



FREQUENTLY ASKED QUESTION (FAQ) WHAT TO KNOW ABOUT RF SHIELDING

REV. 00



1. When a customer calls you about a shielding job, what are some of the first questions you ask them ?

While this is not an exhaustive list, here are a few critical information the shielding vendor needs to know about the client's project :

- Who is the equipment vendor ? This will determine component's requirements for the room;
- What kind of magnet will be installed ? Depending on the magnitude of the magnetic field and the surrounding of the room, magnetic shielding might be needed in addition to radio-frequency shielding;
- What will the room be used for ? Diagnostic rooms, operating rooms, veterinary rooms, research labs, etc. have different needs that will translate in different components configuration on the shielding;
- What is the room configuration ? Room configuration will determine the need and the location of shielded window, shielded door, penetration panel and many more components;
- What is the size of the room ? When space is critical, wall compositions may be optimized by choosing a different kind of shielding. Shielding vendors know best how to pick a shield that will meet both spatial needs and MRI vendors' requirements;
- If this is an existing room, what type of shield is already installed ? Copper shields, galvanized shields, copper-nickel shields, and many more have been used over the years;
- If this is a new room, what is the proposed layout by the professionals ? There are a lot of things to consider with new MRI room's design and shielding vendors are known to be of a great help throughout design phase in order to prevent changes and additional costs when construction begins.

2. How does one determine if an RF shield needs repairs versus needs replacing ?

While there are a few ways to evaluate the health of an RF shield, shielding vendors mostly perform what is called an "RF test". With the result, the shielding vendor can determine if a repair is possible or if the RF shield needs to be replaced. Upgrading an MRI equipment can also impact the required work on an RF shield.

3. After an MR shield is complete and the scanner is ramped up, is there preventative maintenance a facility can perform to maximize the shield's longevity ?

Preventative maintenance of the rf shield door (door seal/gasket cleaning) will help prevent leaks from the door over time. A regular RF test can also be performed at 3-to-5-year intervals to determine if any new leakage may be present in the MRI room.

4. Have advancements in MR technology like 7T scanners impacted the installation of shielding in any way ?

There have been two trends in the MR technology lately : 1) stronger and bigger scanners, 2) more compact and mobile scanners.

For bigger scanners such as 7T MRIs, the room needs to be bigger, which represents challenges for the MRI suite's location. This increases the need of magnetic shield to ensure safety around the MRI area. Also, because of the increase in size and weight of the magnet, structural capacity of the building and delivery path can be critical.

On the other hand, compact and mobile scanners will require a different approach as access and configuration of the room will be more critical.

5. Are there aspects of the planning process for a new shield that you wish facilities were better prepared for ?

As expressed previously, the sooner the shielding vendor is involved in the planification of the project, the easier it is to prevent extra costs and changes during construction.

6. Do you have any other shielding wisdom or practical tips ?

Just as with any other trades in the construction industry, shielding vendors are specialized in their field. They have the experience and knowledge to help the client choose the best shield to meet their needs and makes sure they get the best RF enclosure that will keep performing over time. With that in mind, any good shielding vendors will work diligently with the planning and design team during design phase and the contractors during construction phase. Always feel free to ask for their help as this will benefit every stakeholder in an MRI project.



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