

MRI SOLUTIONS

RF SHIELDING
MRI SAFETY
ENGINEERING SERVICES

COMMITTED TO ENHANCING PATIENT EXPERIENCES AND OUTCOMES

ETS·LINDGREN®
An ESCO Technologies Company



ENHANCING EXPERIENCES AND OUTCOMES. EVERY PATIENT. EVERY TIME.

BLURRING THE LINES BETWEEN BREAKTHROUGH AND MIRACLES

Advancements in technology, science, and medicine have become so commonplace, it's easy for consumers and medical team members alike to take them for granted. But you know what's required to ensure the clarity, integrity, and detail of the images you capture – and what's at stake if you don't. For you, there's only one partner you can trust: ETS-Lindgren.

As the world leader in MRI shielding solutions with over 40 years of experience, 50,000 installations, and 25 patents, we design and install state-of-the-art MRI shielding facilities, retrofit existing facilities, and conduct site surveys to mitigate potential interference. Partnering with us strengthens your reputation as a medical expert in the marketplace and your contribution to the patient care team. From the products we make, to the services we offer, there's a promise we're able to make to you – we are committed to enhancing patient experiences and outcomes.



WHERE PEOPLE DRIVE TECHNOLOGY

As much as we're recognized for our technology, innovation, and engineering, ETS-Lindgren is very much a people company. Around the world and across the spectrum of healthcare, we bring an understanding that the most effective solutions begin with something far more basic than the products and technology we develop – a partnership between people.

We get to know the complexities of your situation and determine how we can best work with you to resolve them. With end-to-end solutions, we continue to deliver ongoing value long after installations are complete, with training, service, and support.

CUSTOMIZED SOLUTIONS, OPTIMIZED FOR BUSINESS

In medicine, too often the cost of delivering patient care seems to be at odds with the profitability of your organization. With ETS-Lindgren, you reach the perfect balance of integrated medical shielding solutions that effectively address both with the ability to:

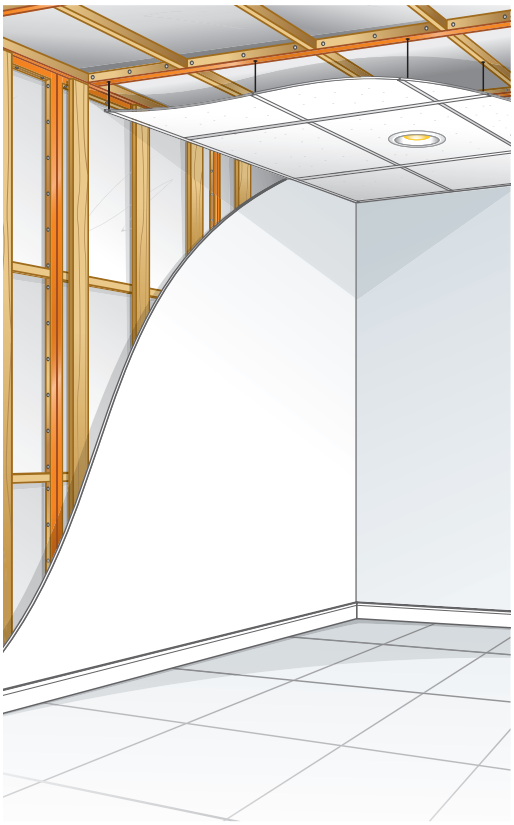
- Minimize downtime and costs while performing MRIs
- Engineer a safer environment for patients
- Enhance staff productivity
- Detect sooner, act faster
- Increase the quality, quantity, and precision of the scans performed
- Increase patient throughput
- Improve patient comfort with aesthetic lighting

SHIELDING SOLUTIONS

Radio Frequency (RF) and magnetic interference from outside sources like TV, radio, electrical rooms, elevators, or parking garages must be mitigated to yield an effective MRI image. Public hallways and general staff often require magnetic shielding to control the magnetic fields generated by MRI equipment. With extensive capabilities in the MRI industry, ETS-Lindgren experts provide solutions for surveying, designing, installing, and testing that fit your needs, while protecting your investment and giving you clear results. To best serve our customers, we use reliable construction methods that have evolved over the last 40 years to provide long-term image quality.

Most MRI rooms only need RF shielding, but some may require magnetic or active shielding as well. ETS-Lindgren can perform an on-site survey to determine the type of shielding needed.





ETS-Lindgren's MR-Cu Shield System offers architectural flexibility and can be used in a variety of MRI suite configurations.

