

Introduction

In fire protection, nothing is more important than the safety of your employees and customers. After all, property and equipment can always be replaced; lives cannot. That's why all businesses must have professionally-installed fire alarm systems that ensure every person walks away from a fire emergency unharmed.

Local authorities and national regulatory organizations like the National Fire Protection Association (NFPA) make life safety their top priority. They require all commercial fire alarm systems to comply with specific building codes and occupational health requirements that ensure maximum safety.

Note that there's no skimping on fire alarm essentials, even if codes require expensive equipment. You can even get a discount on your business insurance with an installed system.

Since requirements vary from one jurisdiction to the next, understanding exactly what kind of fire alarm system you need can be difficult. Your local authorities and a reputable licensed dealer should provide a clearer picture. This **BuyerZone Fire Alarm Systems Buyer's Guide** will help you:

- Prepare for a fire alarm installation
- Understand the different codes your system must follow
- Learn how fire alarms work
- Set expectations for what you'll pay

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Pricing guidelines

Fire alarm pricing varies enormously depending on local regulations and the type of facility you're protecting – we'll go into more detail in on page 7. Here's a very rough guideline:

Type of System	Estimated cost
Installation – basic system in rural area	\$1 to \$2 / sq ft
Installation – more complex system in heavily-regulated area	\$3 to \$5 / sq ft
Monitoring and maintenance	\$40 to \$60 / month

How fire alarm systems work

Commercial fire alarm systems are triggered by smoke particles, flames, or significant changes in temperature. They connect to central monitoring stations that immediately notify authorities when the alarm is activated. The alarms also connect to audible and visible signals that alert people to evacuate the building and sprinkler systems to help suppress the fire.

Components

Unlike other security systems such as monitored alarms or video surveillance, you won't get to pick and choose the components you want when buying a fire alarm system. Instead, your local authorities will determine exactly what devices you need based on local and national codes.

Regardless of the number of devices used, your addressable fire alarm system will need two separate, dedicated phone lines so it's always connected to the central monitoring station. Typically, the primary connection is a standard phone line, while a cellular or voice over IP (VoIP) line serves as the backup.

The central component of a fire alarm system is the **fire alarm control panel (FACP)**. The FACP acts as the brains of the system, storing information about your business so the fire department can retrieve it when there's a fire.

The FACP also communicates with all the devices that help locate the fire. These devices include **detectors** that see heat and smoke, **sirens** and **strobe lights** that alert people to evacuate, and **flow valves** that control the sprinkler system.

In addition to automatic fire alarm devices, you'll need to install **manual pull stations** at every exit so people can activate the alarm at the first sign of smoke or fire, and fire extinguishers that feature clear instructions on the label.

If required by code, your fire alarm system may also need **annunciation systems** that notify authorities which device was set off and where it's located. Large venues like shopping malls or sports arenas may need **emergency voice alarm communication systems (EVAC)** that provide audible evacuation instructions over professional-grade speakers.

Sprinkler systems

The most important addition to a fire alarm system is a **sprinkler system**. Fire officials consider sprinklers the most reliable method for quickly suppressing fires until authorities arrive.

Fire alarm installers can quickly and easily connect fire alarm systems to your existing sprinklers. Many municipalities require all commercial buildings to have a sprinkler system, and most buildings constructed after 1985 have them. If you need to install a complete new sprinkler system, prepare for added headaches and expenses – it can take several months and cost hundreds of thousands of dollars in addition to the alarm.



Fire suppression systems

While sprinkler systems use water to extinguish flames, you can't risk floods in areas such as server rooms or paper archive storage areas. In these cases, fire suppression systems are the most effective fire protection. Fire suppression systems use inert gases or chemical agents to control smoke and put out fires.

Understanding fire alarm monitoring

While the equipment in your office will detect fire or smoke, the central fire alarm monitoring station plays a critical role in protecting your employees.

When your alarm is tripped, the control panel sends your relevant details to the fire alarm monitoring station, who will notify the fire department. Because of this critical role, the monitoring station has to be dependable and fast-acting.

In addition, the central station should frequently activate and test all of your devices and connected phone lines. They're also required by law to maintain accurate logs of activity and system functionality in case authorities want to review incident details.



Who operates fire alarm monitoring stations?

Small fire alarm companies often license the services of third-party fire alarm monitoring stations, while larger companies usually have their own central stations that can simultaneously watch over thousands of businesses and homes. The independent Underwriter's Laboratories (UL) sets standards for monitoring station equipment and procedures – companies that meet their guidelines provide maximum safety and reliability, but that comes at an increased cost.

All central stations must contact authorities within 30 to 60 seconds of the alarm going off. And much like your fire alarm, they must have a reliable backup source – either a second

station, or a backup generator with 10-15 days worth of power on reserve.

