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by PureEdge Lighting

Connected by WiZ PRO

# NETWORKING AND SMART HOME PREPARATION

# OBJECTIVES

- Key Terms
- How to size a network based on number of devices and project size
- Hardware recommendations to support a smart home network
- Installation, setup, and evaluation of network strength
- Network configuration

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# HARDWARE BASICS

- Key Terms
  - Modem - Connects your home network to your internet service provider or ISP. Will accept the analog signal that can be transmitted over wire and convert it to digital information processed by your computer.
  - Router – Allows for all wired and wireless devices to use the internet connection provided by the modem and gives them the ability to talk to one another directly on the LAN(Local Area Network). A router's primary purpose is to direct communication between devices in the home network. The router will also dictate how many "devices" or unique IP addresses it will support.
  - Bridge mode – Bridge mode is a setting within a router that turns off the router's Wi-Fi broadcast, turning it into a "bridge" between the network and another Wi-Fi router. Often times used when a new Wi-Fi 6 router is to be installed in the space in an effort to increase range, bandwidth, and efficiency.

# HARDWARE BASICS CONTINUED

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- Key Terms
  - Access Point - Access points have a wired internet connection back to the router and extend the wireless coverage of the local network to service “dead” spots, distant rooms, or other floors.
  - MAC Address – Media Access Control. A unique number used to identify devices on a network. The number relates back to the Network Interface Controller. This number never changes.
  - IP Address – Location or identity on the network. The number of IP addresses that a network can support is dictated by the router and network settings on the router. Most Devices use dynamic IP addresses, which are assigned by the network when they connect and change over time.

# REQUIREMENTS FOR HOME NETWORK

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- You will need:
  - Your Wi-Fi/network name
  - Your Wi-Fi/network password
  - Dedicated 2.4GHz Wi-Fi network

  - 2.4GHz Wi-Fi networks provide long transmission ranges but slower speeds
  - 5GHz Wi-Fi networks provide shorter range but with faster speeds.

*Wi-Fi 6 routers support dual bands and will have both 2.4 Ghz and 5GHz bands

# NETWORK SIZING

## Planning for a Smart Home Network

- Number of Devices and available IP addresses
- Square footage of home or business and number of access points needed
- Placement of access points for adequate coverage.

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# 1. HOW MANY DEVICES WILL MY NETWORK NEED TO SUPPORT?

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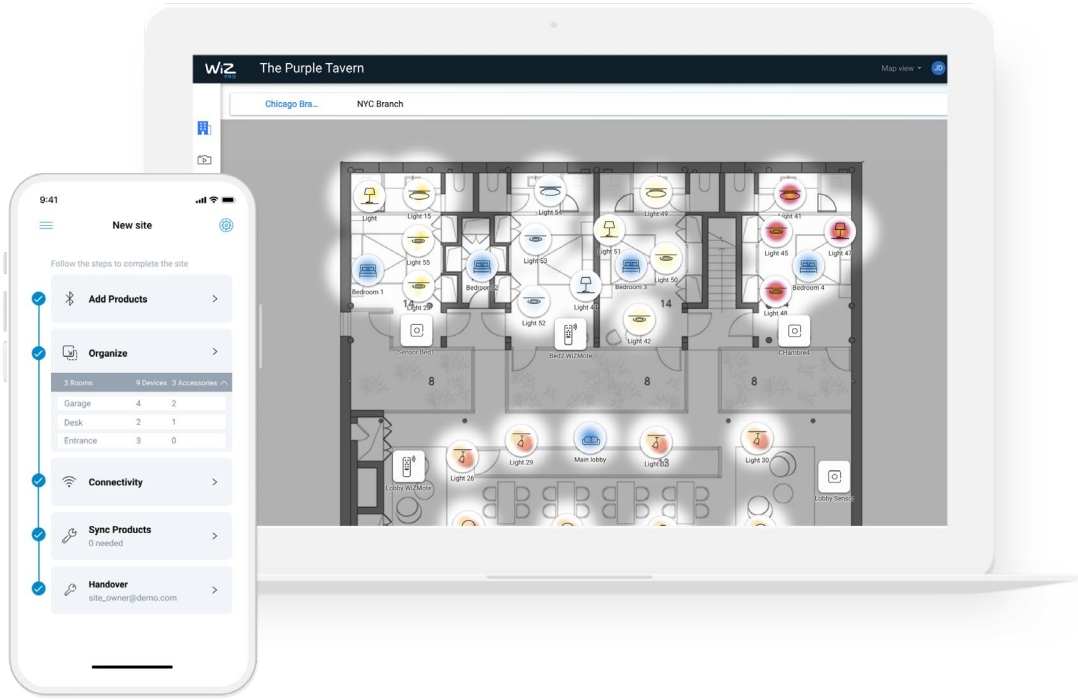
- How many devices do I plan on installing?
- How many IP addresses can my router support?
- Each device will take up one IP address
- Number of IP address can be found under the DHCP settings of your router.



