SHIELDING
from EMFs and RFR

Shielding from EMFs and RFR is a complex issue and difficult to get right.

Shielding can be expensive. Do not apply shielding like paint unless you are certain it will work, or the contractor or supplier will pay for its removal if it does not.

Changes in external wireless radiation can alter the effectiveness of the shielding.

And, first of all, stop using all wireless (e.g. laptops, mobiles, smart meters, Wifi).

GENERAL NOTES

1. You always need to **measure** the effect of the shielding on both EMFs and RFR.
2. Some materials **reflect and trap** RFR.
3. You may need to **earth** the shielding material.
4. A shielding barrier may **increase** RFR around the barrier.
5. It is **difficult or impossible to shield magnetic fields** and ELF EMF.
6. A **Faraday cage** to keep all fields out or in may not always be desirable or possible.
7. The human body can **build up static** electricity, **conduct** electricity, and **absorb** RFR.

SHIELDING FROM EMFS AND RFR				
	AREA	***MATERIAL***	***ADVANTAGES***	***DISADVANTAGES***
1	Perimeter of garden or property	Steel mesh	It should reduce RFR from a nearby mast or a neighbour's Wifi, mobile or smart meter. It may provide continuous shielding without breaks for doors and windows.	Expensive. Unsightly. Planning approval may be needed. Stainless steel should prevent rusting but is more expensive.
2	Exterior of house	Carbon paint	It can cover ends of internal walls etc.	Difficult to remove. Expensive. Needs exterior paint on top.
3	Windows	Window film	Almost invisible.	Expensive. Window frames need shielding treatment, especially if wooden.
4	Interior walls of room	Paint		Difficult to remove. Expensive. Difficult to cover fixings, frames. It can trap RFR inside the room.
		Wallpaper, window film		Expensive. Fixings and frames are difficult. It can trap RFR inside the room.
		Aluminium foil	Use best quality aluminium foil for cooking	Several layers may be needed and even then it may not be fully

				effective in blocking all wireless radiation. Any gaps may render it ineffective.
5	Doors, frames, chimneys, fittings, letterboxes			Each door, frame, fixing and fitting requires its own protective shield, otherwise RFR can enter the space through small gaps.
6	Inside rooms	Nets e.g. over beds, seats, work places	Nets can be moved easily. Good quality nets give high levels of protections, are almost transparent and light in weight.	Expensive. If the net is earthed, it should not introduce stray currents. In high-rise flats, etc., floor protection may also be needed.
7	Electric wiring cables	Shielded cables	Good for a new-build or refurbished property	Expensive.
		Breaker or on-demand switches	Especially for bedrooms and sleeping areas at night.	Expensive.
		Cable configuration	'Radial' circuit wiring is preferable to ring-mains. Mains sockets and wiring should be >1m from beds.	Cheaper if done as part of a new-build.
		Earthing	e.g. for some lights and computers. Earthing cables are often recommended for computers. White goods with metal frames are earthed.	A magnetic field is caused by the flow of a current. There is voltage even if the appliance is not in use, unless it is unplugged from the mains socket.
		Faulty connections	Loose or burnt neutral wires can cause fire and risks by earthing along other routes.	Professional electricians should regularly check house wiring.
	Internet and fibre optic	dLAN plugs or powerline adapter plugs. (direct Local Area Network)	Use with ethernet cables on house wiring instead of Wifi to reduce RFR. These give off some RFR so they should be kept over 0.5 m away.	Price comparable with Wifi. Use with ethernet cables and a wired (non-Wifi) router, or with a Wifi router with the Wifi switched off and only wired internet. Check that a Wifi router does not automatically switch back on the WIfi.
		Dirty electricity (DE) filters	To reduce dirty electricity. There are some concerns about their overall effectiveness and fields and some have had fire risks.	Quite expensive for large numbers. Check for BSI compliance for filters. Many devices can produce DE, eg 'smart' meters, fridges, chargers, computers, CFLs, TVs, dimmers.
		Fibre optic	Some converters emit RF DE	Consult or change internet provider
8	Earthing, grounding	Earthing straps, mats and sheets	for persons	Need to ensure the earth wire does not introduce stray currents
		Body voltage	Some people measure their body voltage to help assess EMF/RFR environments.	It is important to know whether the person is earthed or not when measurements are made.

