

# **Accommodating people with electrical hypersensitivities in the workplace**



**It may be possible to accommodate people disabled by electrical sensitivities so they can continue a productive work life. But there is no standard solution, it has to be tailored to the individual.**

*Keywords: work, workplace, job, accommodation, rehabilitation, electromagnetic sensitivity, electrical hypersensitivity, electrohypersensitivity, EHS*

## **The workplace challenge**

EHS is still poorly understood and thus controversial. There is no standard treatment and no reliable cure. The most effective mitigation is removing the triggers.

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When people with EHS have their needs for a safe physical environment met, they can function better and be productive in the workplace.

Many countries have laws requiring employers to accommodate employees with disabilities. Such laws may exempt small businesses and only require “reasonable” measures that do not cause “undue hardship” for the employer. In some cases it is not realistic for a business to accommodate the employee. It depends on the severity of the illness and the situation.

Many people with severe EHS are forced to change jobs, become underemployed or go on disability (Evans, 2010; FEB, 2007; Nordin, 2014). But for milder cases there are many options to consider.

### **Getting Started**

It is imperative to closely involve the employee in the decisions how to make the workplace safe for him or her. There is no standard set of measures that are guaranteed to solve the problem, the needs are individual. Some possible measures will be unnecessary, some will not work. Creative measures may be needed.

The employee is the expert on what causes his or her symptoms, though it is often difficult to know what all the problems are in a specific room. The biggest problems may actually be hidden. EHS is not a special sense that allows a person to directly tell a source of radiation (we use instruments for that).

It appears that people with EHS are more sensitive to some frequencies, and less to others (Rea, 1991). That means some radiating devices can be more problematic than others, despite what the instruments show.

It is often necessary to experiment to see what works and what doesn't in each particular case. A gradual approach may be needed. Don't expect quick solutions.

### **Simple solutions**

Simple solutions are often the most effective, and they may cost little or nothing. Be cautious about fancy high-tech measures.

Many people immediately think “shielding” when encountering these issues. Shielding should actually be far down the list of measure to consider. Shielding is a band aid. If a pipe breaks, a bucket can help, but it is much better to stop the leak if you can.

Shielding can be the solution in some cases, as we shall see, but it is not a cure-all.

Also be aware that there are a lot of charlatans selling “magical” devices that defy the laws of physics.

### **Distance matters**

The distance to a source of electromagnetic radiation is very important. The strength of the radiation decreases with distance. If the distance is doubled, the radiation level is typically reduced 75% (to one-quarter)

This is the case for virtually all such radiation, whether it is Wi-Fi transmitters, power supplies or electrical wires.

The exception is large computer screens. They are radiant surfaces instead of a radiant point or line, so the radiation decreases much less with distance.

Unfortunately, the distance may have to be doubled many times to reach a low enough level. You can quickly run out of room.

Also, inside metal buildings and metal-clad rooms, things are different.

### **Metal buildings and rooms**

If the building or room is clad with metal panels, the metal will reflect radio waves. Radio waves coming from the outside will bounce back and have trouble entering. That is helpful.

But radio waves already inside the metal walls will also bounce back and continue to do so. So any indoor mobile phones, wireless networks and other wireless signals will create much higher radiation levels inside a metal building than if the building was made of non-metallic walls. (In our experiments we found the radiation was about a hundred times stronger, and distance from the source no longer helped.)

### **Reduce or remove the source whenever possible**

Whenever a source of radiation is identified, the first consideration should always be how to make it radiate less.

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The questions to consider are:

- Is the device really necessary?
- Can it be moved elsewhere?
- Can it be turned on only when needed?
- Can it be configured to radiate less?
- Is there a safer model?
- Can it be modified to radiate less (shielded?)
- Can it be made to just radiate in some directions?

Be aware that many electronic devices are not truly off when the power button is in the “off” position. This is done to make them more convenient, such as having a remote control, a quicker startup or just an “easier” ON button. To truly turn these off, a wall switch or a switch on a power strip is needed.

#### **Wireless networks**

Most businesses have a wireless network (Wi-Fi) with one or more hubs (routers). Each hub radiates continuously whether there is any traffic on the network or not. (It sends a beacon signal identifying the network).

A hub will radiate more when there are more devices connected to it and they do more. Transmitting video generates a lot more traffic (and thus radiation) than texting or browsing web pages.

There are several options for reducing the radiation exposure from a wireless network, without totally removing it. A combination may be the best solution.

The hub can be moved further away from the person’s workstation. Preferably to the other end of the building.