# 2. SQUARE FOOTAGE & NUMBER OF ACCESS POINTS

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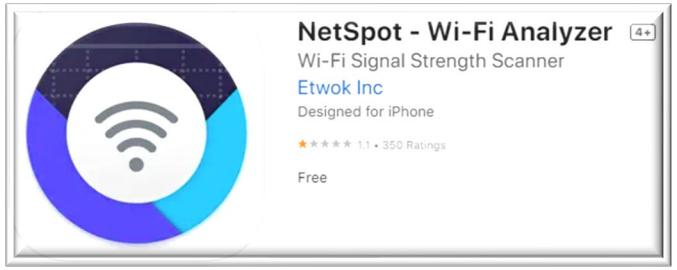
- General Rules for Insuring Sufficient Coverage and Wi-Fi Signal Strength
  - 1 access point for every 800 sq. ft
  - 1 access point for every 50 devices
  - RSSI needs to be above -70dB(closer to zero). Preferably above -5odB
  - RSSI – Received Signal Strength Indicator: Metric for measuring Wi-Fi signal strength
  - 3rd party apps that measure RSSI: NetSpot, WiFi Analyzer, Wi-Fi SweetSpots





# PLANNING THE PLACEMENT OF ACCESS POINTS

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- Materials/Barriers that impact Wi-Fi signal Strength
  - Metal
  - Drywall
  - Brick/Concrete

- Recommended Placement for Access Points
  - Basement
  - Main Floor
  - Attic – important for downlights and exterior soffits

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# Wi-Fi 6

- Designed to support IoT and Smart Home Devices
- Able to handle more devices simultaneously
- Is dual band and allows for selection of 2.4GHz or 5GHz network
- 4x the penetrating power(Less signal loss due to obstructions)
- More energy efficient
- Identifies network needs of the device and services it accordingly

# RECOMMENDED HARDWARE

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Up to 3,500 sqft
ASUS ZenWiFi AX Mini XD4
Whole Home Wifi 6 Mesh

3,500sqft – 5,000sqft
ASUS ZenWiFi AX6600 XT8 2PK
Whole Home Tri-Band Mesh Wifi 6

5,000sqft +
ASUS ZenWifi Pro AXE1100 2PK
Tri-Band WiFi6 Mesh System

# NETWORK INSTALLATION AND SETUP

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- QR code on the router will link you to the ASUS app for IOS or Android
- Step by Step directions provided to walk you through the installation process
  - Summary of Installation Process
    1. Plug in all mesh points in the same room as your modem
    2. Hardwire the 1st Mesh Point with an ethernet cable to your modem
    3. You will then setup your SSID, or network names/credentials for both networks
    4. Give the devices 3-5 minutes to pair with each other and reboot.
    5. Then unplug the other mesh points and place them strategically throughout the jobsite.