



FRANK SHIELDS

**MODULAR INTERIOR DESIGN
FOR RF CAGE
FS/MRI/RF/MID-0124**

www.frankshield.com

INTRODUCTION

Frank Shields' innovative approach to modular interior design for RF cages represents a significant advancement in the field of electromagnetic compatibility and shielding. RF cages, also known as anechoic chambers or shielded enclosures, are crucial for isolating sensitive electronic equipment from external radio frequency interference (RFI) and ensuring accurate testing and performance evaluation.

Shields' modular interior design concept aims to enhance the flexibility, efficiency, and functionality of these critical environments. By employing a modular approach, Shields enables the interior components of the RF cage to be easily reconfigured or replaced without the need for extensive modification to the overall structure. This adaptability is particularly valuable in dynamic research and testing settings where requirements may evolve or change over time.



WALL FINISH

Frank shield Use Melamine MDF for the MRI Room wall finishing

Melamine MDF (Medium-Density Fiberboard) is a type of engineered wood product that combines the characteristics of MDF with a melamine finish

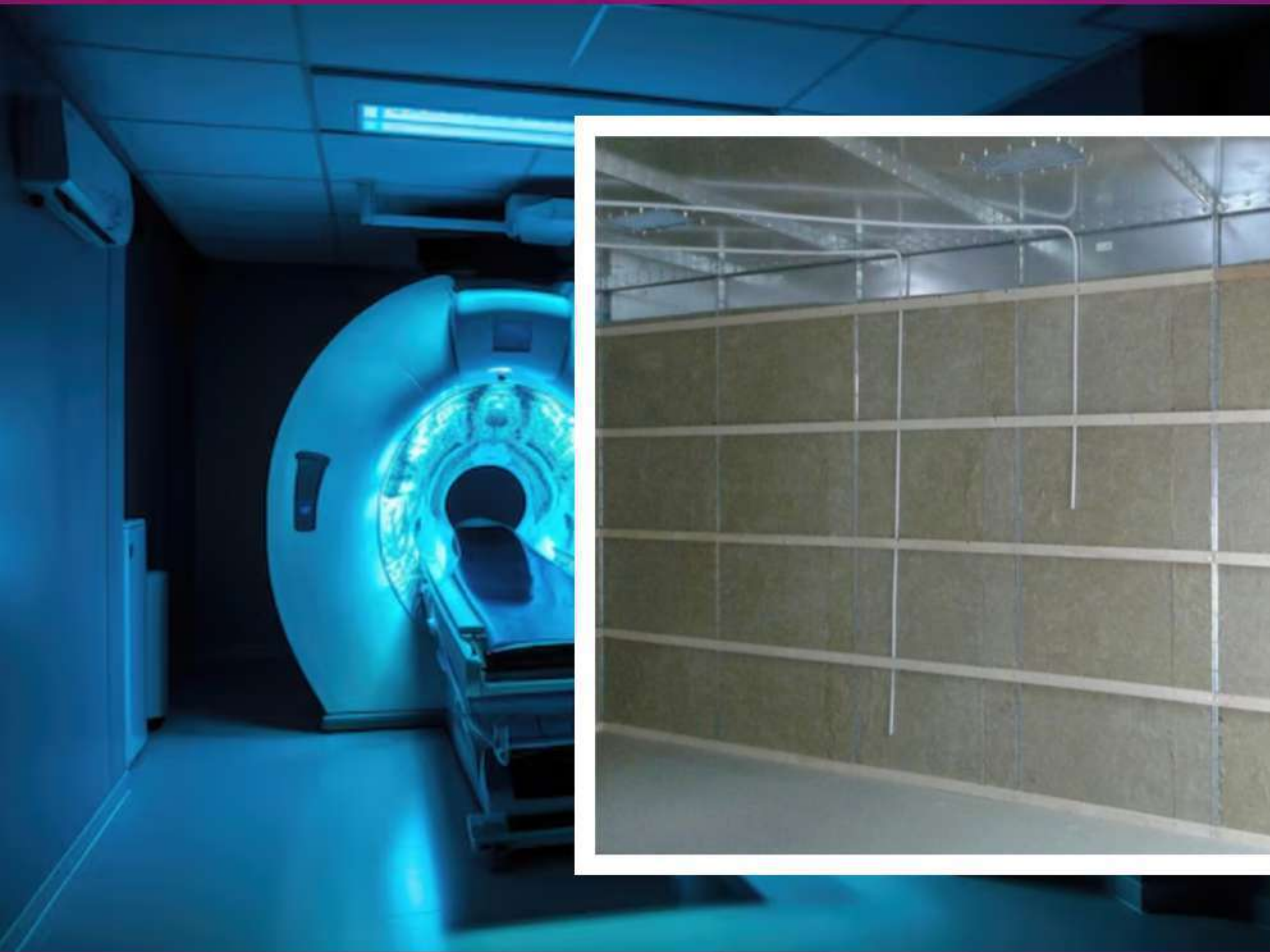
- **MDF (Medium-Density Fiberboard):** MDF is an engineered wood product made from wood fibers, wax, and resin, which are compressed and heated to form dense, flat panels. It has a smooth surface and is commonly used in furniture and cabinetry.
- **Melamine:** Melamine is a type of resin that is used to create a durable, hard surface on MDF panels. It can be applied as a laminate or as a finish directly onto the MDF board.