RF-SHIELDED WALLS AND CEILINGS

MR-CU SHIELD SYSTEM

ETS-Lindgren's MR-Cu Shield System is made of copper sheeting attached to a modular frame of fire-rated Laminated Veneer Lumber (LVL). The modules install quickly and can be easily adapted to the specific requirements of a particular room. Because the modules are structurally independent of the parent MRI room's walls, they provide improved acoustic properties for the overall system and require no prior preparation from the customer.

Standard Features

- Comprised of the highest conductive medium available
- Does not require plywood shell
- Is easy to plan for and coordinate with other trades
- Includes internal anchorage points for furring and finishes
- Eliminates interior finish penetrations to maximize performance
- Reinforces stud wall once furring/framing is added

RF SHIELDING, RF-SHIELDED FLOORS

MONOLITHIC RF FLOOR

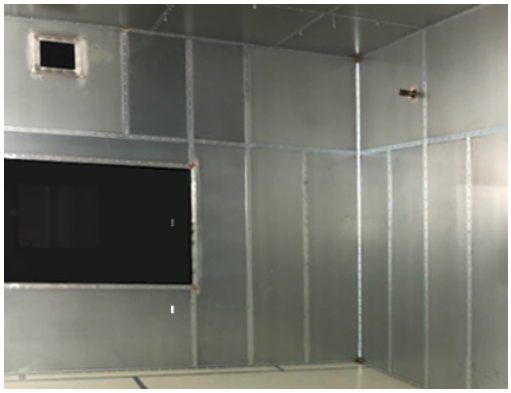
Our patented in-place Monolithic manufacturer-certified floors consist of structurally bonded materials including a copper RF attenuator, dielectric material, and a moisture-resistant barrier. This flooring also features fully bonded materials, a concrete underlayment, and is ready for final finishes once installed. ETS-Lindgren is the only company to offer this type of shielded flooring.

MODULAR RF FLOOR

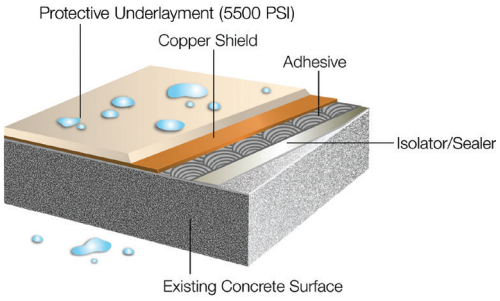
Modular RF floors utilize a copper-clad wood core. A mechanical non-ferrous clamping system joins the panels together.

SERIES 81 SHIELDING

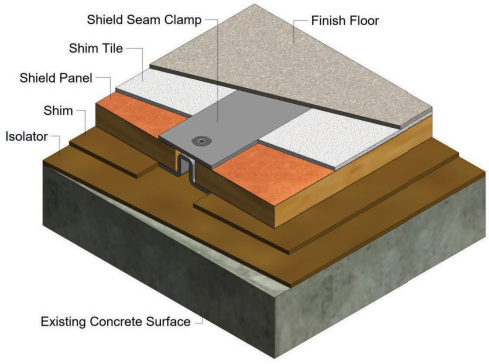
Series 81 Shielding is made with an appropriate shielding material bonded to both sides of a wooden core. Used in more than 10,000 installations worldwide, Series 81 Shielding is configured of modular panels, meaning these enclosures can be built to almost any dimensional arrangement. No special tools are required for construction. Enclosures can be erected, dismantled, and moved to another location as needed.



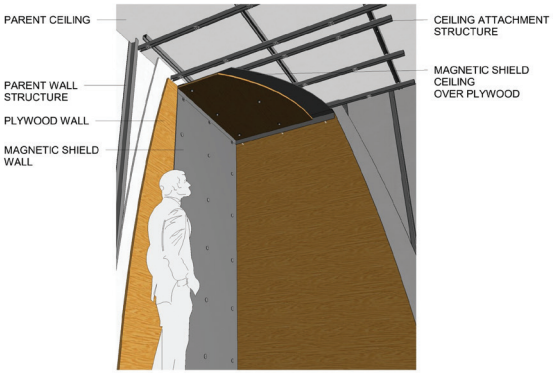
Series 81 panels are designed to join together using a mechanical clamping system.



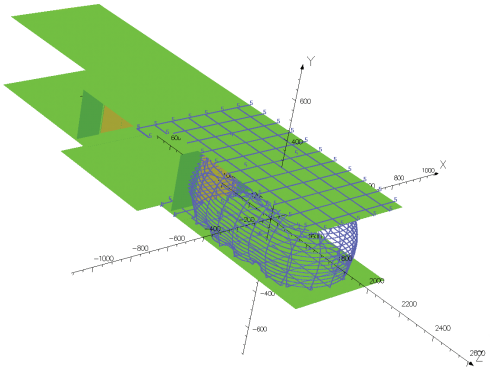
With a moisture-resistant barrier serving as an added layer of protection, Monolithic RF floors are an ideal solution for installations in sterile, low-level, and damp environments.



