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NEW LOCATION
We are proud to announce our new location in Fairfield, NJ. We have been an intricate part of the shielding industry since the 1980’s and look forward to continuing our contributions at our new headquarters well into the future.

Our new state-of-art facility is centrally located amongst our supply chain, allowing us to deliver products to the market faster and more cost effectively. All of our products are designed and fabricated in-house, helping us give you the best overall customer experience.

INDUSTRY TRENDS
We believe that our industry is stuck in a time warp and afraid to move into the 21st century. The industry mindset is “if it isn’t broke, don’t fix it.” The fundamental problem with this is that it conflicts with the ultimate goal of delivering the best possible experience for our customers, and their patients.

WHAT SETS US APART?
Although shielding companies have little interaction with patients, our products directly affect their overall experience.

Most patients have high levels of anxiety when scheduled for a scan; our goal is to minimize that by creating a comfortable environment. For this reason, we have spent considerable time researching and developing state-of-the-art products that minimize stress through thoughtful designs that outperform traditional options.

Global Partners in Shielding, Inc. has a wide variety of shielding solutions that inspire confidence in the minds of your patients.

What sets us apart is our dedication to innovation.
At Global Partners in Shielding, Inc., we are committed to creating a safe, secure, and efficient workplace for every employee, customer, and contractor both in the field and at our manufacturing facility. We believe the complete elimination of injuries, illnesses, and unsafe practices are essential for a company’s short and long-term success. Not only does our company have an exemplary safety record as displayed by our Experience Modification Rate, but all Field Employees are required to have their OSHA certifications refreshed every three years. Job skill training is conducted prior to using any and all equipment to ensure full competency before being assigned responsibilities.

We put a lot of time and effort into our Health and Safety Program to ensure our employees are tooled with the knowledge about the task at hand and are able to prevent job hazards before they happen. Our company has worked at numerous government and military sites including: Army Core of Engineers, Department of Energy, Brookhaven National Laboratories, to name but a few. We take pride in our safety record and will relentlessly pursue a safe working environment on your jobsite!

<table>
<thead>
<tr>
<th>EMR RATING (last 3 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
</tr>
<tr>
<td>0.776</td>
</tr>
</tbody>
</table>

*The current modification factor was developed when the actual losses from 3 years were compared to the expected losses for that same time period. In 2018, there were LESS actual losses and the mod resulted as a credit mod. It is an increase over the 2017 credit mod of .722 due to decreased payroll. Although there were no claims for the previous period, this is the minimum mod GPS can be given.
RF GALVANIZED PANEL SYSTEM

The modular structure is traditionally used for high performance shielding. Panels are galvanized sheet steel bonded to a wood core that are attached via framing joints. The RF panel system will be supported via threaded rod and dielectric isolators attached to the deck above. Shield will perform beyond the attenuation levels required for all major OEM’s.
RF COPPER SYSTEM

This non-ferrous enclosure is ideal for shielding applications with restricted site access. The lightweight copper makes for easy navigation through job sites with limited space. Copper sheets attached to a plywood substrates and the copper is soldered together at all seams. The plywood, framing, and support are completed by others. The copper material is easily adaptable to various room configurations and is accepted for a wide array of applications. This shielding system will perform beyond the attenuation levels required for all major OEM’s.
RF galvanized flooring system consists of galvanized steel panels with copper panels (optional) under the magnet in the ferrous metal exclusion area (see OEM Note below). This RF floor is typically installed over a 6 mil vapor barrier and layers on Masonite (used as an isolator and filler between the framing channels). The top of the RF panel is then filled with VCT leveling tiles flushing the floor with the profile of the framing channels; providing a sub-surface ready to accept finish flooring by others.

OEM requires a 120” x 120” non-ferrous metal exclusion area under the magnet.
RF Copper flooring system consists of copper sheet soldered together to form a continuous shielded plane. This RF floor is typically installed over a 6 mil vapor barrier and one layer of Masonite (used as an isolator). The top of the copper is then filled with two layers of Durock. These layers are installed perpendicular to one another and adhered together to form a solid/durable sub-surface ready to accept finish flooring by others.

Our floating floor design allows for future equipment upgrades without the need for costly shielding modifications.
DOOR SECURITY
The high-security latching mechanism ensures the door is secure and no person without access can enter.

ACCESS CONTROL
The GT Auto-Latch doors electrical components allow for access control to only approved persons. It is compatible with all card-reader and keypad options.

DOOR SAFETY
The automatic door closer makes sure the door closes at all times. It works in tandem with the high-security latch to eliminate accidental walk-ins.

HIGH-SECURITY LOCKSET
Mul-T-Lock’s mechanical platform integrates advanced technology for premium security together with advanced & heightened key control.

PLUG & PLAY
Control Box (Mounted above the ceiling)

Key Switch with LED Indicator
Access Control Device (By Others)

Mul-T-Lock Keying (Standard on lockset and key switch)

NO AIR REQUIRED

MRI/RF SHIELDING
Our fully automatic Sliding RF Door features a completely pneumatic operating system and stainless steel design ideal for multiple bay operating suites. This door is offered in single or double leaf designs and offers similar safety and security features as our Auto-Latch RF Door.
RF shielded windows are factory fabricated double layer, free of moiré pattern, non-reflective black coating with shielding equivalent to the enclosure.
RF WAVEGUIDE AIR VENTS

All HVAC access points into the RF shielded enclosure will be treated with a hex cell honeycomb waveguide vent assembly. The waveguide hex cell geometry is sized for optimal performance at the design specification.

