

# Why Your Modern Eco-Home Might Be Killing Your Wifi Signal

We are currently building the best houses in the history of the state. Modern Irish homes are airtight, A-rated for energy efficiency, and incredibly warm. To achieve this, builders use high-tech materials: foil-backed pir insulation (like Kingspan or Quinn-therm), triple-glazed windows with metallic coatings, and underfloor heating systems. While these are fantastic for keeping heat in, they have an unintended side effect: they are absolutely terrible for wifi.

Wifi signals are radio waves. Metal is the enemy of radio waves. It reflects and blocks them. When you line every wall and ceiling of a house with aluminium foil-backed insulation, you are effectively living inside a Faraday cage. This is why so many owners of new-build homes are baffled to find that their expensive fibre broadband works in the hallway but dies the moment they step into the kitchen.

## The Underfloor Heating Barrier

Underfloor heating is a standard feature in many new builds and retrofits. It involves loops of water pipes usually set in a screed or clipped to aluminium spreader plates. This creates a dense layer of water and metal across the entire floor area.

If your router is on the ground floor and you are trying to get a signal to the bedroom directly above, that signal has to punch through this underfloor heating barrier. It rarely succeeds. The water absorbs the signal, and the metal reflects it. This is why relying on a single router in a modern home is a flawed strategy. The building fabric itself is fighting against your **Wifi distribution** efforts.

## Triple Glazing and Mobile Signals

It is not just internal wifi; it is mobile data too. The Low-E (low emissivity) coating on modern triple glazing is a microscopic layer of metal oxide. It reflects heat back into the room, which is great for bills, but it also bounces mobile signals away.

This is why you might have "no service" inside your new house but full 4G in the garden. In this scenario, Wifi Calling becomes essential. However, Wifi Calling only works if your internal wifi network is robust. If your house blocks mobile signals *and* has patchy wifi, you are effectively cut off from the world. A professional network installation is the only way to bridge this gap.

## Wired Access Points: The Only Solution

In a home lined with foil insulation, wireless mesh systems (where the nodes talk to each other wirelessly) can sometimes struggle because the "backhaul" signal is also blocked by the walls. The gold standard solution is hardwired Wireless Access Points (WAPs).

This involves running a physical ethernet cable from your modem to ceiling-mounted discs in key rooms. Because the data travels down a copper cable, it ignores the foil insulation completely. The WAP then broadcasts a fresh bubble of wifi *inside* the room. It bypasses the barriers rather than trying to fight through them. This requires planning, ideally at the first-fix stage of a build, but can be retrofitted by skilled engineers.

### **Future-Proofing for IoT**

Modern homes are full of smart devices—smart stats, video doorbells, smart fridges. These devices often have weak antennas. If your home's construction dampens the signal, these devices will drain their batteries faster trying to connect, or simply drop offline.

By installing a professional grade network that accounts for the building materials, you ensure your smart home actually works. We adjust the power levels and channel width of the access points to overcome the specific density of your walls. It is about engineering the network to suit the building, not just plugging in a box and hoping for the best.

### **Conclusion**

You shouldn't have to choose between a warm house and a connected house. While modern insulation materials present a challenge to wireless technology, they are not insurmountable. By understanding the physics of your building and installing a hardwired data backbone, you can enjoy A-rated energy efficiency and A-rated internet speeds simultaneously.

### **Call to Action**

Living in a new build with poor signal? Contact us to design a network that overcomes modern insulation barriers.