TECH LINK

WiFi And Out Buildings

Why doesn't my WiFi work in some of my out buildings?

When you're on a wireless network and things are slow or even not working at all, you might be out of Wi-Fi range or may notice poor signal strength.

Many of our members want to enjoy wireless internet out in their barn or machine shed, or maybe they need internet service to connect cameras on a separate garage or building. This can be accomplished, however it typically requires higher-end equipment along with equipment that is designed to be used in outdoor or harsh environments. We recently talked with a member using our ONT (Modem/Router) in their home and needing the ability to monitor livestock in the barn. MVlink was providing a strong enough signal to reach the barn but they also had to have a WiFi extender in the barn to be able to pick up the signal from the house and recreate the signal in the barn to allow several wireless cameras to be online and accessible. The extender was necessary because the barn had sheet metal on the outside and was blocking the homes' ONT signal from reaching all of the cameras. These home wireless extenders can work but they are not really designed to be used in the extreme hot and cold temperatures that most barns or outbuildings may have. They are meant more for temperature-controlled environments like a home or small business. During our call with the member, we determined one camera was near a window in the barn and was still able to pick up the signal from the house, but two other cameras further inside the barn could not get a WiFi signal due to the metal siding on the outside of the barn. The owner did have an extender, but the extreme temps over time had caused it to fail. These scenarios are often best resolved by a professional who can assist with purchasing the proper equipment designed for the circumstance. At some point, any device can fail, but it is less likely when the proper equipment is matched to the environment. In some situations, an external antenna for outside the home or barn, or both, might be necessary to get a stronger signal to each location; especially for farther distances. Remember, the signal will always travel further with fewer obstacles preventing it from getting there. It may also be helpful to understand the difference between directional antennas and omnidirectional antennas. A directional antenna can send a signal in the direction you want it to go; whereas an omnidirectional antenna will send the signal in a circular pattern, creating wasted signals sent in directions in which you don't want or need WiFi.

All materials can have an impact on WiFi signals, however those that seem to cause the most problems are more dense materials like brick and concrete as well as reflective materials like metal or mirrors.

For the best connection and dependability, consider extending an Ethernet cable between buildings that are less than 300 feet apart. If that is not possible, then look for the right wireless equipment for your situation.

WIFI TERMINOLOGY

Wi-Fi Range - A standard home network using one wireless router can serve a single-family home, but often not more.

Factors Influencing Range - There are three main factors that influence your Wi-Fi range: the access point or router itself, the structure you're in, and the wireless standard you're using.

Access Point or Router - The Wi-Fi signal range of any given access point varies significantly from device to device.

Type of Structure or Building - Physical obstructions in homes, such as brick walls and metal frames or siding, can reduce the range of a Wi-Fi network by 25 percent or more.

A Wi-Fi signal weakens every time it encounters an obstruction, which happens a lot indoors, thanks to walls, floors, and even the electronic interference caused by appliances.

Wireless Standard - The wireless standard you're using has a direct effect on your wireless signal range and strength.

Wi-Fi Signals Don't Like Physical Barriers

Therefore, the best position for any router, extender, or other wireless access point, is:

- **CENTRALLY AS POSSIBLE**
- **HIGH UP**
- **NOT BEHIND OR UNDERNEATH ANYTHING**