

Specification for RF and acoustic shielding

Quotations are invited from reputed vendors for supplying and installing a radio frequency shielded enclosure with acoustic isolation. The required specifications are described below.

1. No ferrous (magnetic) material should be used anywhere in the structure. This includes the nails and screws. All metal parts must be stainless steel grade SS316 or copper/ aluminum.
2. The desired RF attenuation is 110 db at 10 GHz. However, the attenuation should not be smaller than 90 db at 10 GHz.
3. The acoustic isolation should be of the order of STC 60. This should be made up of multiple layers of perforated gypsum boards, styrofoams and neoprene sheets and other sound isolating materials. At least four layers of perforated gypsum boards with neoprene/vinyl sheets, mineral wools sandwiched between them should be used. Additional material will have to be provided by the vendor if it is required for obtaining the desired STC level. The acoustic doors and windows should also be compatible with the desired STC level.
4. The entire structure will have to be absolutely electrically isolated from the building. The support to the enclosure ceiling should not be connected to the concrete ceiling of the room housing the proposed enclosure.
5. The enclosure should be built out of hard particle boards with 1 mm thick sheets of stainless steel (SS316) pressed in the both sides of the particle boards.
6. Total size of the RF enclosure will have to be max. 14ft. x 14 ft. x 9 ft. (see drawing)
7. Total size of the acoustic enclosure should be max. 8 ft. x 8 ft. x 8.5 ft. (see drawing).
8. The enclosure should have three doors: Two on the RF part and one on the acoustic part (see drawing).
9. There has to be two windows for getting access to the middle part of the enclosure (see drawing).
10. There has to be a hatch (1 ft. x 1 ft.) on the ceiling in order to get access to a pulley hoist from the ceiling of the room hosting the enclosure.
11. The interiors of the enclosure will have to be given a pleasant finish with ACP sheets. The floors will have to be finished with high quality heavy duty vitrified tiles or equivalent material.
12. Appropriate provisions should be kept for electrical power lines, air ducts, lights and other accessories.

13. Honeycombs or equivalent accessories should be provided to shield the openings (for example, the duct openings, vacuum ports etc.).
14. Appropriate filters must be installed for metallic penetrations.

- An engineer from the vendor must visit the site and discuss the details of the required enclosure before submission of the bids. All the required metallic penetrations and other special issues regarding the site and the required enclosure will be discussed during this visit. The quotations may not be considered if the vendor fails to arrange this visit.
- The vendor will be required to start the work within one week of receiving the purchase order and the work should not take more than 3 weeks to complete.
- All materials used by the vendor will be inspected by the PI. No material can be used without the approval of the PI.
- The vendor must provide appropriate safety devices like the gloves, safety goggles, hard hats etc. to the workers during the installation of the enclosure. Without these, the workers will not be allowed to work in the site.
- An EMD of Rs. 1 Lakh will have to be deposited by the vendor along with the bid.
- The drawing published with these tender shows just an outline of the scope of the work. The actual drawing will have to be prepared by the vendor and got the same approved by the PI.