Stationary computers can be connected using cables, while their on-board wireless transmitters are disconnected. This is especially important for computers near the person with EHS.

The hub transmits at the same power level regardless how close the receiving device is. Less power may work just as well. Consider using a less-powerful model, or dampen it by enclosing it in a small metal enclosure (Faraday cage).

You can experiment by wrapping the hub with regular tinfoil from the grocery store.

If the signals from the router does not need to go in all directions, it may work to put a sheet of metal on one side of the antenna to shield that direction.

If a hub serves only computers with cables, its transmitter should be turned off. If the hub does not allow this, get a model that does, or at least unscrew the antenna and enclose the hub in metal shielding.

If none of these measures are possible or sufficient, consider shielding the worker's room (see later). Or move the worker's work station

## **Computers**

Computers can be made much less radiant by using cords instead of wireless networking. This includes:

- Internet connection
- Mouse
- Keyboard
- Printer
- Any other peripheral

Computers that do not have a port for wired networks can be equipped with one that plugs into the USB port.

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We can not recommend using the building's electrical wires to transmit network signals. It turns wiring into large antennas radiating radio frequencies.

It is best to physically remove the wireless card from the computer if possible. Leaving it in can be a booby trap as it might accidentally be powered up later on.

It may also tempt a co-worker to “just see what happens” if they turn it on without telling (people really do such things).

Computers of all types radiate a wide range of frequencies from the electronic components inside, from the screen and from the peripherals, even if it has no wireless transmitters.

It may help to use a separate computer screen, mouse and keyboard so the computer itself can be further away from the worker.

Extension cords for mouse and keyboard may allow a little more distance.

A separate and larger computer screen may help the worker sit further from the computer. However, larger screens also radiate more than smaller screens. Experiment.

A mouse should radiate less than a touchpad.

There are no zero-radiation keyboards and pointing devices (mouse) readily available (non-electric versions do exist for medical MRI use, but they are costly).

Despite these measures, people with severe EHS may not be able to use the computer, or perhaps just for limited times each day.

### **Desk phones**

Give the staff desk phones with landlines, so they do not need to use wireless phones.

Avoid cordless phones (DECT). These are often worse than cellular phones since most models AND their bases, radiate continuously whether they are in use or not (cell phones radiate more powerfully than DECTs when actively used and much less so when inactive).

If there is no landline service available, look into telephone service through the internet or by using “fixed wireless” systems such as the Home Phone Connect (with the transmitter far away from the worker).

### **Lighting**

Lighting of many kinds can cause symptoms for people with EHS. It is not clear what the problem is, but it may be the radiation from their electronic controllers, the flicker or the light quality itself (especially “cold” bluish lights). It may be a combination and it may vary with the person.



*Fluorescent lights of all types can be a problem.*

Fluorescent lights, compact fluorescents (CFL) and LED lights can all be a problem. Try replacing them with old-style incandescent lights, or use daylighting.

Avoid any form of track lighting, as the tracks radiate more than wires (due to greater separation of the tracks). This includes 12-volt track lighting, if powered from a transformer (dirty electricity).

### **Building wiring**

The building's electrical wires may generate a lot of radiation. This is especially the case around transformers, power centers and major electrical equipment. But it can be anywhere else where there is "stray electricity" where current unintentionally runs along metallic building components, such as metallic water pipes, air ducts, studs or siding. This is also called "net current."

Stray electricity is not something most electricians understand. In fact, it is usually caused by shoddy electrical work and inappropriate grounding.

It can be readily detected using a gaussmeter and some detective work. Fixing it will likely require an electrician specializing in such work.

Be aware that many electricians falsely believe that the solution is more grounding, which often makes the problem worse (by creating more net current). Such electricians rarely use a gaussmeter to check their work, which they need to.

In some cases placing the wires in metal conduits can help, but correcting the wiring error is often a lot cheaper.

Metal conduits may be helpful for dampening the electrical and magnetic fields around electrical wires. They are commonly used in commercial buildings anyway.

### **Restrooms/lavatories**

Electric hand dryers emit a lot of EMF when they are running. Offering hand towels as well can be a simple solution. Have perhaps just one designated low-EMF restroom.

### **Other problems**

There are many other possible problems. Also keep in mind that walls and ceilings do not block the radiation from adjacent, rooms.

Here are just some common problems:

- Refrigerators
- Microwave ovens
- Airconditioners
- Fans
- Electric stoves
- Space heaters
- Electric meters
- Battery chargers (all types)

Some people with EHS also have problems with noise, such as from fans (Nordin, 2014). This appears to be similar to what people with autism report. It may be difficult to determine whether it is the radiation or the noise that is the problem with a specific piece of equipment.

