

Walk into any new apartment building in California and what you see is polished: smooth drywall, sleek fixtures, maybe a smart thermostat on the wall. What you do not see is the dense nervous system of cabling threaded through the structure. That hidden infrastructure decides whether residents enjoy fast internet, stable power, reliable fire alarms, and cell coverage, or whether they fight with dead outlets and buffering wheels.

After twenty years working with electricians, low-voltage contractors, and developers on multifamily projects from San Diego to Sacramento, I have learned that the quality and type of cabling can make or break a building's reputation. Tenants rarely ask what wire is in their walls. They do notice when a Zoom call freezes or the elevator phones do not work during an emergency.

The advertisement features a blue and white color scheme. On the left, a cartoon character wearing a blue and white striped hard hat and a blue and white striped shirt with a circular logo on the chest stands next to a large American flag. The background is a stylized blue and white circular design. In the top right corner, the 'METHOD TECHNOLOGIES' logo is displayed. Below it, the text 'MANAGED IT SERVICES COMPANY CALIFORNIA' is written in large, bold, blue letters. Underneath this, a smaller text block states: 'MTI offers fast, reliable machine tool repairs & maintenance. Get your equipment running like new.' Further down, the company name 'METHOD TECHNOLOGIES' is written in bold black letters, followed by the address '10805 Holder St, Suite 100, Cypress, CA 90630', the phone number '(844) 463-8463', and the website 'www.mtinc.net/managed-it-services.html'. A QR code is located in the bottom right corner. At the very bottom, a dark blue banner contains the text 'Request a Quote Today!' in white.

This article walks through the five main types of cable you will find in modern California apartment complexes, how they work together, what they cost in broad terms, and where it makes sense to spend a little more up front.

Cabling vs wiring: clearing up basic terms

People often use “cabling” and “wiring” interchangeably, and that confuses conversations between owners, architects, and trades.

In the field, “wiring” usually refers to building power circuits: the conductors that carry 120 or 240 volts to receptacles, lights, appliances, EV chargers, and mechanical equipment. This is the domain of licensed electricians, the California Electrical Code, and inspections.

“Cabling” typically means low-voltage and communications: internet, phone, TV, security, access control, and sometimes building automation. These are still regulated, but under different parts of code, and often installed by

specialized low-voltage contractors instead of traditional electricians.

When someone asks, “Is cabling the same as wiring?”, the honest answer is that all wiring is technically cabling, but not all cabling is what trade people call “wiring.” In design meetings, it helps to keep “wiring” for power circuits and “cabling” for data, TV, control, and specialty systems.

You can also sort cabling mentally into three primary components:

1. The cable itself: conductor or fiber, jacketing, shielding.
2. The connecting hardware: outlets, jacks, patch panels, splitters, terminals.
3. The pathway: conduits, raceways, J-hooks, sleeves through walls and floors.

If any one of those is undersized or poorly installed, the whole system suffers.

The 5 types of cable you actually see inside California apartments

Across different projects, the brands and models change, but the same five families of cable keep showing up. Each has its own job, code requirements, and typical locations.

1. Power wiring: the backbone of every unit

Whatever else you install, the building does not function without reliable power wiring. In California apartments, you usually see either NM-B cable (often called Romex) or individual THHN/THWN conductors pulled through metal or PVC conduit.

In wood-frame, three- or four-story walk-ups, NM-B is common inside dwelling units. It is a flat, sheathed cable that bundles multiple insulated copper conductors inside a plastic jacket. Electricians run it through studs and joists to serve outlets, lights, kitchen circuits, and bathroom GFCIs.

In larger podium or high-rise buildings, or wherever wiring passes through garage levels, corridors, or shared spaces, conduit with THHN/THWN becomes the norm. Code drives much of this: plenum spaces, fire-rated corridors, and concrete structures push you toward conduit and separate conductors rather than cable assemblies.

When someone asks, “What is the best wire for home use?”, in a California apartment context I usually answer in two parts:

- Inside typical wood-frame dwelling spaces, NM-B from a reputable manufacturer is standard, cost-effective, and proven.
- In common areas, risers, and anywhere you expect future changes, THHN in steel or EMT conduit gives better protection and flexibility, at higher initial cost.

None of this is DIY territory. Power wiring is unforgiving. A small mistake in sizing or termination can cause a fire years later. Even if you feel handy, treat 120/240-volt work as professional work.

From a cost perspective, power wiring often runs a few dollars per square foot of unit floor area when you bundle labor, materials, rough-in, and trim out. The copper itself has real value, but labor and coordination drive most of the budget.

And for a related question I hear a lot: “Do electricians install cable outlets?” If you mean power receptacles, yes, that is exactly their job. If you mean coax or ethernet jacks, that work may fall to either electricians or low-voltage contractors, depending on how the project is bid and who holds the low-voltage license on the job.