FEATURES OF MELAMINE MDF

1. **Surface Finish:** Melamine MDF has a smooth, hard surface that is resistant to scratches and stains. The melamine coating can be produced in various colors and patterns, including wood grains, solid colors, and abstract designs.
2. **Durability:** The melamine coating adds a layer of protection to the MDF, making it more resistant to moisture, chemicals, and physical wear compared to untreated MDF.
3. **Ease of Maintenance:** The melamine surface is easy to clean and maintain. It typically requires just a simple wipe-down to remove dirt and grime.
4. **Consistent Quality:** Since melamine MDF is manufactured under controlled conditions, it tends to have a consistent quality and appearance compared to natural wood.

ACOUSTIC SHIELDING



Most of the MRI scanners manufactured by any suppliers do produce considerable amount of sound, some cases close to 120 DB

Which is close to an aircraft engine. The sound from the scanner passes through the walls, ceiling and floor.

This can result in a loud defining sound when the scanner is running. The continuous sound that is coming out of the scanner goes beyond the permissible level of acoustic noise in a working environment, causing even fatigue and occupational hearing problems for the staff.

The importance of the acoustic shielding is to keep the acoustic level of the scanner external environment within a safe level.

Frank shields provide rock wool of specific density for acoustic insulation and fitted behind a decorative internal lining, as well as on the ceiling finishes. There are on special occasions we provide a layer of mass loaded vinyl on the floor, installed in a certain methodology to achieve lower acoustic transmission through the floor.

FLOOR FINISH



Frank shield uses vinyl floor finish in MRI rooms.

Durability: Vinyl flooring is resistant to scratches, dents, and stains. It can handle high foot traffic and is often used in commercial settings for this reason.

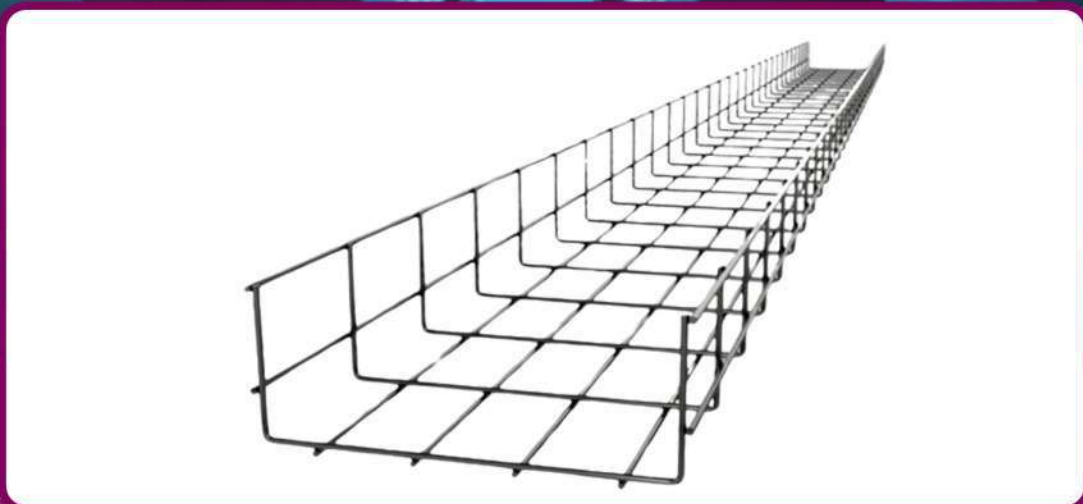
Water Resistance: Vinyl is highly water-resistant, making it an excellent choice for areas prone to moisture, such as bathrooms, kitchens, and basements.