1/4" x 3/4" HONEYCOMB CELL

Shielding Effectiveness

<table>
<thead>
<tr>
<th>Magnetic</th>
<th>Electric</th>
<th>Planewave</th>
<th>Microwave</th>
</tr>
</thead>
<tbody>
<tr>
<td>1kHz</td>
<td>20kHz</td>
<td>100kHz</td>
<td>100MHz</td>
</tr>
<tr>
<td>25dB</td>
<td>100dB</td>
<td>100dB</td>
<td>100dB</td>
</tr>
</tbody>
</table>

Pressure Drop

<table>
<thead>
<tr>
<th>Inches of Water</th>
<th>0.065</th>
<th>0.095</th>
<th>0.1</th>
<th>0.15</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Feet Per Minute *</td>
<td>800</td>
<td>1,000</td>
<td>1,200</td>
<td>1,400</td>
</tr>
</tbody>
</table>

* Multiply by area to obtain CFM
Power, signal, and communication lines need to run through a power filter. Electrical filters eliminate the unwanted RF signals by displacing them to ground. Every conductor which penetrates the shield, including neutral and signal return lines, must be filtered. Grounding wires must be bonded directly to the shield via the ground buss bar.

**SIEMENS**

OEM requires all RF power filters must be located within 24 in. of the RF common ground buss bar. Ground buss bar should be in close proximity to penetration panel.
OEM requires all metallic pipes (including water, medical gas, sprinklers, etc., but excluding the cryogenic vent and floor drains) entering the RF shield to be located within 56 inches (1422 mm) of the RF common ground stud.

1. Type 1 RF Pipe Penetration is a pass-thru style. RF mesh gasket is wrapped around the metallic pipe being passed through and bonded to the RF Pipe Penetration with stainless steel clamps. RF gasket connection is completed after magnet delivery because it may cause a hard ground if no dielectric is used (typ. for med gas).

2. Type 2 RF Pipe Penetration is a pass-thru style. Non-metallic pipes or tubes can be passed through using this penetration.
Cryovent systems are an essential part to a MRI’s functionality. MRI machines use liquid helium to cool down the superconductive magnet’s coil. As cryogens are released to keep the magnet cool, they evaporate into odorless, colorless, and tasteless gases and must be vented safely out of the building with the use of a cryogen vent pipe.

Global Partners in Shielding, Inc. specializes in the supply and installation of these pipe systems. We are familiar with the different specifications of each magnet and can assist in the design calculations before the system is installed.
Most, if not all, RF enclosures have a strict requirement for a single point ground. To achieve this, the enclosure is isolated (floating) from the building ground throughout the construction process and grounded to the building at the conclusion of the project. When the room is under construction a ground alarm is connected to the enclosure to monitor the isolation.

GROUND MONITORIZING MODULE BENEFITS:

- Utilizes standard 110VAC power eliminating the need for battery replacement throughout the project. The batteries used for battery operated ground monitors die and need to be replaced frequently. Once the batteries die, there is no indication if/when the room is grounded.
- Built-in “Ground Time Stamp” which indicates the date and time a room is grounded. Owners and contractors will know exactly who was in the room at the time the room was grounded and what may have been done to ground the room.
- Smart technology indicating ground at 1k ohms, and two warning stages at 10k ohms and at 5k ohms. This proves useful during the construction phase because the shield can be monitored in real time and addressed before it becomes critical.
- Provided at no additional cost with each enclosure.
MRI equipment utilizes a strong magnetic field to generate images. To obtain the optimal performance the equipment needs minimal RF noise in the surrounding environment. The RF noise is frequencies of radio and magnetic waves which are measured in Decibel (dB) units. The critical frequency range for most MRI equipment is from 50 MHz to 150 MHz. To determine the Shielding Effectiveness (SE) a series of tests are performed at different locations throughout the enclosure. These tests utilize specialized equipment to transmit and receive RF noise at a specified frequency in accordance to set of standards specified by the equipment vendor. To simplify the explanation of this process we will omit the technical details and focus on the general ideas behind the testing procedure. The test starts by placing a Transmit Antenna (TX) outside the enclosure that transmits a specified amount of RF noise (dB) at a specific frequency. Then the technician takes the Receive Antenna (RX) inside the enclosure and closes the door. The Shielding Effectiveness (SE) is then determined by the difference in dB once the door is closed. This difference in value is typically referred to as the shielding attenuation. Below is chart that illustrates the enclosure performance levels based on the attenuation value.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Measurement (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 50</td>
</tr>
<tr>
<td>A+</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Severe 5</td>
</tr>
</tbody>
</table>

1. Enclosure is at optimum performance
2. Enclosure is at decent performance
3. Enclosure is substandard (Door should be evaluated for maintenance)
4. Enclosure is compromised (Should investigate for RF leaks)
5. Enclosure is severely compromised (Should investigate for RF leaks, possible shield replacement)
ELECTROMAGNETIC WAVES

Electromagnetic Waves are Perpendicular Waves (Transverse Waves)

Types of EM Waves
- Radio
- Infrared
- Ultraviolet
- X-Rays
- Gamma

EM Speed
- Vacuum: 300,000 km/s
- Air: Less than 300,000 km/s
- Water: 226,000 km/s
- Glass: 200,000 km/s
- Diamond: 124,000 km/s

Longer Wavelength → Shorter Wavelength
Lower Frequency → Higher Frequency
Lower Energy → Higher Energy

LOW FREQUENCY
- AMPLITUDE
- TIME

HIGH FREQUENCY
- AMPLITUDE
- TIME
GPS is centrally located in the Tri-State area - Servicing your shielding needs Nationwide!

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