Modular RF floors are a good choice when quick installation is necessary.



ETS-Lindgren offers Magnetic MRI Shielding and shield design as part of a complete solution, providing superior containment of magnetic interference to your MRI suite.



Magnetic shielding modeling, shield design and gauss field measurements are some of the engineering services ETS-Lindgren offers.

MAGNETIC SHIELDING

When an MRI room shares a common wall with an area housing devices or equipment that may generate EMI interference or be sensitive to strong magnetic fields, or in an environment where public safety is a concern, a separate magnetic shield can be constructed around the RF shield to contain the interference in both directions.

MAGNETIC SHIELDING

ETS-Lindgren offers two primary materials for magnetic shielding solutions: M36 silicon steel and plate steel.

The proposed location of your MRI system will determine if magnetic shielding is required, specifically if the location of the MRI system allows the magnetic field of the MRI system to go beyond the MRI scan room itself or when the operation of the MRI system may be affected by something outside the MRI suite. Determining how much magnetic shielding you will need as early as possible in your planning process should be one of the first steps you take after selecting which MRI system you are purchasing and the location of the equipment.

RF-SHIELDED ROOM ACCESSORIES

As an industry expert in healthcare shielding, ETS-Lindgren offers a variety of MRI suite accessories to enhance or certify your complete system including the MACS/D, power and signal line filters, and medical EMI/RFI shielded waveguide air vents. For a complete list of our accessories please contact your ETS-Lindgren sales representative.

MAGNETIC ACTIVE CANCELLATION SYSTEMS (MACS/D™)

Often, MRI systems (or other medical devices) may require more protection from magnetic interference not achievable with passive shielding alone. ETS-Lindgren's Magnetic Active Cancellation System (MACS/D) is an active system with real-time magnetic field compensation for AC/DC magnetic field fluctuation, allowing for higher quality images. In some instances, potential sites previously rejected due to high magnetic fields have become usable after our MACS/D system was installed.



MACS/D units are small in size, self-contained, and easily installed. They require no maintenance or adjustments after installation under normal operating conditions. MACS/D systems are designed for 24-hour continuous operation.

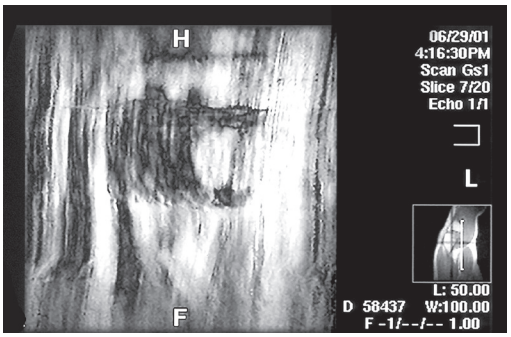


Image quality before activation of MACS/D unit.

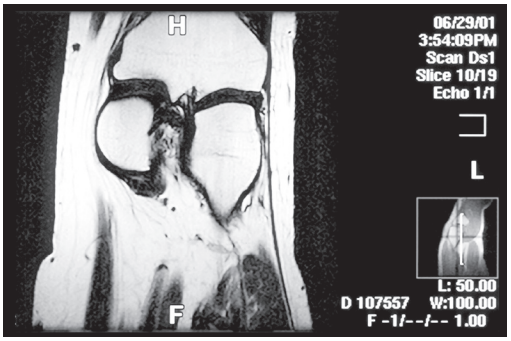
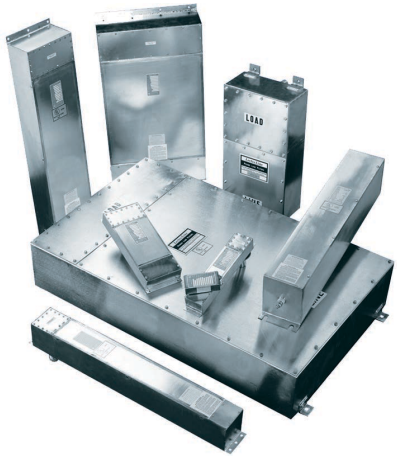


Image quality during activation of MACS/D unit.



ETS-Lindgren electrical power and signal line filters prevent the transmission of conducted RF noise.



Medical EMI/RFI shielded waveguide air vents are used to stop RF noise while allowing for airflow.

MEDICAL RF FILTERS

ETS-Lindgren's extensive selection of medical filters prevent RF interference along electrical power and signal lines connected to medical equipment.

