AIR SHOWER SPECIFICATIONS FOR STAINLESS STEEL LP & LT AIR SHOWERS

1.0 PURPOSE AND SCOPE

This specification describes a factory fabricated air shower enclosure to be used for removing surface particles from personnel prior to entering a controlled environmental area or leaving a contaminate area. The air shower shall provide access to and from a cleanroom work area (or from a contaminated area) and shall be a high velocity, low air pressure system. Construction of all structures shall be structurally sound and esthetically pleasing.

2.0 MATERIALS

2.1 All materials used to be compatible with a cleanroom environment.
2.2 Walls will be of a hard, durable, non-particulating surface.

3.0 CONSTRUCTION

3.1 Enclosure: Prefabricated wall and roof section(s) with integral air duct plenum(s).

- 3.1.1 Units shall be capable of supporting a minimum of 200 lbs per square foot with a maximum deflection of 0.25".
- 3.1.2 Maintenance access shall be from the entry/exit ends or the side of the mechanical enclosure.
- 3.1.3 The mechanical is located on the side of the air shower.
- 3.1.4 The mechanical section of the air shower shall contain blower/motor unit(s), air nozzles, HEPA filter(s), and electrical controls.
- 3.1.5 The air shower shall be constructed of a 16 gage galvanized steel with a white powder coated finish.
- 3.1.6 Air nozzles shall be plastic construction, white in color, adjustable, with 0.875" diameter outlet

4.0 MOTORS AND BLOWERS

4.1 Motor to be 208-230 or 440- 480 volt/3phase/ 60Hz
4.2 Blowers/Fans
- 4.2.1 Single paddle wheel non overloading fan blower.
- 4.2.2 Size the high speed blower CFM to provide a minimum velocity of 7,000 feet per minute at the face of the nozzle.
- 4.2.3 Blower fans will be capable of providing rated unit CFM from 0.6 inches to 1.2 inches static WG off the HEPA filter
- 4.2.4 Blower fans will have permanent indication of correct rotation direction attached the blower housing.

4.3 Motor shall be NEMA design B with class A insulation, designed to operate in 40 degrees, have a 87.5% efficiency and have sealed ball bearings.

5.0 ELECTRICAL

5.1 Motors to be open drip proof and shall be 3500 R.P.M.
5.2 Lighting to be 24VDC that is powered by a step down transformer in the power panel.
- 5.2.1 Lighting shall provide 40 candlepower at 36” above the floor.
- 5.2.2 Lighting is provided by an LED strip light located in the ceiling.

5.3 Air shower PLC controller shall be 120 VAC.

5.4 Each air shower is to be provided with one non-fused disconnect. Disconnect shall be mounted in the power panel for the air shower. The power panel shall be connected to the air shower by a minimum of 8’ of seal tight electrical flex. The installer shall mount the panel adjacent to the air shower clear of the air shower access panels.

5.5 Motor starter shall be short circuit and overload protected.

5.6 Wiring shall comply with NEC code.

5.7 Programmable controller shall have DC inputs and relay outputs. Timers shall be adjustable from 1 to 55 seconds (The PLC controller shall have a potentiometer that enables the timer value to be adjusted).

6.0 FILTERS

6.1 99.99% efficient at .3 microns HEPA filter with aluminum or steel frames.

6.2 Filters and seals shall provide for:

- 6.2.1 A complete seal of the HEPA filter to its housing.
- 6.2.2 Filter(s) easily accessible thru maintenance panels or above.
- 6.2.3 Sufficient rigidity /bracing /clamping etc...to insure no filter or seal damage during normal shipping, handling, rigging, and installation.

6.3 Pre-filters shall be located at return air grille on the lowest part of the wall (or under the floor grate(s) for raised floor option) and shall be a MERV 7 panel filter.

6.4 HEPA filter plenums for high velocity blower shall be constructed of minimum 0.50" aluminum.

7.0 CONFIGURATIONS

7.1 Blower/motor inspections performed from access provided.

7.2 All service connections and access (except LED strip light) are from side access panels or end access panels.

7.3 A 2" diameter sleeve through the roof section for a fire sprinkler. ASPT does not supply the fire sprinkler components.

7.4 Dimensions shall match those indicated on our literature (or customer specified on custom units) with a minimum tolerance of .0625”

8.0 CYCLE CONTROL

8.1 The exit doors of the air shower will be locked when the entry door is open.

8.2 The air shower cycle will begin upon entry to the air shower after entry door closes.

8.3 All doors will be locked during the air shower cycle.

8.4 High velocity blower will run 15 seconds (user adjustable)

8.5 The personnel shall proceed out the exit door (the entry door remains locked)

8.7 Once the exit door shuts all doors unlock and the system resets.

8.8 When the exit door opens first the air shower acts as an air lock and the blower does not run.

9.0 DOORS

9.1 Doors shall be clear anodized aluminum frame doors with .025” clear tempered glass.

9.2 Doors shall be interlocked with 24VDC magnetic door locks with 600 pounds holding force.

9.3 Doors shall be sealed on the top and two sides of the jamb with door seal and a drag sweep shall be supplied for the bottom of the door (which is field installed)

10.0 NOISE AND VIBRATIONS

10.1 Units maximum noise level is 74dba, with a back ground noise level of 10dba. Interior noise levels shall not exceed 87 dba.

10.2 Fan/Blower assembly to be isolated by means of rubber isolator pads.