The New Construction AV Pre-Wire Guide

What every custom home owner should wire for before the drywall goes up

From KZ Audio & Video, custom AV and low voltage in San Antonio and the Texas Hill Country since 1999.

Why this guide exists

Building a custom home is the one and only time your audio, video, and network are easy to do right. Once the drywall closes, every wire you skipped becomes a wall you have to open, a patch you have to paint, and a bill you didn't plan for.

Most homeowners don't think about AV until the house is nearly finished. By then the cheapest, cleanest window has already passed. This guide walks you through what to wire for at rough-in, so your home is ready for the technology you want now and the technology you'll want in ten years.

You do not have to buy all the equipment now. You just have to run the wire now.

The one rule that saves the most money

Wire for where you might want it, not just where you're certain today.

A single extra cable run during rough-in costs a few dollars in wire and a few minutes of labor. That same run added after the home is finished can cost hundreds of dollars and a wall repair. Pre-wire is cheap. Retrofit is expensive. When in doubt, run the wire and cap it.

Room-by-room pre-wire checklist

Living room / great room

- ☐ Power and cable behind the primary TV location (in-wall rated)
- ☐ Recessed media box behind the TV, sized to house a Sonos amp and the cabling for a Frame TV's one-connect box
- ☐ Conduit from the TV wall down to the equipment/media location (so future cables can be pulled without opening walls)
- ☐ In-ceiling or in-wall speaker wire for surround sound
- ☐ Subwoofer wire to the corner or planned sub location
- ☐ At least one hardwired network drop near the TV

Media room or dedicated home theater

- ☐ Projector power and signal run to the ceiling mount point
- ☐ Screen power (for a motorized screen) at the front wall

- ☐ Full surround speaker wiring: front left/center/right, side and rear surrounds, and overhead Atmos locations
- ☐ Subwoofer runs (a dedicated theater benefits from two)
- ☐ Equipment rack location with power, network, and ventilation

Golf simulator

- ☐ Power and signal to the ceiling location for the projector or an overhead launch monitor
- ☐ Power at the hitting area for the launch monitor, computer, and screen
- ☐ Two hardwired network drops in the room (wired beats Wi-Fi for anything that stays put, and a simulator very much stays put)
- ☐ Speaker wiring if you want sound in the room
- ☐ Conduit from the equipment location to the screen wall, so the gear can be upgraded later without opening a wall

Simulator rooms are priced per room rather than off a list, because ceiling height, room depth, screen size, and which launch monitor you want all change the build. Ask us and we will walk the space with you.

Primary bedroom

- ☐ TV wall power and cable
- ☐ Recessed media box behind the TV for a Sonos amp or Frame TV cabling
- ☐ Optional in-ceiling speakers for whole-home audio
- ☐ Network drop

Outdoor living, patio, pool

- ☐ In-ceiling speaker wire for covered patios (most patio speakers mount in the ceiling, so standard in-ceiling wiring works). Use direct-burial rated wire only for in-ground or landscape speaker runs
- ☐ Power, signal, and a recessed media box for an outdoor-rated TV on covered patios
- ☐ Network drop for a wireless access point (outdoor Wi-Fi dies fast without one)
- ☐ Power and wire routed along the eaves for permanent exterior lighting, plus a planned spot for the controller (once the soffit is closed this becomes a retrofit)
- ☐ An electrical outlet where the landscape lighting power supply will plug in (choosing the spot now keeps the power supply off the front of the house)
- ☐ Landscape lighting wire laid out to the light locations before the landscaping is finished, so nobody has to dig up a finished yard later

Home office

- ☐ Two hardwired network drops (work-from-home is not optional anymore)
- ☐ In-ceiling speaker wire for background audio
- ☐ TV or display wall if used for video calls

Whole-home and infrastructure

- ☐ In-ceiling speaker wiring in kitchen, dining, and main hallways for whole-home audio
- ☐ A Legrand On-Q (OnQ) structured wiring panel in the media closet, where every line in the house starts: internet, TV, network, cameras and security (a 30-inch panel on a full custom home)
- ☐ Service out: a 1-inch flex tube from the OnQ panel out to the service location near the exterior electric meter, with a pull string, so fiber, coax, Cat6 or any future internet provider line pulls straight in
- ☐ A garage apartment or casita gets its own flex tube to service and its own wire management can
- ☐ Hardwired network drops in every main room (Wi-Fi is for phones, everything that sits still should be wired)
- ☐ Camera wiring at every exterior door, driveway, and main entry
- ☐ Security prewire before insulation: contacts at every door and window, motion detectors, glass break sensors, and two keypad locations (you do not have to activate monitoring to benefit from having it in the walls, and retrofitting a finished house costs a multiple of doing it now)
- ☐ Hide-A-Hose central vacuum: the inlets, the tubing, and the low voltage wire back to the power unit go in before drywall, because the hose retracts into the pipe inside the wall. Pick the power unit spot (usually the garage) now
- ☐ Conduit from the attic to the electrical panel for future solar