Standard Features

- 30 amp power
- 60-400 amp power single and 3 phase
- 1 and 10 amp signal
- Analog phone, ethernet, and fiber optic filters available

MEDICAL EMI/RFI SHIELDED WAVEGUIDE AIR VENTS

Medical EMI/RFI shielded waveguide air vents allow the free flow of air in and out of shielded enclosures for ventilation and prevent electromagnetic interference from entering the room. ETS-Lindgren is the only RF shield supplier to address customer frustrations regarding dust-clogged air vents: We've opened the waveguides with wider ports allowing greater airflow and increased CFM flow. This waveguide style has also been approved by magnet manufacturers to replace hard-to-deal-with blow-out doors for emergencies.

RF-SHIELDED SWING DOORS

ETS-Lindgren's RF-Shielded Swing Doors are designed to provide excellent, reliable performance while remaining easy to operate in a swing open/close configuration.

EVO™ MRI DOORS

Our EVO MRI Doors are designed to provide reliable, easy-to-open access and low-maintenance service for use in a rigorous MRI environment. EVO MRI Doors have the industry's highest STC rating of 44 with a reduction of 49 dB at the frequencies of concern. All doors in the EVO Series can be customized to meet the specific needs or concerns of every installation. Please contact ETS-Lindgren for additional information.

Standard Features

- Easy-open, lever-style handle
- Pneumatic door
- Concealed seals
- Inherent acoustic properties
- Low profile (manual door models only)
- Flat threshold (air door models only)
- Easy-clean threshold

Options Available on Some Models

- RF-shielded window
- Full-window panel door
- Double doors
- Lead shielding up to 6 mm (0.25 in)
- Interlocking system
- Safe Intravenous Port (SIVP) feedthrough (see page 11 for information)
- Automatic open/close
- Electronic-capable for any type of security system
- Mag-lock
- Keypad
- Variety of sizes





The EVO MRI Door can be customized to create a unique solution for your MRI suite.



The optional SIVP allows medical equipment to remain safely outside of the MRI room while the RF shield remains intact.

SAFE INTRAVENOUS PORT (SIVP) FOR EVO MRI DOORS

ETS-Lindgren's Safe Intravenous Port (SIVP) provides safe and easy passage of up to 12 standard intravenous (IV) lines into an MRI room without compromising the RF shield. Designed exclusively for EVO Pneumatic Shielded Doors, the SIVP allows infusion pumps and other medical equipment to safely remain outside the MRI room while also remaining fully connected to the patient.

In the past, performing an MRI on a patient with IV lines was adverse for the MRI environment. The IV lines would have needed to be disconnected from the patient and reconnected via other means, or the facility would have been forced to leave IVs disconnected during the MRI scanning period. Alternatively, to keep infusion pumps or medical equipment safely outside the MRI room, connected IV lines were passed through the MRI door. This option also posed serious problems, as the RF seal of the door was either breached or left in an open position, rendering the MRI room vulnerable to EMI (electromagnetic interference) and causing poor image quality.

With the SIVP accessory installed, medical equipment can remain safely outside the MRI room, the RF shield remains in tact, and image quality is not compromised.

RF-SHIELDED SLIDING DOORS

Inter-Operative Sliding Doors (IOSD) and Single Sliding Doors (SSD) provide excellent, reliable performance in RF-shielded sliding door configurations.

SSD/IOSD MRI DOORS

ETS-Lindgren's IOSD and SSD were developed for the special requirements of multi-room, intraoperative suites. One of the door's key features is a pneumatically actuated sealing mechanism that provides trouble-free operation and minimal maintenance.

Standard Features

- Single- or double-leaf sliding
- Interlocking system
- Reverse on-contact sensors
- Expansion seal for acoustic and hygienic management
- ADA-compliant flat-door threshold
- Emergency overrides

Options Available

- Approaching-object, bidirectional motion sensors
- Door-positioning indicators
- Lead OR Magnetic shielding up to 6 mm (.25 in)
- Acoustic upgrade package
- Human Machine Interface (HMI) touchscreen control panel
- Camera mounting bracket





RF-Shielded Sliding Doors are available in single- and double-door configurations as standard.

CLEARSHIELD™ RF-SHIELDED WINDOWS

CLEARSHIELD™ WINDOW WALL

The ClearShield Window Wall's RF-attenuating properties block RF interference while providing clear views of the surrounding landscape and sky, giving your room an open, airy feeling. Please note: The window wall must be mated to an exterior wall window or skylight.

Standard Features

- Large size 122 cm x 152 cm (48 in x 60 in)
  (Maximum single panel size. Panels may be combined to form larger structures.)
- 100 dB attenuation at 150 MHz
- Suitable for 3T MRI
- STC 40 acoustic rating
- Functions as a wall, skylight, or observation window
- May be removed/replaced for magnet egress

CLEARSHIELD™ OBSERVATION WINDOWS

ETS-Lindgren's ClearShield Observation Windows provide a combination of clear viewing with high RF attenuation levels. You can see perfectly, yet the transmission of RF interference is attenuated to industry standards.

