Walk through almost any California school that has been renovated in the last decade and you will find a familiar pattern behind the walls: blue or purple Category 6 network cable feeding classrooms, offices, labs, phones, and wireless access points, all tying back to fiber in the telecom rooms.

The short answer to the title question:

For data networks, the most common type of cabling used in California schools and campuses today is unshielded twisted pair (UTP) Category 6, usually paired with multimode fiber backbones between buildings and network rooms.

That simple statement hides a lot of nuance. Districts still run older Category 5e in some areas, many are beginning to specify Cat 6A for higher speed and future wireless density, and there is always a mix of coax, speaker wire, and traditional electrical wiring in the same buildings. Understanding what is typical, what is changing, and what it costs helps administrators, IT leaders, and facility managers make better choices on the next bond project or modernization.

What cabling actually does on a campus

Before arguing about Cat 6 versus Cat 6A, it helps to define what cabling does in a school setting.

Network cabling is the physical nervous system of the campus. It connects:

- classroom laptops and teacher stations to switches and internet
- wireless access points to the wired network
- phones and intercoms back to voice systems
- cameras to video management servers
- building systems such as HVAC, access control, and clocks to central controllers

Most people interact only with wireless, so it is easy to assume that Wi-Fi is the whole story. In reality, every access point hangs on a run of data cabling. If the structured cabling plant is poor quality, misdesigned, or under-spec'd, the best wireless gear in the world will underperform.

A common question I hear from school staff is: *What does cabling do that Wi-Fi cannot?* The short answer is reliability, speed, and power delivery. Hard-wired connections give predictable bandwidth, are far less sensitive to interference, and deliver Power over Ethernet (PoE) to phones, cameras, and access points without separate power bricks.

Cabling versus wiring in a school building

People often use "cabling" and "wiring" as if they mean the same thing. In construction, they do not.

"Wiring" usually means power: 120 V or 208/240 V electrical conductors that feed outlets, lights, and equipment. This work is regulated under the National Electrical Code and in California is firmly under the electrician's license.

"Cabling" in the IT and low-voltage world usually means signal: data, voice, security, audio-visual, and control. Structured cabling systems for networks are typically installed by C-7 Low Voltage Systems contractors in California, not standard electrical contractors, although larger electrical firms often have a low-voltage division.

So, is cabling the same as wiring? Technically, no. All cabling is wiring in a general sense, but in practice, "cabling" on a school project usually refers to low-voltage network and communication runs, while "wiring" means power.

The three primary components of cabling

When districts plan upgrades, they tend to fixate on the cable type - Cat 5e, Cat 6, fiber, and so on. In practice, performance depends on three primary components that operate as a system:

1. The cable itself: the copper or fiber that runs through ceilings, walls, and conduits.
2. The connectivity hardware: jacks, patch panels, connectors, patch cords.
3. The pathway and support: conduits, cable trays, raceways, J-hooks, and racks that route and protect the cable.

Ignore any one of these and you can ruin an otherwise solid design. I have seen flawless Cat 6 terminations thrown into chaos because there was no proper pathway in the ceiling, so techs draped cable over lighting fixtures and sprinkler pipes. Technically it all “worked,” but we had constant damage during maintenance and zero room to add new runs.

When you hear a designer or contractor talk about “structured cabling,” they mean that all three pieces have been designed together, with labeling, documentation, and testing to match.

The most common network cabling on California campuses

Among California K-12 schools and community colleges, a few patterns keep repeating.

For horizontal cabling from the telecom room to classrooms and devices, Category 6 UTP is the workhorse. Most districts that modernized from about 2012 onward standardized on Cat 6 to support 1 Gbps to the desktop, with enough headroom for short 10 Gbps runs if absolutely necessary. Cat 5e is still present in many buildings, especially where budgets were tight, but it is no longer the preferred choice when starting fresh.

For vertical and inter-building backbones, OM3 or OM4 multimode fiber is standard, with singlemode fiber included on many newer projects for long runs or future expansion. Copper backbone between buildings is rare now due to distance limits and lightning risk.

Legacy coax still shows up for older CCTV systems and some TV distribution, though many districts have moved those services to IP over twisted pair or fiber.

If you walk into a typical high school built or comprehensively renovated in the last decade, you are likely to find:

- Cat 6 to each classroom data outlet, projector, and wireless access point
- Two or more fiber strands between IDFs and the MDF, often in a ring or star topology
- Cat 6 or shielded twisted pair for higher end AV runs, sometimes paired with HDMI extenders
- Remaining Cat 5e or coax only in older wings, portables, or specialty systems

So when people ask, “What is the most common type of cabling used in networks in our schools?”, the answer is clear: twisted pair Ethernet, overwhelmingly Cat 6, backed by multimode fiber.

Where Cat 6A and fiber are gaining ground

While Cat 6 dominates, the design trend has begun to shift in districts that have the budget and are planning for heavier wireless density and 10 Gbps uplinks within buildings.