In some cases, you may not need fire alarm monitoring service for your system: certain municipalities require you to connect directly to local fire departments.

Meeting fire alarm system requirements

Getting a fire alarm that meets all local and national requirements starts with a representative of your local authority-having jurisdiction (AHJ), typically the fire marshal. That person will visit your space and tell you what you need to comply with local and national codes, and whether you need a sprinkler system.

The AHJ assures your building meets several codes, including the oft-changing NFPA-72 that acts as the “bible” for commercial fire alarm installation, the Americans with Disabilities Act (ADA) that ensures people with disabilities have clear access to warning devices, and the Occupational Safety and Health Administration (OSHA) rules on employee well being.

These codes can be loose or restrictive based on municipality, but you can't get approval for a fire alarm until it meets all the applicable rules and regulations.

Assessing your fire alarm needs

Here are some of the major things the AHJ will assess at your facility to determine the appropriate fire alarm system setup:

- Overall size – Fire alarm devices can only cover a certain amount of square footage – the larger your space, the more devices you'll need.

- Exit routes – Each exit door and stairwell must be equipped with a manual pull station and clearly illuminated so people can spot them during an emergency.
- Building specifics – What kind of materials is your building made of (brick, steel, etc.)? What floor are you on? Where are you located? The AHJ may set specific guidelines based on your building makeup.
- Occupancy requirements – Locations that regularly hold large numbers of people may need more signaling devices.
- Materials handling – If your business handles flammable materials, you'll need additional safeguards in place, as well as specific employee training.
- Other considerations
 - Employee seating – Employees must be located as close as possible to the nearest pull stations.
 - Fire suppression equipment – Having fire extinguishers or sand buckets on hand can help control a fire until help arrives. Just make sure to train employees to use them properly.
 - Team leaders - Your HR department should help find a CPR-certified staffer who can arrange regular fire drills and ensure everybody evacuates safely.

It's important to note that you must adhere to the AHJ's recommendation for a compliant system, even if it costs more than you expect.

Installation

Once you understand the requirements, you'll need to choose a fire alarm dealer who will perform a site survey and develop blueprints based on his findings and the AHJ's information. The AHJ then reviews the blueprints and either signs off on them or notes what changes need to be made. Keep in mind that the blueprint assumes only the minimum standard for your municipality. As long as your setup is compliant, you're free to add other components to your system as needed.

In addition, your fire alarm dealer and AHJ may help you create a detailed evacuation plan and company fire protection document. These documents detail the evacuation procedures for a fire emergency, as well as how to help elderly and disabled people out of the building, which equipment to shut off before evacuating, and the appropriate safety location to gather at.

Can fire alarms work with other protection systems?

Most municipalities insist that you keep fire alarms separate from other security devices such as monitored burglar alarms or video surveillance systems. This requires you to set up a separate phone line that will only connect to your fire alarm.

However, some local authorities will allow you to include fire alarms as part of a larger system if they override all other devices. For example, if you have an access control system that shares wiring with a fire alarm, the system should disable all door locks when a fire is detected so everybody can evacuate the building.

How to choose a dealer

Smoke alarm dealers can range from large corporations with their own sales forces to smaller resellers that work as third-party installers for the large corporations or as independent companies.

Regardless of whether you work with a large or small company, the smoke alarm dealer you work with must be certified by NICET (National Institute for Certification of Engineering Technologies) which indicates that they fulfill strict requirements for safety and installation. They should also be fully licensed to install fire alarm systems in your region and provide all-inclusive services that include site assessment, installation, wiring, and monitoring service.

Steps to finding the right dealer

Start by getting quotes from three to four different smoke alarm installers. The first company you speak with may offer a good deal, but it's important to meet with several companies to find out who offers the best balance of security, service, and cost.

The best smoke alarm dealer may be one you've already worked with. If you currently have a monitored alarm system and are happy with the service, contact them and ask if they are licensed to install commercial fire alarms. In most cases, these dealers will already be familiar with your business so they can begin making suggestions and start working right away.

Reputable smoke alarm companies will always visit your site in person or review an official blueprint to determine the best system for you. Never work with a dealer that offers a proposal before they see what your office looks like.

It's usually best to work with an experienced smoke alarm dealer since they typically have the clearest grasp of code compliance and frequent code changes. While you may get lower rates by working with a less experienced dealer, it makes sense to spend a little extra on a proven company that will be there for you long after they install your system.

Another aspect to investigate is customer service. In addition to the direct attention you need while making the purchase, it should be easy to contact the dealer if there's a problem. Do they offer 24 x 7 x 365 customer service? Do they handle the central monitoring in-house, or use a third party provider? Can you always reach a live service rep on the phone? Are repair technicians readily available? How often do they inspect and test the system to ensure functionality?

