

NRL CLASS 1000 SPLIT LEVEL CLEAN ROOM

Background

The class 1000 clean room will go into an existing space located on two floors, vertically above each other, in NRL Building 74. The first floor ceiling is approximately 8 inches thick, made of concrete, and has 18 inch structural supports embedded in concrete located on 8 foot centers running North/South. The second floor ceiling has similar structural supports aligned with the first floor ceiling supports. The ceilings are 10 feet high.

The overall dimensions of the clean room space can be found in the Engineering figures. The first floor class 1000 clean room dimensions are approximately 19 feet (E/W) by 14 feet (N/S). The second floor dimensions are approximately 21 feet (E/W) by 14 feet (N/S). Also shown in the figures are two 12 inch diameter holes in the 2nd floor required for draw tower equipment operation and one 3 foot 6 inch by 3 foot hole in the 2nd floor to allow access between floors, by a personnel lift, within the bounds of the clean room walls. Also shown in the figures is a 2 foot (E/W) by 1 foot (N/S) by 4 foot deep hole in the first floor directly below the center line of the draw tower hole in the 2nd floor. The holes will be fabricated in the existing structure prior to contractor construction.

Requirements

Class 1000 clean room environment with minimum HEPA filter 99.99%

HVAC Humidity/Temperature control \pm 1 degree

- A. Temperature 55-70 F (independent thermostat)
 - 1. 2 persons
 - 2. Standard office load
- B. Humidity 20-50 percent (independent control) \pm 5 percent

Walls must be fire rated class "A" 30 minute, 2 inch thick

- A. Aluminum on aluminum 0.032" honeycomb core
- B. Smooth continuous outer surfaces with polyester painted baked enamel roll coat
- C. Concealed aluminum floor runner attached to concrete structure.
- D. Safety windows (2 per 1st floor, 1 per 2nd floor)
- E. Windows in doors on 1st and 2nd floor for safety observation in restricted area

Note: The 2 (E/W) walls on the 2nd floor must be fire rated class "A" 60 minutes

Doors 1st floors changing room (2)

Doors must be 3'X 6'8"std. .032" door polyester painted baked enamel roll coat aluminum on aluminum honeycomb with window 3/16"x20"x24" tempered glass installed within the same panel of .032" aluminum on aluminum honeycomb. Door panels shall also be installed non-progressively into aluminum connecting post 1-3/4" thick.

Doors 2nd floor

Doors must be 6'X 6'8" double door .032" polyester painted baked enamel roll coat aluminum on aluminum honeycomb installed in a 2" panel w/ window 3/16"x20"x24" tempered glass installed within the same panel of .032" aluminum on aluminum honeycomb. Door panels shall also be installed non-progressively into aluminum connecting post 1-3/4" thick.

Safety windows (2)

Windows must be 3/16" tempered glass 44" wide x 40" high

Ceilings must contain

- A. Heavy duty cleanroom t-bar ceiling grid 1-1/2" wide with integral vinyl gasket w/ vinyl covered cleanroom class 100 ceiling tiles 2'x4'.
- B. Fully sealed Fluorescent cleanroom light fixture w/ internal gasket, polyester paint finish, UNV electronic ballast, 2'x4' t-bar mount 3 tube

Flooring must contain

Vinyl clean room flooring

Power outlets must be, Duplex 110V with integral UL approved j-box installed, spaced 3 feet apart.

Additional power requirements

- A. Furnace 220V/30A, single phase
- B. Laminar Flow Bench, 110V/15A
- C. Servo drive for pinch wheels, 220V/12A 3 Phase
- D. Vacuum Pump 110V/7A

Water - None

Changing room, 4 by 7 foot, located on 1st floor S/W corner

Fire sprinkler system required 1st floor only, 6 foot spacing, itemized separately