Standard Features

- Large size 122 cm x 183 cm (48 in x 72 in)
  (Maximum single panel size. Panels may be combined to form larger viewing areas.)
- 100 dB attenuation at 150 MHz
- Suitable for 3T MRI
- STC 40 Acoustic Rating
- Contact your ETS-Lindgren representative for larger configurations



The Window Wall lets light in while keeping RF noise out.



ClearShield observation windows allow for patient viewing without compromising shield integrity.





ClearShield S-Glass provides customers with a privacy option for windows that can be incorporated directly to the glass eliminating the need for blinds or ancillary options for covering windows in order to provide privacy.

CLEARSHIELD S-GLASS RF-SHIELDED WINDOWS

ETS-Lindgren's ClearShield S-Glass uses Liquid Crystal (LC) technology embedded in the window's glass providing customers with the ability to convert the glass from transparent to opaque with a simple switch. Switchable Glass provides customers with a dynamic privacy option for windows that can be incorporated directly to the glass eliminating the need for blinds or ancillary options for covering windows in order to provide privacy. Additionally, ETS-Lindgren's Switchable Glass includes a DMX controller providing the ability to set and change the level of opaqueness of the glass.

ETS-Lindgren's S-Glass provides a natural, clean appearance providing privacy when you need it and a clear view when you don't. The S-Glass is easy to clean and maintain reducing infection control concerns associated with traditional privacy blinds. ETS-Lindgren's S-Glass is available on all ETS-Lindgren windows including all ClearShield Windows and door windows.

Standard Features

- Easy to clean and maintain
- Ultra low haze: avg. 2.5%
- Minimal decay and increase of haze over time (haze after 14 years: avg ~10%)
- Operating voltages: 35 – 70 VAC
- Switching times: 10mS
- Custom sizes

RF-SHIELDED LIGHTING SOLUTIONS

At ETS-Lindgren, we realize patient experience is an important aspect to your facility's design. That's why we continue investing resources into developing lighting solutions designed specifically for the MRI and medical environments. From low-profile lighting that fits easily in older, lower-ceilinged MRI facilities, to innovative graphic display, ambient rope, and strip lighting, as well as dimmers, drivers, and controllers – ETS-Lindgren enables you to create environments that keep your patients at the center of all you do.

For a complete listing of our MRI lighting products, visit www.ets-lindgren.com or contact your local ETS-Lindgren representative.





Med-Vizion Graphic Display Panel Systems bring the aesthetics of nature into windowless MRI rooms.

RF-SHIELDED LIGHTING SOLUTIONS

MED-VIZION™ GRAPHIC DISPLAY PANEL SYSTEMS

From whole ceiling and entire wall displays to single and multiple panels, Med-Vizion Graphic Display Panel (GDP) Systems dramatically transform any environment. These systems install easily and create a calming environment for patients and staff by illuminating photographic scenes with natural, uniform light. Allowing even illumination from edge-mounted LEDs, the panels utilize special diffraction technology.

Our new low-profile wall-mounted units are a nominal 2.5 cm (1 in) in depth and can be surface-mounted in a few hours or less. Ceiling units are easily installed in the most commonly used ceiling configurations. Med-Vizion GDP Systems are suitable for 3T MRIs.

RF-SHIELDED LIGHTING SOLUTIONS (CONTINUED)

RGB AMBIENT ROPE LIGHTS PLUS CONTROLLER

Designed for flexibility, mood, aesthetics, and patient comfort, RGB Ambient Rope Lights can be fabricated to any length and installed to any shape or pattern. Color and brightness can be adjusted with the dimmer/controller.

RGB AMBIENT STRIP LIGHTS PLUS CONTROLLER

Create a calming, restful environment with the RGB Ambient Strip Light System. These lights are easy to install and use a programmable multi-color visual experience to relax and soothe. Choose among DMX-dimming, high-end, wall-mount-with-iPad, or remote-iPad control.

ACCENT STRIP LIGHTS PLUS CONTROLLER

Long-lasting, comfortable white light delivers low-temperature lighting ideal for illuminating MRI rooms and suites. Slide dimmer controls provide easy adjustment between higher-light needs or low-light ambience.



Ambient lighting creates a restful, calming aesthetic in a multitude of medical environment applications.



The Med-Vizion ZXR LED Down Light saves energy and costs less to maintain than traditional lighting.



The Med-Vizion LED Sheet Lamp Recessed Troffer provides an efficient, uniform illumination in a variety of sizes.