Finally, get references from each dealer. Find out why a company chose a particular dealer and ask such questions as:

- Did they install quickly, in the timeframe they guaranteed?
- Were they readily available if you had any problems?
- Did they comply fully with your AHJ?
- Did they provide monitoring services directly? If not, were you able to contact the monitoring station they worked with?
- Was the evacuation plan they created easy to understand?
- Did they provide sufficient training for you and your employees?
- If you ever experienced a fire, did the central station quickly dispatch authorities?
- Do they regularly test and maintain the system?

Watch out for "trunk slammers"

Reputable smoke alarm installers fight an ongoing battle with so-called "trunk slammers" – unlicensed sellers who work out of their homes or cars and offer cheap systems to unknowing buyers before quickly disappearing. They sell proprietary equipment at a cut rate, sign customers to long-term contracts, and sell the signed contracts to seedy alarm companies. You won't know who to contact if there's a problem and won't be able to use this equipment with another company.

Worse, trunk slammers don't follow code regulations: they just want your money. If you work with them, you risk compromising employee safety and getting in serious legal trouble. If you're unsure if you're dealing with a licensed smoke alarm dealer or a fly-by-night trunk slammer, you should check with regulatory organizations like the Better Business Bureau



or the National Burglar and Fire Alarm Association (NBFAA) to see if the company is legit.

Fire alarm equipment pricing

It's very difficult to pinpoint the exact costs of fire alarm equipment. Your price will vary widely depending on local code requirements, the size of your building, the amount of equipment you need, and how long it takes for a dealer to install everything.

Another element that could impact pricing is whether you're working with a new or existing building. It's far less expensive for builders and electricians to include fire alarm equipment when putting up a new building than to add an alarm to an existing structure.

Estimating fire alarm equipment costs

A rule of thumb for fire alarm equipment costs is \$1 to \$2 per square foot of office space for a basic setup in a rural location. In metropolitan areas or for systems with multiple high-tech devices, this rate increases to \$3 to \$5 per square foot. Sprinkler system installation can push your costs as high as \$10 to \$25 per square foot or more.

As an example, a small retail shop owner with 3,000 square feet of office space could expect to pay \$3,000 to \$6,000 for 3 to 4 pull stations, smoke and heat detectors, and audible and visual alarm devices, and get set up within 2 to 3 weeks.

In contrast, a 25,000-square foot manufacturing facility may require hundreds of alarm devices to properly alert staffers of a fire emergency, and an emergency voice alarm communications (EVAC) system to provide instructions for an orderly evacuation. This design could cost as much as \$250,000 to \$750,000 and take up to a year to properly install.

Since fire alarm equipment prices can vary so widely from state to state and business to business, check with your dealer to get the most specific pricing information.

Central monitoring fees

Once your fire alarm equipment is installed, you'll need to pay a monthly monitoring fee. This can be between \$40 and \$50 per month with an additional \$5 to \$10 per month for a maintenance agreement that protects your wiring and provides annual inspections from NFPA-approved technicians.

To get monitoring service, you'll need to sign a contract with your dealer. Most dealers require a minimum three-year obligation to provide you with the best rates. While you can sign on for a longer term, we don't recommend it since you won't be able to switch providers or take advantage of lower prices in the future. If you must break the contract before it ends, you could pay penalties of 75% to 100% of the remaining fees.

Other fire alarm costs

Your fire alarm system can include many different costs, so make sure your dealer provides all of the details in writing. There shouldn't be any surprises since they should specify the devices you need to satisfy codes when they assess your worksite. However, if codes change during installation, the dealer will have to make the appropriate adjustment to your contract.

All fire alarm equipment should include a parts and labor warranty for at least 90 days from the date of installation. To maintain coverage after your warranty expires, you can usually buy an additional maintenance and repair agreement for about 10% of your total alarm costs.

This agreement covers service requests and repairs during the life of your contract. Without a maintenance contract, you could pay \$50 to \$150 per hour for labor and plus the cost of replacement parts each time there's a

problem.

Some municipalities require state monitoring and electrical permits before a dealer can install a commercial fire alarm. If these costs aren't built into your contract, you'll pay a fixed rate of \$50 to \$200, or 0.4% to 0.5% of the total project value.

Payment alternatives

If the costs are more than you expected, you may want to consider **leasing** your fire alarm equipment. Leasing allows you to spread your payments out over time. At the end of term, you can either purchase the equipment for a nominal fee or at fair market value.

A final note about fire alarm equipment pricing: If you rent office space, the building management is required to provide adequate fire protection. However, your business may need to comply with specific codes that require additional alarm devices. Check with your local fire marshal to find out if the building's fire alarm is sufficient for the type of business you run.