



CLEANPAK INTERNATIONAL T-TRAK SPECIFICATIONS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The purpose of this Specification is to provide a filtered ceiling system. This Section covers the product description of the CLEANPAK T-Trak[®] system and the work necessary to erect the cleanroom filtered ceiling system. The system will be installed by the Contractor in accordance with the manufacturer's instructions. Contractor to furnish independent testing and certifier as selected by customer.

1.2 SYSTEM DESCRIPTION

- A. The cleanroom filtered ceiling system shall consist of a continuous filter ceiling grid with grid extrusion, associated connectors, grid hanging all-thread rod from grid to turnbuckle, 2x4 foot filter modules, blank pans, and lighting troffers.

1.3 QUALITY ASSURANCE

- A. Owner's Factory Inspection:
 - 1. The owner or his representative shall maintain the right to tour the cleanroom filtered ceiling system at manufacturer's plants any time that fabrication is being performed on components intended for this project.
 - 2. 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 24-hour advance notice minimum, to tour the plant and inspect for component assembly, painting, cleaning, or packaging to ensure that quality control is being maintained.

1.4 SUBMITTAL

- A. 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: Shop drawings shall be submitted within two weeks of purchase order acceptance, and they shall include:
 - Complete specifications, descriptive drawings, catalog cuts, and descriptive literature on all components used in the ceiling system, with make, model, dimensions, capacity, weight, and electrical schematics. Manufacturer's information for ULPA filters and light troffers will be included.

1.5 MANUFACTURER CONTACTS

- A. If additional information is required, such as product description, products and materials furnished by CLEANPAK, or installation requirements, contact CLEANPAK International directly. CLEANPAK has a complete mock-up of a ceiling system similar to the product available for product demonstration.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Clean-Trak is manufactured by CLEANPAK and uses ULPA filters as manufactured by Flanders Filters, American Air Filters, or Filtra.

2.2 FILTERED CEILING GRID SYSTEM

- A. T-Trak Gasketed Ceiling Grid:
 1. The ceiling grid system shall consist of a grid members of extruded aluminum 6063-T6. Finish shall be powder-coated wet white, anodized or electrostatically painted. No open grid in the fit-up area shall remain at completion of the project. Height of the extrusion shall be 3" or 5.125".
 2. The grid members shall be interconnected via T-connectors and associated bolting hardware.
 3. The top of the grid member shall be capable of accepting hanging connectors that permit positioning of the hanging rods along the length of the member. In addition, the T-connectors shall also be capable of accepting the hanging rods.
 4. The grid portion of the ceiling support grid lattice system shall be supported from an overhead support system with threaded rods. The support rods shall include turnbuckles furnished by the contractor, to permit leveling of the grid system. Rod to be furnished by the contractor. The grid shall be installed so that it will be possible to place or to remove filters and other system components from both above and below the grid system.
 5. All surfaces that are scratched shall be painted and touched up by the contractor after installation. Paint color to match wall panels or as approved by the engineer or owner.
 6. The grid system shall be capable of attaching automation systems, enclosures, and wall head tracks.
 7. Poron gasket with low-outgassing single-side adhesive shall be applied to the grid
 8. Blank pans shall be capable of handling one 220 pound live load. Blank pans shall be constructed of 16 GA steel and powder-coated wet white. Manufacturer shall provide necessary hold-down clips to meet the above load requirements. The blank pans shall include holes for sprinkler penetrations.
 9. Manufacturer shall provide flexible sprinkler piping, sleeve and sprinkler head that forms an airtight seal to the blank pan. Hard pipe sprinkler systems to be supplied by others.
 10. The grid shall incorporate a means of anchoring the lights to the face of the grid.
 11. Grid system shall be capable of handling structural loads noted in Table 1.

Table 1

3" T-Trak Loading and Deflection Table.					
Hanger Span	Live Load	L/240		L/360	
		Deflection	Maximum Uniform Distributed Load(lbs./ft^2)	Deflection	Maximum Uniform Distributed Load(lbs./ft^2)
4'	0	0.2	62	0.13	42
	220	0.2	50	0.13	30
8'	0	0.4	6.2	0.27	4.6
	220	0.4	2.4	-	-

Notes for Table 1:

1. Load capacity of one T-connector with 3/8" ATR is 3280 lbs. Ultimate strength. Appropriate factors of safety should be used.
2. All loads include grid member self weight.
3. Point loading deflection will vary from uniform distributed loading.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

- A. The installing contractor shall be responsible for the complete installation of the cleanroom ceiling system. Certification testing will be by others after installation following specifications issued under separate cover. The manufacturer will be responsible for the removal, replacement, and re-testing of all ULPA filters 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 manufacturer's responsibility.

3.2 GRID SYSTEM INSTALLATION

- A. It is the intent that the grid system 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.
- 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 grid as shown on shop drawings. Coordinate with mechanical and electrical equipment in framing and cutting around ceiling penetrations.
- D. Hang level as shown on the drawings in accordance with ASTM C636 and the manufacturer's current printed instructions for the type of installation used.
- E. T-connectors are to be installed and tightened per manufacturers instructions.
- F. Install hanging hardware at specified locations and per manufacturers instructions.
- G. Install gasketing per manufacturers instructions.
- H. Blank pans and associated hold-down clips are to be installed per manufacturers instructions.
- I. Lighting fixtures are to be installed per the ceiling plans. Wiring shall be installed by electrical contractor to meet all local codes.

3.3 FILTER INSTALLATION

- A. Filters and units shall be carefully removed from cartons and other packaging material.
- B. The filters shall be installed in the support frames by personnel instructed in the proper method of installation and aware of the need for special handling precautions. A manufacturer's representative is required to observe each individual filter immediately after leak test through installation to ensure that already installed filters are not damaged. 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:
 - 1. Visual inspection per above
 - 2. Vacuum removal of particles
 - 3. Solvent wipe cleaning
 - 4. Dry
 - 5. 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 a separate contract shall conduct a series of tests to ensure that the cleanroom complies with owner's specifications.
- B. Any leaks or noncompliance with specifications which can be traced to the ceiling system or filter malfunctioning shall be replaced by the manufacturer at no extra cost.
- C. All repairs, 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 contractor's responsibility.