MED-VIZION ZXR LED DOWN LIGHTING

Med-Vizion ZXR LED Down Lighting uses the latest LED technology for MRI-compatible lighting with brightness equal to incandescent lighting, but with lower power consumption and longer life. Med-Vizion lamps include all necessary mounting hardware and trim rings. And all down light fixtures are outfitted with external drivers and dimmer-switch assemblies supporting up to 15 ZXR LED Down Lights per switched circuit. This dimmable down light meets all magnet OEM standards and conformance guidelines.

MED-VIZION LED SHEET LAMP RECESSED TROFFER

With efficient no-glare, uniform luminance across its lighting panel, the Med-Vizion LED Sheet Lamp Recessed Troffer consists of an LED lighting guide plate and built-in dimmable LEDs, making it an ideal replacement for standard fluorescent fixtures. Its thin profile — only as thick as the ceiling grid — makes the troffer ideal for low-clearance ceiling spaces.

SAFETY SOLUTIONS

Buying, installing, and upgrading an MRI room is an expensive investment. An important part of the process is the shielding required to ensure patient and staff safety. In addition to being the leader in RF Shielding and RF Shielding products and accessories, ETS-Lindgren is also the leader in safety solutions for MRI. Our solutions are designed to protect your staff, patients, and facility from potential adverse events. ETS-Lindgren also conducts MRI Safety Training to further instill confidence that all your valuable assets are safe.





SuiteSentry Entryway Systems are available for either out-swinging or in-swinging doors. In-swinging door option shown.

FERROMAGNETIC DETECTION

SUITESENTRY™ ENTRYWAY FERROMAGNETIC DETECTION SYSTEMS (FMDS)

SuiteSentry Entryway Systems offer the industry's most advanced ferromagnetic detection for your entire MRI suite. SuiteSentry Entryways are specifically designed to give your technologists full control of both inside and outside the MRI room, per the American College of Radiology (ACR) and The Joint Commission's requirement of 'control of Zone IV at all times'. The SuiteSentry Entryway gives an alert on an approach of ferromagnetic materials into Zone IV — before reaching the threshold. The systems' highly visual warning lights can be seen from both inside and outside the MRI room. The greater the threat, the farther away the warning is activated. There is also an audio alarm activated only when the threshold is reached. In facilities with out-swinging MRI doors, the unit is mounted on the inside of the door frame, while with in-swinging doors, the system is installed on the outside.

The optional Ferromagnetic Incident Log Manager Encompass uniquely aids in complying with The Joint Commission standards and serves as a tool to assist with your internal root-cause analysis. Encompass provides a continuous and automatic visual record of potential and actual projectile incidents, as well as a visual record after the incident.

FERROMAGNETIC DETECTION (CONTINUED)

SUITESENTRY SINGLE SCREENER FERROMAGNETIC DETECTOR

The SuiteSentry Single Screener Ferromagnetic Detector is designed to instantly pinpoint the location of a ferromagnetic object without an invasive pat-down. For installation in the controlled pre-screening zone of MRI suites, the SuiteSentry Single Screener is the highest-sensitivity, full-body patient and personnel scanner available.

TECHGATE© MRI SAFETY BARRIER

Our TechGate MRI Safety Barrier provides an automated LED-lit, on-demand barrier to entry for the MRI suite. In the event of an emergency, a proprietary hinged breakaway arm allows for rapid access. For easy installation, TechGate is powered by a standard wall outlet.



All SuiteSentry Systems are designed to provide optimum ferromagnetic detection based on each facility's environment and procedures.



TechGate protects your patients, staff, and equipment by restricting unscreened individuals access to the MRI room.



MRI Patient Handheld Screeners are especially useful when patients are nonambulatory and may be transported in wheelchairs or gurneys.



The Oxygen Monitoring System (OMS) uses zirconium oxygen-sensor cell technology and provides stable readings in areas where temperature and humidity levels are inconsistent.

MRI PATIENT HANDHELD SCREENER

The MRI Patient Handheld Screener combines high-sensitivity ferromagnetic metal detection with immunity to non-ferromagnetic metals. This portable screener has three analysis modes selectable via the easy-to-use keyboard interface. By using all three modes, the MRI suite staff can obtain an indication of any metals used inside the patient as well as their magnetic susceptibility. For optimum operating conditions when using the screener, the patient should lie on a metal-free bed. When coupled with written and verbal questionnaires, the screener provides the staff a clear picture of risk, enabling them to make appropriate decisions for optimal patient and facility care.