---

The decisions to make before rough-in

1. **Where will your equipment live?** Every system needs a home for the receiver, the network gear, and the cable boxes. Pick that spot early, put the OnQ panel there, and wire everything back to it, including the service tube out to where the internet provider comes in.
2. **How many TVs, and where?** Mark every wall that might ever hold a screen. Wire them all.
3. **Do you want music in more than one room?** If yes, whole-home audio has to be wired before drywall. It is very hard to add later.
4. **How strong does the Wi-Fi need to be?** Stone walls, foam insulation, and two stories block signal. Plan wired access point locations now.
5. **Cameras and security?** Wired cameras are more reliable than wireless, and a security system has to be wired at every door and window before insulation. Decide coverage for both before the walls close. Neither one requires you to sign up for monitoring now, it just has to be in the walls.
6. **Lighting outside the house?** Permanent eave lighting needs power and a wire path chosen before the soffit closes. Landscape lighting needs an outlet planned where its power supply will plug in, and its wire laid before the landscaping is finished.

What to sort out before rough-in

- Who is running the low voltage wiring, and are they an AV specialist or a general electrician?
- Will the AV design be coordinated with the framing and electrical schedule, or added at the end?

- Is there conduit planned so cables can be upgraded later without opening walls?
- Which rooms get wired now, and which get conduit so the option stays open later?

An electrician is excellent at electrical. Audio and video is a different craft. The best results come from an AV specialist who works alongside your builder from the start.

The five most common (and most expensive) pre-wire mistakes

1. **No conduit.** Without it, every future upgrade means opening a wall.
2. **Skipping the second subwoofer run in a dedicated theater.** In a home theater, a second sub is one of the biggest upgrades to how the room sounds, so wire for two. A living room is usually fine with one.
3. **Forgetting overhead speakers in a theater.** Dolby Atmos in a media room or dedicated theater needs ceiling speakers, and they cannot be added cleanly after drywall.
4. **Relying on Wi-Fi for everything.** Hardwire anything that stays in one place. Your movie nights and video calls depend on it.
5. **Waiting too long to involve AV.** The best time is right before your electrical walkthrough, so power can be added at TV locations, not after the walls are closed.

From the field: why every TV wall gets a network cable

The worst Wi-Fi we have ever seen was in a new build of about 2,500 square feet. A house that size is usually covered by three wireless access points, and this one had three: one upstairs and two downstairs, one of them just outside the primary bedroom. Walk through the bedroom door, past the TV wall, and the internet dropped off completely before you reached the bed, about 12 feet away.

The fix only worked because we had run a hardwired network cable behind the TV at pre-wire. We put a small network switch back there, so the TV stayed hardwired, and hid a fourth access point behind the TV. From the bed, the owner got about three bars. We never proved the cause. Our best guess is interference from outside, since a big open ranch sat behind the house. The access points were set to pick their own channels; today we would also try setting them by hand.

The lesson: run data behind every TV. It is the cable that lets you fix the problem nobody can predict.

When to bring in your AV company

The ideal sequence:

1. **During design:** we review the plans with you and your builder.
2. **Right before your electrical walkthrough:** we walk the home with you, so any outlets needed at TV locations can be added while the electrician is still planning.
3. **At low voltage rough-in:** speaker, TV, network, camera, and security wiring goes in before drywall.
4. **At trim-out:** devices, speakers, and plates go in.

5. **Before move-in:** the system is installed, calibrated, and you're walked through it.

Getting us in before your electrical walkthrough costs you nothing extra and saves you the most money. Waiting until the end costs the most.

How KZ Audio & Video works with builders

We have been running low voltage on custom homes across San Antonio and the Texas Hill Country for over 20 years, and we work directly with builders on their schedule. We run the wire ourselves (no subcontractors, ever, every job done by our own team), and we own the result from pre-wire through the final walkthrough.

We'll review your plans with you at no charge and no pressure, and show you exactly what to wire for.

Ready to get your new home wired right? Call or text Kelly at **(210) 981-4098**, or book a free plan review at **kzaudioandvideo.com/contact-kz-audio-video-san-antonio-tx/**

Building with a custom home builder? Show them **kzaudioandvideo.com/low-voltage-prewire-builders-san-antonio/** and we will coordinate the wiring directly with their schedule.

KZ Audio & Video. In the AV business since 1999. 5.0 stars on Google. No subcontractors, ever.