Some newer projects, especially large high schools and university buildings, are specifying Cat 6A for new horizontal cabling. The drivers are:

- Higher bandwidth: certified support for 10 Gbps up to 100 meters

- Better performance with high PoE loads, such as pan-tilt-zoom cameras or high-power access points
- Longer life expectancy before the next rip-and-replace cycle

Cat 6A has drawbacks. It is thicker and stiffer than Cat 6, it requires more careful pathway planning, and it costs more in both material and labor. For a typical K-12 environment where 1 Gbps to the endpoint is still enough, Cat 6 remains a very reasonable choice.

On the backbone side, more campuses are adding singlemode fiber in parallel with multimode. Multimode covers campus buildings spaced a few hundred meters apart with affordable optics. Singlemode gives the district the ability to link to distant facilities, connect to city fiber, or upgrade to faster optics later without replacing glass.

The classic “three types of cabling” versus real life

Reference books often talk about “three types of cabling” for networks: coaxial, twisted pair, and fiber optic. That taxonomy is technically correct, but it feels a bit academic when you are standing in a hot telecom closet trying to figure out why three access points are down.

From a practical school perspective, network-relevant cabling usually falls into five functional types:

- Twisted pair copper for data and voice, mainly Cat 5e, Cat 6, and increasingly Cat 6A
- Fiber optic for backbones and high speed interconnects, usually OM3/OM4 multimode plus some singlemode
- Coaxial for legacy CCTV and certain broadcast or RF systems
- Low-voltage control and signal cabling, such as 18/2 or 22/4 for door contacts, sensors, and relays
- Specialty AV cabling, including speaker wire, shielded audio, and HD-BaseT or similar transports

The structured cabling standards focus heavily on twisted pair and fiber, because those are the backbone of Ethernet networks. Coax and specialty wiring are still present, but they are no longer at the center of most campus IT conversations.

Is cabling difficult to install and maintain?

The honest answer is: it depends on what you are doing.

Terminating a single Cat 6 jack after watching a few tutorial videos is not especially difficult. Many school IT technicians learn to punch down keystones and patch panels, and can handle small changes and adds without calling a contractor.

Designing and installing a compliant, reliable, and scalable cabling plant across an entire campus is another matter. The difficulty is less about the physical act of pulling cable, and more about:

- Understanding code and firestopping rules, especially in California's varied building stock
- Coordinating pathways with architects, mechanical trades, and electrical contractors
- Labeling, documenting, and testing so that the system remains usable ten years later
- Planning for growth, such as future access points, new wings, and upgraded switches

In my experience, districts that try to DIY entire buildings often end up with a patchwork of practices that become hard to support. On the other hand, districts that build basic in-house skills for small jobs save money and reduce downtime day to day. The sweet spot is usually to use professional low-voltage contractors for new construction, major modernizations, and large re-cabling, while training IT staff to handle simple adds, moves, and changes.

Do electricians install cable outlets in schools?

This is a surprisingly common point of confusion on projects.

In California, standard electricians are responsible for power circuits and outlets. Low-voltage data outlets fall under the C-7 (Low Voltage) or C-10 (Electrical) license classes, and many full-service firms hold both licenses. On a real job, you will often see the same company installing both power and data, but with different crews.

From the school's perspective, what matters is that:

- You have a contractor with the right license and experience for data cabling
- The work follows TIA cabling standards as well as electrical and building codes
- Coordination between power and data outlets is handled in the design

On smaller service calls, an IT department might run a surface-mounted data outlet on the wall and plug into an existing power circuit nearby, without involving the electrician at all. On larger projects funded by bonds or state programs, data cabling is almost always part of the formal construction scope, with inspectors involved.

If you are planning a renovation and wondering, "Do electricians install cable outlets, or do I call someone else?", your safest approach is to ask your general contractor or construction manager to bring in a low-voltage cabling specialist. The electrician may do the work, but you want someone on the hook who lives and breathes data cabling.

How much does cabling cost in California schools?

Costs vary widely by region, labor market, project size, and how well the work is bundled with other construction. Any number you see in a guide like this should be treated as a planning range, not a quote.

With that caveat, here is what I have generally seen in California over the past few years for professionally installed network cabling on school projects, including labor, materials, basic testing, and typical overheads:

- Standard Cat 6 horizontal data drops: roughly 180 to 350 dollars per drop, assuming in-ceiling pathways are reasonable and distances stay under 250 feet.
- Higher end Cat 6A drops: often 20 to 40 percent higher than Cat 6 in the same conditions, largely due to cable cost and handling.
- Fiber backbone runs inside buildings: frequently 6 to 15 dollars per foot installed for small strand counts, sometimes less per foot on long runs.
- Campus inter-building fiber in conduit: extremely sensitive to trenching, boring, and site conditions, but not unusual to see 15,000 to 50,000 dollars per path for modest distances on flat sites.