2. Coaxial cable: still the workhorse for TV

Coaxial cable, typically RG-6 in modern residential projects, has been around for a very long time, but it still has a strong role in California apartments. It remains the default medium for traditional cable TV and some internet services, especially from legacy providers.

Construction wise, RG-6 is a central copper conductor surrounded by insulation, a metallic shield, and an outer jacket. That geometry keeps signals inside and interference outside. You see it:

- From the building's main cable demarcation point up vertical risers to each floor.
- From floor distribution closets into individual unit media panels.
- From those panels to wall plates behind TVs in living rooms and sometimes bedrooms.

When a resident goes online and searches, "Who is the cheapest cable provider?", they are actually asking about service, not the wire in the walls. The provider will almost always leverage the existing in-building coax if it is in decent condition. In California it tends to be a mix of big players like Spectrum, Xfinity, Cox, and, in some regions, smaller local operators. Prices vary sharply by city, building agreements, and promotion cycles.

From a developer's perspective, the cost difference between "bare minimum" coax and "well thought out" coax per unit is tiny, usually in the tens of dollars. The big decision is not the brand of RG-6, but whether you:

- Give each major room at least one coax drop.
- Home-run those drops back to a central media panel in the unit instead of daisy-chaining.
- Coordinate with providers early enough to avoid last-minute drilling and exposed wiring.

For modern buildings with strong streaming demand, I am seeing some owners reduce coax runs in favor of more ethernet, but most still include at least one coax outlet per unit as a hedge for future tenants.

3. Twisted pair ethernet: the real network workhorse

If you ask, "What is the most common type of cabling used in networks?", the answer is simple: unshielded twisted pair, usually Cat 5e or Cat 6 in residential projects. In new California apartments, Cat 6 is fast becoming the baseline.

Ethernet cabling carries data for wired internet, IP phones, IP cameras, Wi-Fi access points, building access control devices, and more. In some cases it also carries power over ethernet (PoE), which lets you power a device such as a camera or access reader from the same cable that carries data.

In apartment complexes this looks like:

- Horizontal runs of Cat 6 from telecom rooms to unit media panels.
- Home runs from media panels to wall jacks near desks, TVs, or work areas.
- Additional runs supporting hallway Wi-Fi access points, security cameras, and management offices.

Many owners still assume Wi-Fi alone is enough, but experienced property managers know that working from home has changed expectations. A wired ethernet jack near the main work area can be the difference between a happy long-term tenant and weekly complaints about video calls dropping.

When people ask, "What are the three types of cabling?", they are often thinking of network cabling in particular: twisted pair (Cat 5e/6/6a), coaxial, and fiber optic. Within those, ethernet over twisted pair carries most residential network traffic today. Fiber is growing, but often as the backbone that feeds switches, which then serve units over copper.

On cost, structured cabling for data and TV often falls in the range of a few hundred dollars per unit for a basic package, up to perhaps a thousand per unit in higher-end projects with more drops and wireless access points.

Unit layouts, ceiling types, and corridor design all affect that number as much as the cable category does.

Is ethernet cabling difficult to install? For a professional installer with the right tools, it is routine, but it is more technical than pulling NM-B. Each cable must maintain bend radius, separation from power, and proper termination standards. A homeowner adding a single run in a finished wall may find it tedious, but not impossible if they are patient and careful. In multifamily construction, it should be in the hands of licensed low-voltage crews.

4. Fiber optic: the quiet upgrade inside the walls

Fifteen years ago, fiber in an apartment building was relatively rare outside luxury developments. Today, in many California markets, it is becoming the default, at least for the building backbone. Service providers like AT&T, Frontier, and newer regional players bring fiber to the property, then either switch to copper inside units or continue fiber all the way to an optical network terminal (ONT) in each apartment.

Fiber carries signals as light instead of electricity, which buys enormous bandwidth and long run lengths with minimal signal loss. Inside apartment complexes, you typically see:

- Singlemode fiber risers connecting main telecom rooms to intermediate closets.
- Fiber runs from provider demarcation points into shared network rooms for the building.
- In some newer designs, fiber home runs directly to a small enclosure in each unit, with the ONT and router there.

Compared with copper, fiber is more fragile in terms of bend radius and pulling forces, and terminations require specialized equipment. So while a determined DIYer can install coax or Cat 6 with enough YouTube hours, fiber is not worth attempting without training and gear.



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As for “How much does cabling cost?” when you introduce fiber, the raw fiber itself is not the major expense anymore. The premium comes from labor, termination equipment, and testing. On a per-unit basis, adding fiber drops in parallel with ethernet often adds a few hundred dollars, but that can vary widely with building height, pathway design, and how many telecom rooms you already need for other services.