## **Educating the staff**

If other members of the staff have to be involved in keeping the employee safe, it is essential they are told by management. That is much more effective than leaving the employee to essentially beg people for understanding.

The staff must be told by someone in authority that this is a medical issue and not some sort of anxiety or conspiracy theory. There is plenty of material on the internet of hateful and dismissive character, just as there is about many other minorities. As it is poorly understood, it is also controversial among doctors.

## **Restricting wireless gadgets**

Restricting the use of wireless devices by employees and guests will be very difficult. People are so used to having them on all the time that restricting them is an imposition which can generate resentment and possibly sabotage. Even well-meaning people will forget to power down their gadgets, or erroneously believe that “airline mode” or “vibrate only” is sufficient. Many also erroneously believe that mobile phones only radiate when actively used. There are many myths.

Restrictions may work for a small group of respectful people, but even there it will be difficult.

The person with EHS should not be the “phone police.” That will generate resentment, poison the atmosphere and possibly result in harassment.

The electronics inside a mobile phone radiates whenever it is on, just like almost all other types of electronics. If the phone is not actively used, it will wirelessly check in with the phone network every fifteen minutes or so. If it is a smartphone, it can talk wirelessly with the network much more frequently depending on what apps are installed.

Asking people to power down their phones will not be popular and people will tend to forget, if not outright refusing to do it.

Asking people to step away when using their phone does not work well. When they receive an incoming call, even the most well-meaning person will be focused on the call and tend to forget.

A possible compromise is to leave the phone on, but placed away from the owner and the person with EHS. This allows incoming calls, and discourages unimportant use of the phone. It also ensures that the phone user steps away when using the phone.



*A metal tray used to keep phones away from persons with EHS. The metal sides provide a little horizontal shielding too.*

There could be a specific tray in the room for this purpose. If the tray is metallic with metal sides, it will dampen the radiation too, while the phones may still be able to receive calls. If it has any open sides, they should not face the person with EHS.

### **Shielded room**

A shielded room can reduce the exposure to radio waves, such as from wireless networks, towers, phones, etc. It is not realistic to shield against power lines, transformers or electrical motors, since they emit much lower frequencies and require different shielding materials and methods.

Be aware that shielding electromagnetic fields is never perfect. They dampen the radiation, but they never fully block it. How much the shielding dampens the

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radiation depends on the shielding material, how thick it is and how many holes/slits there are.

Moderately effective shielding that is removable can be easily installed using metallic fabrics, as shown in the picture. The cost is moderate, but people who also have MCS may not tolerate the fumes. There are other shielding materials and materials available (this website has detailed articles).



*Room shielded with metallic fabrics hung on the walls. See link at bottom for the story.*

Much stronger shielding is possible, but that will require the help of a specialist firm and the cost will be much higher.

Be aware that a shielded room is a double-edged sword. Any wireless signals generated inside the room will bounce back and be much much stronger. There must be a strict policy of not allowing any wireless gadgets inside the room in case they are accidentally left on (which happens a lot).

Only people with EHS should share such a shielded room. Relying on others to comply with a strict wireless ban is not feasible.

## **Separation**

It may not be realistic to modify the employee's workspace. An alternative is to relocate. This could be to an office elsewhere in the building. We've seen someone moved to a separate office inside a nearby warehouse. Some had to work from home. Be creative

## **Looking for a suitable room**

If looking for another room to work, also look at what is in the adjacent rooms, including any room above and below. In general, these are "neighbors" to avoid:

- Mechanical rooms
- Transformers
- Elevator shafts
- Power distribution
- Major electrical equipment

A room with as many outside walls as possible is often a good choice as there won't be "neighbors." There is also less chance there are hidden wires carrying a lot of electrical current. Unfortunately, a corner office is often seen as a status symbol.

A room that is partially or fully underground may work, as the soil will reduce radiation from the surrounding area.

We've heard of a man in Europe who moved to an office in an old stone building. The thick stone dampened the radiation from outside towers. He also hung shielding fabrics on the walls.

## **Classrooms**

We have seen a television program where a school teacher in Denmark was assigned a classroom at the end of a building. The Wi-Fi was turned off for that room and each time the kids entered they had to leave their phones in a tray.

Unfortunately, the program was in Danish. It deserved a wider audience.

## **Work different hours**

The level of electrosmog in a building is often a lot less once the staff has left for the day. It may also be practical to turn off various electrical equipment at night. It

may work to turn off the wireless network in that part of the building if a weak signal is still available from further away to serve anyone working late.