OMS™ OXYGEN DEFICIENCY MONITOR

ETS-Lindgren's Oxygen Monitoring System (OMS) is a compact sample-draw monitoring system that alerts and alarms when oxygen levels fall below safe limits for human health. The OMS monitors the air in MRI rooms, labs, freezers, confined spaces, and other locations where inert gases such as helium, nitrogen, and argon may displace the oxygen and create a danger for patients and staff.

SERVICE SOLUTIONS FOR MRI

Uptime is more than a measure of days, hours, and minutes. It provides the means to quickly and accurately make diagnoses and deliver treatment. It allows departments to function at optimum efficiency. It enables organizations to recover operating costs and capital expenditures more reliably by maximizing throughput. Above all, it elevates the patient experience, demonstrating your commitment to putting them first.

Whether you're building from the ground up, replacing or upgrading existing facilities, or seeking an immediate remedy to a problem, our end-to-end service capabilities enable you to access the expertise you need, when you need it, with:

- Site Planning and Design
- Engineering and Consulting
- Maintenance and Repair
- Education and Training





Our in-house engineering and design capabilities allow us to provide the best solutions for your facility.

SITE PLANNING AND DESIGN

Optimum utilization of space and resources are critical aspects of site planning and design. So is protecting the integrity of your MRI artifacts. As one of the world's leading MRI shielding experts, ETS-Lindgren can provide critical recommendations to your internal team, architect, and contractors that:

- Ensure site location and design parameters protect the magnet and your overall MRI investment;
- Reduce artifact issues and maximize uptime with superior shielding product selection;
- Identify and mitigate potential problems with outside noise, vibration, EMI, and other environmental factors that can compromise image integrity;
- Maximize space utilization and increase the amount of usable space in facilities where square footage is at a premium; and
- Test and measure to ensure reliability of recommendations.

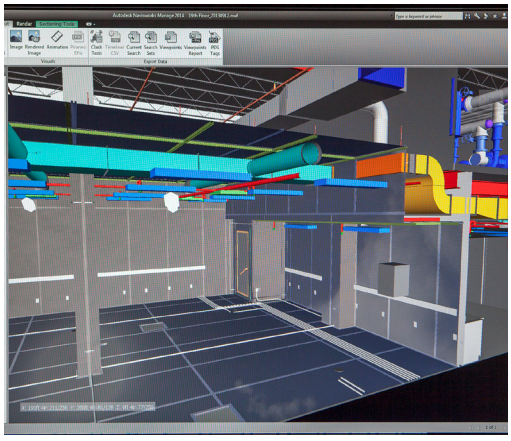
BUILDING INFORMATION MODELING (BIM)

Gain better insight and predictability of the physical facility – before it's built – with Building Information Modeling (BIM) from ETS-Lindgren. BIM provides not only 3-D representations of the architecture, but also the mechanical, electrical, and plumbing. So you're able to see how our recommendations for the RF-shielded enclosure will interface with the overall building. It's a great collaborative tool that delivers the results you're looking for, including:

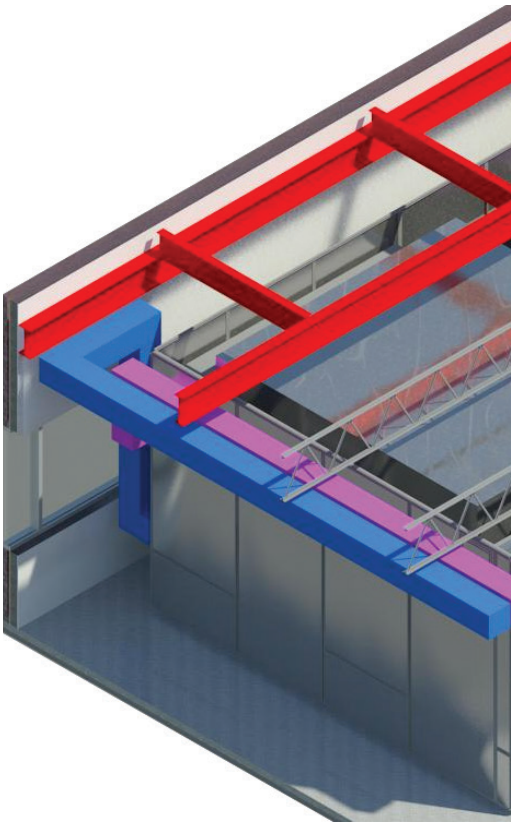
- Lower expense and risk
- Fewer construction delays and rework
- Decrease in on-site problems

BIM allows our customers to visualize the completed project before it begins. It also provides a better understanding on how the shielded room interfaces with the host building and the Mechanical, Electrical, and Plumbing (MEP) facilities. This promotes an efficient workflow for the architectural design team, general contractor, and MEP specialists. Our customers benefit with reduced construction delays, rework, and unnecessary expenses. Because BIM provides a high-level representation of the shielded room, it becomes a key tool for effectively designing around the parent building and MEP facilities. BIM provides the immediate benefit of 3-D visualization for spatial coordination and clash detection, preventing the building systems from interfering with each other during construction.