In my experience, fiber has two big benefits for owners:

- It keeps the building attractive to high-bandwidth tenants for a longer window. The cost of retrofitting fiber into a finished apartment building can be painful, especially where penetrations affect fire ratings.
- It simplifies partnerships with modern ISPs, many of whom would rather light up existing fiber than figure out aged coax plants and questionable splitters.

5. Low-voltage control, security, and life-safety cabling

The fifth family of cabling in a modern apartment complex is often invisible to residents, but it is the reason they can get into the building, summon the fire department, or check a smart thermostat.

This bucket includes:

- Fire alarm cabling for initiating devices, notification appliances, and panel networks.
- Security system cabling for door contacts, glass breaks, motion sensors, and control panels.
- Access control cabling from controllers to card readers, electronic locks, and request-to-exit devices.
- Thermostat and HVAC control wiring between thermostats, air handlers, and condensers.
- Elevator communication lines, emergency phones, and sometimes camera feeds.
- Intercom and video entry systems, especially in controlled-access buildings.

Technically, these use a mix of cable types: twisted pair (both shielded and unshielded), multi-conductor low-voltage cable, sometimes coax, and increasingly ethernet with PoE. Many of them must comply with fire ratings, plenum requirements, and specific listings, so generic “speaker wire” from a big-box store will not do.

Fire alarm cabling in particular is heavily inspected. It is common to see red-jacketed, fire-resistant cable on dedicated trays or in conduit, with strict separation from power and other systems. Mess up the fire alarm wiring and you can delay a certificate of occupancy by weeks.

From an owner’s standpoint, this category is where cheap decisions during construction can turn into expensive troubleshooting later. Undersize a conduit to a door frame, and when you later want to change from a simple relay lock to a full IP reader with camera, you cannot pull the new cable without opening walls.

How the five types work together in a real building

On paper it is easy to describe power wiring, coax, ethernet, fiber, and control cabling as separate systems. On an actual job, they overlap constantly.

A typical new California apartment unit today might look like this behind the sheetrock:

- Power wiring feeds receptacles where the resident will plug in a router or access point.
- An ethernet cable connects that router back to a building switch, which may be fed by fiber to the provider.
- Coax runs to the same media panel in case the tenant chooses a traditional cable TV service.
- Thermostat wiring connects to the air handler in the ceiling above the hallway.
- A fire alarm device in the unit hallway connects over low-voltage cabling back to the floor’s fire loop.

That is why early, coordinated design is so important. Good low-voltage and electrical drawings stack [mtinc.net](https://www.mtinc.net) [Cabling Services Provider California](#) conduits in shared shafts, reserve space in unit closets for structured media panels, and provide spare capacity for future technologies.

What does cabling actually do for residents and owners?

When you peel back the technical language, cabling does three things inside an apartment complex:

1. Delivers power where people need it. That means enough outlets for everyday life, properly sized circuits for EV chargers, and robust feeds for elevators, pumps, and HVAC.
2. Moves information. Internet traffic, streaming video, voice calls, access control events, elevator controls, building management signals: all of it flows over some mix of ethernet, coax, and fiber.
3. Provides safety and compliance. Fire alarms, emergency lighting controls, sprinkler supervision, elevator phones, and security all rely on specialized cabling.

For residents, those three functions translate into daily realities: “Can I work from home without my connection dropping?”, “Does my intercom call my phone reliably?”, “Did the fire department get a signal when that detector went off?”

For owners and managers, good cabling infrastructure means fewer service calls, easier provider changes, and better odds that the building will support new technologies without gutting walls.

How much does cabling cost in an apartment complex?

When people ask, “How much does cabling cost?”, they often hope for a single number. The truth is that cabling bundles labor, materials, and design, and those change dramatically by project.

Some practical ranges for California multifamily work, as of the mid-2020s:

- Power wiring including panels, circuits, and devices often lands in the ballpark of 4 to 8 dollars per square foot of unit area for typical mid-range projects. Complex podiums, high-rises, or heavy EV infrastructure can run higher.
- Structured cabling for data and TV inside units, plus the building’s internal network pathways, often ranges from roughly 250 to 1,000 dollars per unit, depending on how many drops, whether Wi-Fi access points are hard-wired, and how robust the common-area network is.
- Fire alarm and life-safety cabling can range widely, from a few tens of thousands for smaller garden style complexes into the hundreds of thousands for larger podium or high-rise projects. Here, device count and code requirements matter more than raw cable length.

What matters more than an exact figure is understanding where costs are flexible and where they are not.