Comfort: Vinyl flooring is softer and more flexible underfoot compared to materials like tile or hardwood. This can provide added comfort and reduce fatigue, especially in high-traffic areas.

Ease of Maintenance: Vinyl flooring is easy to clean. Regular sweeping and occasional mopping are typically sufficient to keep it looking good.

Variety of Styles: Available in an extensive range of colors, patterns, and textures, vinyl can mimic the look of more expensive materials like hardwood, stone, or ceramic tile.

CEILING CABLE TRAYS



Frank Shield offers a versatile solution with their stainless steel wire mesh for MRI room ceiling cable trays. Customizing the size based on site requirements is particularly useful in accommodating different room dimensions and configurations. This flexibility helps ensure that the cable management system is both efficient and compliant with the specific needs of each MRI room, while also maintaining the necessary non-magnetic properties.

Using stainless steel wire mesh for MRI room ceiling cable trays is a smart choice. Stainless steel is non-magnetic and highly durable, which makes it well-suited for environments with sensitive equipment like MRI machines. Its resistance to corrosion and ability to maintain structural integrity over time is also beneficial in maintaining a clean and reliable setup for managing cables.

WALL & FLOOR CABLE TRAYS

Frank Shield provides aluminum cable trays with caps specifically designed for cabling in MRI rooms. These trays are available in various sizes to accommodate different site requirements. The use of aluminum ensures that the trays are both lightweight and non-magnetic, which is crucial for MRI environments to prevent interference. The caps protect the cables from dust and other potential contaminants, maintaining a clean and efficient cabling system.



CEILING SYSTEM



Frank Shield offers acoustic tiles for MRI room ceilings in two standard dimensions: 60x60 cm and 60x120 cm. These tiles are designed to help control sound and improve acoustic performance within the MRI room. Proper acoustic management is important in MRI environments to minimize noise and create a more comfortable space for both patients and staff.

Frank Shield uses aluminium channels as ceiling grids, which offers several advantages: **Non-Magnetic:** Aluminium is non-magnetic, which is essential for MRI rooms to avoid interference with the MRI machine's magnetic field.

Lightweight and Durable: Aluminium channels are both lightweight and strong, making them easier to handle and install while providing long-lasting support.

Corrosion Resistance: The corrosion-resistant properties of aluminium ensure that the ceiling grid remains in good condition over time, even in environments with varying humidity.

Customizable: Aluminium channels can be tailored to different sizes and configurations, allowing for flexibility in design and installation to meet specific site requirements.

Aesthetic and Functional: These channels provide a clean and modern look while effectively supporting ceiling components like acoustic tiles or lighting fixtures.



AC VENTS & AC DUCTING



In MRI rooms, Frank Shield employs several specialized components to ensure optimal performance and compliance with the unique requirements of these environments:

1. maneuvering around obstacles and adapting to different layout configurations, which is especially useful in the constrained and complex spaces typical of MRI rooms.
2. Plenum Box Made with Pre-Insulated Sheets: The plenum box is crafted from pre-insulated sheets to enhance thermal efficiency and maintain a stable temperature. The insulation helps minimize heat loss or gain, contributing to a controlled environment that is crucial for MRI operations.
3. Aluminium AC Vents: Aluminium is chosen for its non-magnetic properties and durability. AC vents in different shapes are available to fit various design and functional needs, ensuring proper airflow and ventilation throughout the MRI room.

These features collectively contribute to a well-ventilated, comfortable, and interference-free environment, which is essential for both the operation of the MRI machine and the comfort of patients and staff



ADDITIONAL ELECTRICAL AND LIGHTING ITEMS

1. Down light with dimmer controller
2. Spot lights
3. RGB Lighting
4. Wall panel light
5. Sky light
6. Power supply for lighting
7. Modular type RF Filter
8. Modular RF Interface for cabling
9. MRI compatible camera
10. MRI compatible Audio system
11. MRI compatible Monitor
12. MRI compatible Projector



Thank You



Frank Shields Medical Equipment LLC.
Office No.3 Jurf 2 Industrial Area Ajman UAE
Website: www.frankshield.com
Email: info@frankshield.com

Frank Shields Pvt Ltd
Industrial Park (Adibatla), Nadergul, Balapur,
Mdl, RR District Hyderabad, 501510, India
Website: www.frankshield.in
Email: info@frankshield.in