BIM Video



BIM allows ETS-Lindgren designers and customers the ability to see potential problems prior to construction.



All proprietary shielding models are created by our own ETS-Lindgren Autodesk Certified Professional design team, supervised by a Director of Project Engineering & BIM Technologies.

A typical BIM project starts with a meeting to establish a schedule for coordinating all of the project elements. Then a 3-D BIM model of the shielded room is prepared to integrate the host building architecture and MEP models. Our design software is compatible for direct importation into Navisworks®; we can provide native files with an .nwc file extension. To assure a good flow of communication, we participate in all scheduled virtual coordination reviews. In most cases, these can be conducted online. We also collaborate with all participants in the life cycle of the project, sharing information as it relates to the design and integration of the shielded room to the host building. In the event a sub-contractor does not have BIM capability, we are able to seamlessly integrate their 2-D CAD data.

ENGINEERING AND CONSULTING

At ETS-Lindgren, we test, we measure, and we develop. Our expertise enables us to provide testing and surveys critical to meeting key requirements for ISO-9000 annual or bi-annual testing as well as ACR-MRI insurance underwriting tenets. We also offer:

RF (RADIO FREQUENCY) TESTING

RF testing includes measurements of existing shield systems. Trouble areas such as shield seams, electrical and mechanical service penetrations, equipment panels, and doors/windows are tested for RF integrity loss.

EMI TESTING

When Electromagnetic Interference (EMI) is suspected as the problem, the environment is scanned electronically to identify the source with DC testing and Quasi DC testing. Our team then determines the appropriate steps that would be required to contain with passive shielding or compensate with active solutions.

VIBRATION TESTING

When vibrational disturbances are detected, our engineering team will run a physical vibration test to measure a fequency domain response from 0 – 200 Hz, along with reporting on the sources of the vibration and will add a detailed report documenting vibration recordings and time of day and have many solutions for mediation requirements.

GAUSS FIELD MAPPING

Our on site EMI testing utilizes gauss field mapping to analyze static disturbances for both internal and external concerns to plan for mitigation or siting location of the OEM equipment.



Our engineers and technicians have the expertise gained with more than 10,000 installations.



Our experienced team can detect and correct any issues with your MRI suite.

ACOUSTIC ANALYSIS

Acoustic analysis includes measurements to determine noise sources, whether airborne or structurally transmitted. Mitigation measures may include source elimination, isolation, and soundproofing of existing building elements.

VIBRATION ANALYSIS

Noise can result from vibrations transmitted by structural members over long distances. A site analysis by our engineering team can determine the source and recommended mitigation measures.

MAINTENANCE AND MODIFICATIONS

MRI represents a significant investment. Making sure yours performs with minimal downtime and functions longer is critical to patient care and your bottom line. ETS-Lindgren maintenance and repair service professionals will work with you to keep your MRI facility performing at its best.

MAINTENANCE SERVICES

Periodic maintenance pays for itself by reducing downtime and unexpected expenses. Our experienced service crews can visit your facility on a scheduled basis to prevent problems before they start by servicing your MRI shield system.

FACILITY UPGRADES

An aging facility, new equipment, or an increasingly RF-noisy environment can dictate the need to install new or additional shielding. Our engineers can survey your facility to determine the right amount of work your facility requires.

PLAN TO UPGRADE YOUR DOOR

Contact your ETS-Lindgren representative to find out which door options are available.

We offer maintenance contracts or as-needed, call-in services to help you protect your investment and give you more time for patient care.





Our training and education are designed to make your staff more effective and efficient and give your patients a better overall experience.

TRAINING AND EDUCATION

In an industry that's longer than four decades old, ETS-Lindgren boasts a technical team with an average tenure of longer than 25 years. We do all we can to share our knowledge and experience with our clients, including providing MRI safety training for clients, partners, and professionals. From basic ergonomic issues associated with daily routines in the MRI chamber, to identifying and mitigating safety issues surrounding working with today's powerful magnets, to best practices, to recognizing a problem and creating a solution — ETS-Lindgren's service personnel provides the technical training to:

- OMS reduces the number of workplace incidents
- FMDS/Tech Aid protects patients
- SIVP lowers risk of infection
- Improve process and throughput

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COMMITTED TO ENHANCING PATIENT EXPERIENCES AND OUTCOMES

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Information presented is subject to change. Actual product appearance may vary from representational photographs and illustrations shown. Contact the ETS-Lindgren Sales Department for current specifications.

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