Power wiring and fire alarm are heavily code-driven. You have less freedom to trim costs without impacting safety and approvals. Structured cabling has more room for design decisions, but cutting too deeply there usually hurts leasing and tenant satisfaction.

On small retrofit projects, a rule of thumb some contractors use is a “per drop” price: a single new ethernet or coax run from a telecom room to a unit might cost 150 to 350 dollars including labor, cable, and terminations, assuming reasonable access. Finished high-end interiors or difficult pathways can raise that significantly.

When comparing bids, owners should look beyond simple per-drop prices. Ask about:

- Cable categories and ratings.

- How many jacks per room, and where they are located.
- Pathways and spare capacity for future expansion.
- Testing and documentation included in the price.

The cheapest bid on paper can be the most expensive later if it leaves no room for upgraded services.

Is cabling difficult for owners or residents to change later?

From the point of view of an owner or resident, the difficulty of altering cabling depends on three things: the type of cable, the pathway, and whether walls are open.

Power wiring is the hardest to change. Any modification requires a permitted electrician, and even modest new circuits can mean opening walls, patching fire barriers, and coordinating inspections. Plan power heavily up front.

Coax and ethernet are more forgiving, but still constrained by pathway. If the original build included flex conduit from media panels to key locations, upgrades can be as simple as pulling new cable. Without conduit, you are fishing through insulated walls, which is slow, messy, and unpredictable.

Low-voltage control cables can sometimes share raceways or get surface-mounted raceways added, but that is rarely attractive to residents.



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From a resident's DIY perspective:

- Swapping faceplates or replacing a short ethernet cable from the wall to a device is easy.
- Running new in-wall cable is best left to professionals unless you accept patching drywall and learning on the fly.

- Any work on power circuits should involve a licensed electrician, no exceptions.

So when people weigh “Is cabling difficult?”, the honest answer is that it is straightforward during rough-in with open framing, and often painful after finishes go in. Good planning is cheap compared to opening up a finished corridor ceiling two years after occupancy.

The classic “three types of cabling” and how they fit the five

Industry training materials often talk about three main types of cabling:

1. Twisted pair (Cat 5e, Cat 6, etc.).
2. Coaxial.
3. Fiber optic.

Those three solve most information-carrying needs in an apartment complex. The five categories in this article simply group them by function rather than by physics:

- Power wiring sits in its own world, governed by electrical codes and safety.
- Coax is the cable TV and some internet backbone.
- Ethernet over twisted pair is the everyday network medium.
- Fiber handles high-capacity backbones and some in-unit services.
- Low-voltage control wiring often uses specialized twisted pair or multi-conductor cable, with some overlap into ethernet and coax where appropriate.

Understanding both ways of grouping helps when you talk to different trades. An electrician might think in terms of voltage classes and code articles. A low-voltage designer thinks in terms of bandwidth and topology.

A quick comparison of the five cable types

To anchor all this, it helps to see the five types side by side.

- Power wiring: Handles 120/240-volt circuits for outlets, lighting, appliances, and building systems. Installed by electricians, strictly inspected, and the hardest to change later.
- Coaxial (RG-6): Primarily serves TV and some internet services, often from traditional cable providers. Robust, relatively forgiving, and still expected by many residents.
- Ethernet (Cat 5e/6): The core of modern data networks in apartments, feeding wired devices and Wi-Fi access points. Supports PoE for cameras, access control, and other devices.
- Fiber optic: High-bandwidth backbone for ISPs and building networks, increasingly extended into units. Requires specialized installation but future-proofs the property.
- Low-voltage control and safety cable: Connects fire alarms, access control, thermostats, intercoms, and security devices. Life-safety portions are highly regulated and critical to occupancy.

Practical guidance for California owners and developers

For anyone planning a new complex or a major renovation, a few habits consistently pay off.

- Engage electrical and low-voltage designers early. Treat structured cabling as part of the core building design, not an optional add-on awarded to the lowest bidder after framing is complete.

- Provide central media panels in units. A simple, accessible location where coax, ethernet, and, where applicable, fiber terminate gives residents and providers a clean starting point.
- Run more conduit than you think you need. Empty conduits to strategic locations, especially living rooms, bedrooms used as offices, and key door frames, are cheap insurance.
- Specify at least Cat 6 for new ethernet runs. The cost difference from Cat 5e is minor compared to the labor and disruption of upgrading later.
- Coordinate with service providers before drywall. Cable TV and internet providers in California often have very specific demarcation preferences. Early coordination avoids last-minute exposed raceways and unhappy inspectors.

With those basics in place, questions like “Who is the cheapest cable provider?” or “Which router should I buy?” become minor details. The building itself will be ready for whatever services the market offers over the next decade.

Good cabling is quiet, literal infrastructure. When it works, no one talks about it. When it is neglected, no one talks about anything else.