9	Computers	Separate screens, keyboards and wired mouse	Some people use digital projectors to avoid proximity to screens. Some use separate key boards and a wired mouse for a laptop, or cardboard fittings or protective gloves. Airplane mode is essential.	Some of these items are relatively inexpensive.
		Ethernet	Always use with ethernet cables and switch off Wifi.	Check Wifi and Bluetooth are switched off.
10	Lighting	Tungsten bulbs (e.g. incandescent or some rough bulbs)	Replace CFLs and LEDs with traditional tungsten or halogen bulbs where possible. These create less dirty electricity or unnatural light spectrum.	Some fittings may not be suitable.
11	Clothing	e.g. Hats, scarves, leggings, shirts, tops	Some are easy to put on and do not look unusual.	Expensive. Not to be used with wireless devices inside the clothing, since there is a danger of trapping EMFs.
12	Bedding	Sleeping bags		These do not always include protection for the face and head.
13	Wireless 'smart' meters. Screens and blocking devices	Small shields, sometimes portable	Refuse a wireless 'smart' meter or ask for the removal of a wireless meter. A shield to protect the property from a wireless meter may be easy to fit or move.	Unless the shield is next to or very close to the wireless device, it is usually ineffective over a relatively wide area. It may increase the radiation in the area not shielded, so beware in case a shield increases radiation from a wireless smart meter inside the property if the shield is fitted on the outside of the meter.
14	'White' RF noise	Radiation intended to increase background radio 'noise' to mask harmful RFR		Expensive. There are few peer-reviewed studies on whether these devices are effective, whether they are harmful in the long term, or whether they are effective for everyone. Increased random radiation does not seem wise and should always be avoided in shielded spaces.
15	'Remedial' RF radiation	Radiation intended to strengthen 'good' human wireless signals to counteract harmful RFR		Expensive. There are few peer-reviewed studies on whether these devices are effective, whether they are harmful in the long term, or whether they are effective for everyone. Increased radiation does not seem wise and may have untended consequences in shielded spaces.

ADDITIONAL NOTES:

1. The **key treatment** for everyone affected by environmental EMF and RFR pollution is **eliminating or reducing their man-made EMF and RFR exposure**. This usually includes shielding and protective measures, unless they can move to an entirely unpolluted area.

2. The human body can take **many months to adjust** to lower environmental EMF and RFR pollution and to heal itself.

3. **Sensitivity** to environmental EMF and RFR pollution can be **cumulative**, becoming more severe the longer the exposure. Similarly, the more a person is protected from environmental EMF and RFR pollution, the more he/she may react to this environmental EMF and RFR pollution when he/she is exposed to it away from the shielded area.

4. **Each individual reacts differently** to environmental EMF and RFR pollution, since each is unique genetically. Shielding solutions may work well for one person but not for another.

5. The **safe level** for EMF and RFR exposure is the **natural background level** to which all humans have adapted. Man-made environmental EMF and RFR pollution should be limited to prevent **established long-term non-thermal** effects, eg IGNIR (International Guidelines on Non-Ionising Radiation, 2020 Guidelines). The UK's ICNIRP guidelines prevent only short-term thermal effects.

6. **Knowledge of environmental EMF and RFR hygiene** is essential for builders, doctors, employers, hospitals, planners, politicians, public health officials and schools.

7. Some courts have **fined employers** for not providing shielded locations for ES employees.

8. Shielding requires **no use of mobile phones, Wifi, wireless smart meter etc.,** and instead wired ethernet. A wireless device used in a shielded place, as in a shielded room or house, or in enclosed areas with metal walls and roof such as a car or train, can increase exposure considerably. Both the wireless device and mast send out stronger signals to reach each other.

9. **Costs** range from over £10 for a few rolls of kitchen aluminium foil, to over £1,000 for large bed nets, to well over £10,000 for shielding several rooms professionally.

10. Some countries now provide detailed **online real-time measurements of RFR pollution levels**.
    e.g. Greece (500 locations): National Observatory of EMFs .

This document is not intended as medical advice.
For medical advice consult a doctor experienced in environmental pollution from EMFs and RFR.

Further information:

- Clegg FM et al.: "Building science and RFR: … smart and healthy buildings" (Build.Envir, 2020)
- Professor Trevor Marshall: "Building a DIY Faraday Cage" (2018)
- Alasdair & Jean Philips: *The Powerwatch Handbook* (Piatkus Books, 2006, ISBN 0749926864)
- Hugo Schooneveld et al.: "EMF reduction restores health of electro-sensitive people" (2016)

- ES Directory (Summer 2020; an independent list of UK suppliers and EMF/RFR surveyors etc.)
  - **EMF/RFR surveyors** can be employed to take measurements and to give advice.
  - The number of **suppliers of shielding and meters** is growing: see internet websites.
  - Leading suppliers offer **advice and refunds** if items are ineffective in a particular situation.

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