

# Transformer Room Shielding (50hz)



**GLOBAL EMC**  
ELECTROMAGNETIC SHIELDING & ANECHOICS EST. 1994

## Choose This Test Chamber For

Iron+® has been specifically developed for VLF/ELF and broadband applications.



### 50 Hertz

Shielding of high current cables typically LV and HV mains feeder cables that are emitting high levels of EMF.



### Magnetic Field

Optimised shielding for power frequencies (50/60 Hz) to mitigate harmful levels of magnetic fields from being exposed to the general public.



### Building Shielding

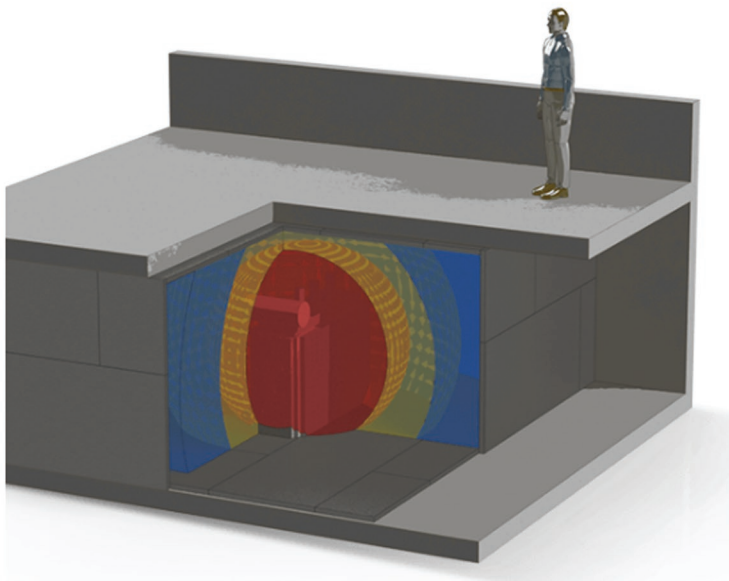
Suitable for industrial, commercial and large residential installations. Providing conformity to long-term public exposure limits of EMF.

## Building Shielding

Combined with our ever-increasing demand for electricity, larger, more powerful transformers and associated cabling has been installed. This results in higher levels of power frequency electromagnetic interference (EMI) being emitted from these rooms and devices.

All high current sources in a building, such as transformers, bus bars, switchgear and power distribution cables produce magnetic fields. These fields can pass through standard building construction materials and induce currents into the human body or electronic devices.

If high enough, the radiated magnetic field can affect electronic equipment and the health and wellbeing of the building's occupants. The guideline reference limits applicable in the UK are those published by the International Commission on Non-Ionising Radiation Protection (ICNIRP).



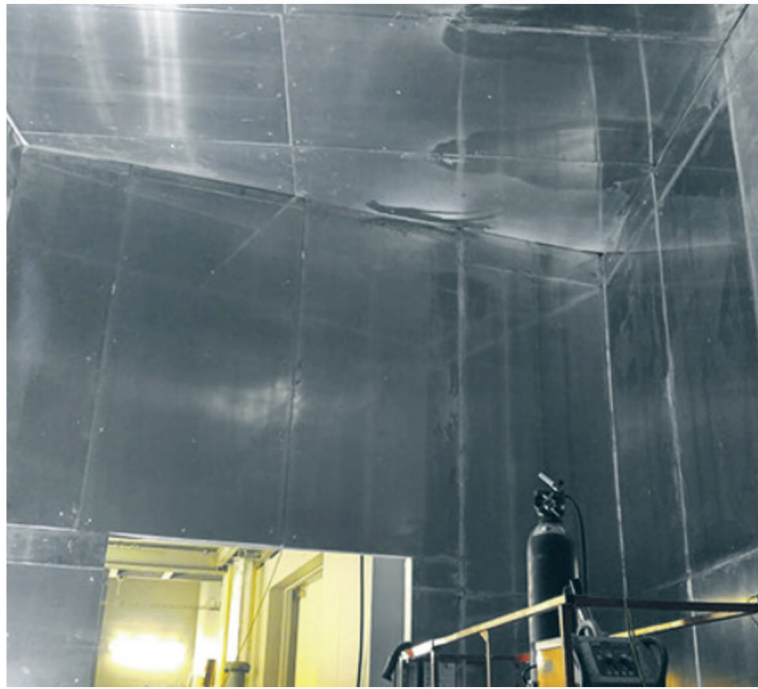
## Non-Ionising Radiation Protection

For public exposure, the ICNIRP states that for power frequency (50Hz), magnetic field limits are to be no greater than  $100\mu\text{T}$ . These public exposure reference limits are outlined as UK government policy but are similar across Europe. In addition to this, epidemiological studies have indicated that prolonged exposure to power-frequency magnetic fields above  $0.4\mu\text{T}$  is associated with a small absolute raised risk of leukaemia in children. Although this level is not currently law, it is prudent to consider this finding when designing or specifying a residential building electrical systems.

In Europe and the UK, electronic devices are tested to operate in magnetic fields set out in BS EN 61000-4-8. Depending upon the environment, an equipment class and test level is given.

Class 1 – 1A/m ( $1.26\mu\text{T}$ )  
Class 2 – 3A/m ( $3.78\mu\text{T}$ )  
Class 3 – 10A/m ( $12.6\mu\text{T}$ )

This is the maximum level in which the electronic device has been tested and are designed to operate. Higher field levels could affect the electronic equipment from working correctly.



## Mag-Stop Shielding

To protect people or electronic devices from the effects of high levels of magnetic fields, shielding is required.

Mag-stop shielding provides an effective solution to reduce power frequency (50/60Hz) magnetic fields to levels less than  $0.4\mu\text{T}$ .

Each project is individually designed and areas of concern are identified. Shielding thickness and required attenuation levels are calculated and all penetrations of the shield are designed and manufactured. Full support through the consultation phases and design stages can be provided by Global EMC.

Mag-stop is available in fully seam welded sheet format to line the surface of the room or as a "pan" type modular system that requires no hot works on-site. Mag-stop is also complimented by Armadillo shielded containment for electrical cable tray or trunking shielding throughout the building.

### Key Features

Fast site install compared to welded shields.

No hot works required.

Re-site-able without loss or damage.

Wall finishing can be directly mounted to either side of the "System 8000" shield.

25mm or 50mm deep service voids can be designed in pre-finishing board install.

Can be built into a stud wall (drywall).

### Full Specification

Up to 100:1 at 50Hz (-40dB). (based on 1mT field strength).

Better than 10,000:1 at 100 kHz+ (-80dB). (based on 1mT field strength).

Up to 1,000:1 at 1~10 kHz (-60dB).

### Applications/Standards

EEG Labs where 50Hz is a major threat.

Sub-station stray field suppression (50Hz).

LV switchgear room/panel suppression.

Electromagnetic quiet rooms.

NEMP (Nuclear Electromagnetic Pulse) with MIL-STD188-125 power filters (VLF/ELF/RF/Microwave).

TEM (Electron Microscopy) passive shield rooms for Quasi-DC~1GHz shield.

Shielded Data centres/Shielded Control Centres (VLF/ELF/RF/Microwave).



**GLOBAL EMC**  
ELECTROMAGNETIC SHIELDING & ANECHOICS EST. 1994

4A Hamilton Rd, Sutton-in-Ashfield, Nottinghamshire, NG17 5LD, United Kingdom  
[www.globalemcc.co.uk](http://www.globalemcc.co.uk)    [info@www.globalemcc.co.uk](mailto:info@www.globalemcc.co.uk)    +44(0)1623 755539