installing contractor's responsibility.

3.2. MODULAR CLEANROOM INSTALLATION

A. It is the intent that the modules be installed to line and true level, symmetrical to rooms and spaces, and with due regard to appearance and structural stability. The ceiling shall be level throughout within 1/8 inch per 10 linear feet or as otherwise acceptable to the owner.
B. All suspended ceiling system work shall be done in accordance with the procedures endorsed by the Ceiling and Interior Systems Contractor's Association (CISCA), except where specified otherwise.
C. Lay out modules as shown on shop drawings. Coordinate with mechanical and electrical equipment in framing and cutting around ceiling penetrations.
D. Install level in accordance with ASTM C636 for the type of installation used and as shown on the manufacturer's submittal drawings.
E. Modules shall be supported per structural specifications. Modules are butted side to side and end to end and bolted together. A sealant shall be applied at frame and grid intersections per manufacturer's recommendations. All field assembly and materials by contractor unless noted.
F. Install grid supporting hardware at specified locations and per manufacturer's submittal drawings.
G. FFU's, Troffer Light Fixtures, Ceiling Tiles and Blank Pans shall be installed per the submittal drawings or as specified by the owner.
H. Wiring shall be installed by electrical contractor to meet all local codes.

3.3. FILTER INSTALLATION

A. Follow filter manufacturer's instructions. Filters and units shall be carefully removed from cartons and other packaging material.
B. The filters shall be installed in the grid modules by personnel instructed in the proper method of installation and aware of the need for special handling precautions. The contractor will be responsible for repairing or replacing filters beyond the amount of expected filters with leaks during certification.

3.4. MATERIAL PREPARATION, CLEANING, AND FINAL CLEANUP

A. The general cleanliness requirements shall be that all hardware exposed to the cleanroom interior or in the airstream, regardless of size or complexity, must be visibly free of oil, grease, particles, chips, fibers, dust, dirt, etc. prior to installation in the cleanroom area. Therefore, cleaning shall be performed on all hardware as defined herein.

B. Visual inspection without magnification shall be conducted over 100 percent of the surface. Inspection of surfaces for visible contamination shall be conducted with a 100 watt lamp at a distance of one to two feet. Magnification or similar aids (except for normally worn eyeglasses) shall not be used. Contaminated areas shall be further cleaned.
C. The general cleaning sequence for the units shall be as follows: Visual inspection per above; vacuum removal of particles; solvent wipe cleaning; drying; visual inspection per above.

3.5. CEILING CERTIFICATION

A. At the completion of the ceiling installation, with all components installed and wall system in place, an independent certifier under separate contract shall conduct a series of tests to ensure that the cleanroom complies with owner's specifications.