Major factors that drive cabling cost include:

- Existing pathways vs new conduit and cable tray
- Ceiling type and accessibility
- Height and complexity of the structure, especially gyms and auditoriums
- Night work or occupied campus premiums
- Testing, certification, and warranty level

For quick budgeting, some districts simply multiply the number of planned data outlets by a mid-range per-drop cost, then add a contingency for backbone and pathway work. This approach is crude, but it at least gets you within the right order of magnitude before formal design.

“Who is the cheapest cable provider?” and why that is the wrong question

When staff ask about the “cheapest cable provider,” they usually mean the internet service or television vendor, not the structured cabling contractor behind the walls. It is important to distinguish between the two.

Service providers such as Spectrum, AT&T, or local fiber companies charge monthly fees for bandwidth. Structured cabling contractors charge one-time construction costs to install the physical plant that connects your classrooms to your network electronics.

For service providers, comparing cost makes sense as long as you compare bandwidth, reliability, and support terms at the same time.

For structured cabling, the “cheapest” contractor can actually cost far more over the life of the building if they cut corners on pathways, labeling, test results, or standards compliance. The most painful cabling jobs I have inherited looked cheap up front, but required constant troubleshooting and piecemeal replacement whenever anything changed.

A more useful framing for cabling projects is: which qualified provider offers the best value and documentation at a fair, competitive price, within the district’s procurement rules. That means asking:

- Are they certified with major cabling manufacturers if you want extended warranties?
- Do they provide electronic test reports drop by drop?
- Will they help your staff understand the labeling and documentation?

The monthly cost of your internet circuit is a separate conversation and does not change whether you build your cabling plant correctly.

What is the best wire for home use, and how that compares to schools

Homeowners often ask about “the best wire for home use” and Cabling Services Provider California mtinc.net then try to apply that thinking to school designs. The contexts differ.

In a house, a good rule of thumb for new construction is to run at least Cat 6 to key rooms, possibly Cat 6A if you are planning for multi-gig internet and high-end gear, plus RG-6 coax if you still rely on cable TV or satellite. Power wiring follows residential electrical code and is usually handled entirely by the electrician.

In a school, the scale and density of devices, along with PoE demands and code constraints, change the picture:

- Cat 6 remains a very solid baseline for classrooms, labs, and offices.
- Cat 6A is more attractive in high-density wireless areas, for example lecture halls and libraries.
- Fiber is essential between network rooms and buildings, not something you can skip.
- Coax may be minimal or absent in new designs, as more AV runs over Ethernet or direct HDMI extenders.

So while the vocabulary sounds similar, “best wire for home use” is a much smaller, simpler design problem than “best cabling strategy for a 2,000-student high school.” The latter has to answer to standards, fire codes, state funding rules, and an IT department that will still be there when the architects have moved on.

Planning around the five main cable types on campus

From a practical planning standpoint, I encourage school teams to think in terms of five main cable families, each with its own role.

First, twisted pair copper for data and voice. This is where your Cat 6 or Cat 6A decisions live. Nearly every laptop, phone, access point, and camera rides on this type of cable.

Second, fiber optic for backbones and high speed point-to-point runs. Fiber does the heavy lifting between network rooms, buildings, and sometimes key servers or storage systems.

Third, coaxial cable, now mostly for legacy or niche applications. Many districts are slowly decommissioning these systems, but you still need to support them as long as they exist.

Fourth, control and signal wiring for security, building automation, and fire life safety. These systems often have their own code requirements and cannot simply be swapped onto Ethernet without proper design.

Fifth, audio-visual cabling such as speaker wire, microphone lines, and HD transport cables. AV has increasingly moved to network-based solutions, but not completely, and many classrooms still rely on simpler point-to-point cabling to projectors and amplifiers.

Mapping which of these you have, which you want to expand, and which you want to sunset is a useful early exercise before writing any bid documents.

Putting it together for your next project

If you are sitting in a district office looking at a proposed modernization set, here is how to read the cabling side with a critical eye.

Check that Cat 6 is the minimum standard for new horizontal network drops, unless there is a specific reason to use Cat 6A in certain areas. If you still see Cat 5e in a new design, ask why.

Confirm that fiber backbones are specified between every telecom room and building, with enough strands for redundancy and future growth. Ask whether the design includes both multimode and singlemode, and how those will be used.

Look at the pathway drawings. Good cabling cannot survive bad pathways. You should see cable tray, J-hooks, and conduits designed in a way that leaves room to add more cable later. If everything appears to rest on open ceilings and wishful thinking, that is a red flag.

Ask about testing, labeling, and documentation deliverables in the specifications. You want electronic test reports for each cable, as-built drawings, and a clear labeling scheme that your staff can follow.

Finally, when the bids arrive, resist the temptation to treat structured cabling like commodity material. The wires might look the same when they are in a box, but how they are installed will affect every digital task your students perform for the next 15 to 20 years.

Most California schools today run on Cat 6 copper and multimode fiber, and that combination has served them well. The art is in deploying those familiar tools in a thoughtful, standards-based way that respects the realities of your buildings, your staff, and your budget.