## **Reassignment**

Sometimes it is simply necessary to reassign the worker to do something else. Perhaps something where computers and portable electronics is used very little or not at all.

Be aware that if such a re-assignment is actually a demotion, it may be illegal according to the disability law (ADA in the United States).

## **Meetings**

Meetings can be difficult. The other people will bring their wireless gadgets and the meeting room itself may not be as safe as it should be.

If there are more than one meeting room available, it may help to see if one particular room works better than the others. The employee may simply feel better in one, or the EMF levels can be measured and mitigated for one particular room.

It may help to use a room that is oversized so people can sit further apart. People may even sit at separate tables facing each other.

The employee with EHS can make sure to sit closest to people that can be trusted to always turn off their electronics.

If it is necessary that everybody in the room power down their devices, it may work best to have a tray at the door to collect them when people come in. If one device is not powered down, at least it is a little further away.

It is standard practice in some large corporations, government agencies and the White House that mobile phones are left outside. This is to prevent spying, and is not for health reasons.

A quick way to verify all devices are powered down is to hold a portable AM radio against the pile (set the dial at the low end, and where no station is heard).

The “tray” could be a shielded box to contain the radiation if a device is not fully off. It does not have to be anything fancy, a steel waste basket may work. If the

sides are at least twice as high as the pile inside, it should direct most of the radiation upwards and away.

### **Dealing with non-compliance**

The disabled person should not have the role of “phone police.” That will create stress and hostility, and could lead to harassment.

Non-compliance is a management problem.

### **Personalities**

Whether the bosses and co-workers accept the reality and help out is probably mostly an issue of personalities.

It helps a lot if the disabled person has worked there for several years and is popular and not seen as a “slacker.” Changing jobs and having to ask for an accommodation right from the start is very difficult. It should not be any different, but such is reality.

Some people will simply not accept the disability. Nothing will convince them and trying too hard can easily backfire and turn them into bullies. The best that can be hoped for with these types of people is a sort of “tolerance.”

### **Harassment**

People with disabilities of all kinds are subject to harassment from their colleagues more often than other groups (Fevre, 2013).

Since EHS is controversial, with some hateful postings on social media, coworkers may feel justified harassing someone with EHS. Especially if they see he or she receives what they consider special favors or lukewarm support from the boss.

Some people simply enjoy pouncing on someone they perceive as “weak.” Some school bullies never grow up.

There are many easy ways to harass someone with EHS, from plausible deniability (“oh, I forgot, he he”) to more overt tormenting.

It is important that management clearly communicates that the disabled employee has legitimate needs and that harassment will not be tolerated.

## **Consultants**

There are consultants who can measure the EMF, with some of them also doing correction of wiring problems, etc. Unfortunately it is often a “wild West.” There is no official license to provide such services. The consultants can range from excellent to worthless and it is difficult to determine who is who, even when they visit your business. Some are simply good salespeople.

There is an organization who certifies people as bau biologists. Their requirements for certification are low, at least here in America. There are excellent consultants who are bau biologists, but you’d want more credentials than just that.

## **Legal action**

Since EHS is a controversial and poorly understood disability, enforcing the law has been very difficult. We are only aware of one successful case, where a school teacher sued her school district for not accommodating her EHS (*Brown v. Los Angeles United School District*, 2021 WL 631030).

## **For the employee**

If you are an employee seeking accommodation of your disability, consider these suggestions:

- Always be friendly and respectful of those around you. You will have to rely on their friendly cooperation. This can be hard when their choices harm you, but making them your enemy can make it much worse.
- Be constructive. You are the expert on what makes *you* sick.
- Be aware that hidden sources may be as important as any you can see.
- Be careful making accusations. Just because your wireless phone or computer were the first to give you symptoms doesn’t prove they started the illness.
- Provide factual printouts about EHS (see links below) so your boss can see it as not just something you say. Limit the amount of material.
- If your boss is not helpful, see if your company has a disability coordinator (ask Human Resources).

## Case stories

We have a couple case stories on the link in the next section. In the medical literature we have found only one, where the workspace was measured and the worker moved to a low-radiation office (Hardell, 2022).

## More information

More articles about EHS workplace accommodation are available on [www.eiwellspring.org/workplace.html](http://www.eiwellspring.org/workplace.html).

For how to shield a room, measure EMF and more, go to [www.eiwellspring.org/shielding.html](http://www.eiwellspring.org/shielding.html).

For general information about EHS, go to [www.eiwellspring.org/intromenu.html](http://www.eiwellspring.org/intromenu.html).

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