Conventional vs Addressable Fire Detection Systems: What Strata Buildings Need to Know

When a strata building is considering changes to its fire detection system, one of the first technical questions that usually comes up is whether the building has a conventional or addressable fire detection system.

For many owners corporations, strata committees and building managers, the terminology can be confusing. The difference matters because it can affect system cost, installation complexity, fault finding, future maintenance and how easily the building can be modified or expanded over time.

What is a conventional fire detection system?

A conventional fire detection system divides a building based on each individual transmission path, which can then be defined as a general location or zone. Each zone is connected back to the fire indicator panel.

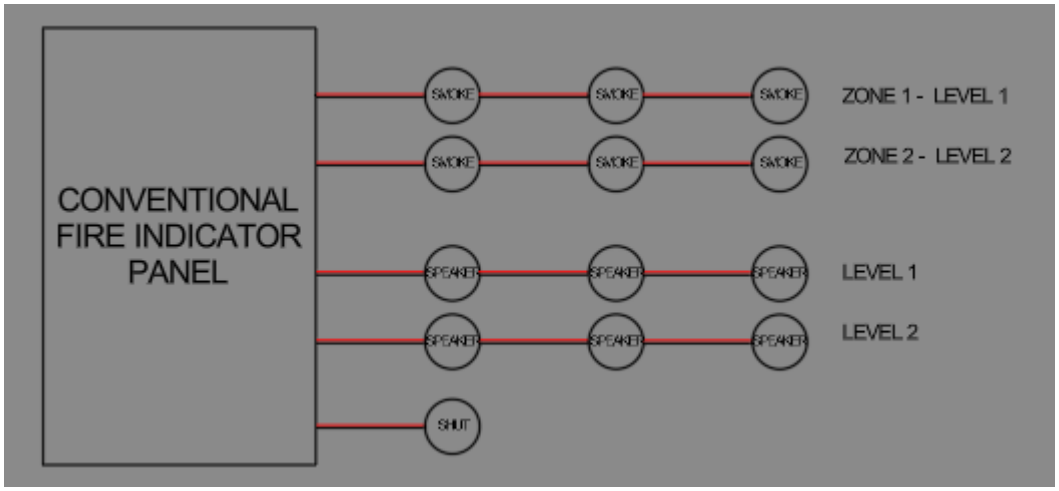
If a detector activates in a particular zone, the panel will show that there is an alarm in that zone. For example, the panel may indicate:

- Basement Level
- Ground Level
- Level 1
- Level 2

The panel usually does not identify the exact detector that activated. It indicates the general area, and someone then needs to investigate that zone.

Conventional systems have been widely used in many older apartment buildings and smaller commercial buildings.

The example below shows a conventional panel with two zones. Note, each zone can contain up to 40 detectors, and the panel can only tell you which zone is malfunctioning or alarming; it cannot tell you which detector. This example also shows speaker feeds and the shutdown of a building feature, such as mechanical air handling, gas, EV chargers or other equipment that may be forced to shut down in the event of an alarm. Note, that speaker feeds are the same as conventional feeds i.e. if there is a fault in a speaker, you will only know the transmission path affected and will have to investigate to determine the faulty speaker.



What is an addressable fire detection system?

An addressable fire detection system gives each device its own unique address.

That means the fire indicator panel can identify the specific device that has activated, such as:

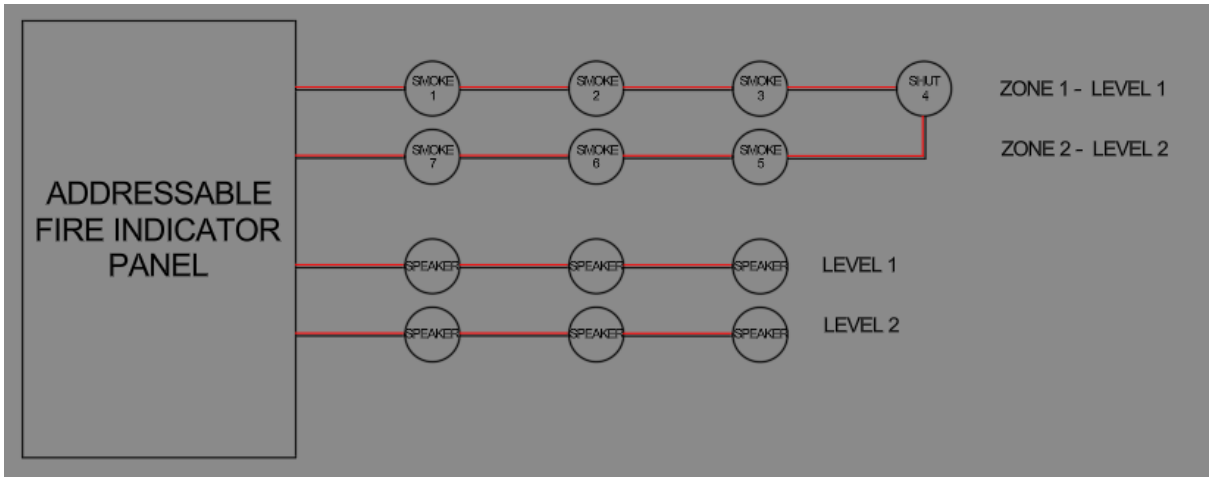
- Smoke detector outside Unit 12
- Heat detector in basement car park bay area
- Manual call point near the main entry
- Detector in electrical switch room

This provides much more precise information. It can make fault finding easier, help responders locate an alarm more quickly, and provide better visibility across larger or more complex buildings.

The example below shows essentially the same building as the conventional panel example. The difference is that the devices for detection and shutdown are now in a loop, and every item in the loop can be individually identified.

You will note the devices are still divided into zones, which are also programmed into the panel. If one device fails or alarms, the panel can reveal exactly which device it is.

You will also note that the speaker feeds are the same in addressable systems. So, the panel can usually identify the speaker circuit that is failing, but not the specific speaker.



The key difference

The simplest way to think about it is this:

A conventional system tells you which area has a problem.

An addressable system tells you which device has a problem.

For a small building, that difference may not seem significant. For a larger apartment building, mixed-use development or building with multiple levels, car parks, plant rooms and common areas, it can be very important.

Practical differences between conventional and addressable systems

Beyond alarm identification, there are several practical differences between conventional and addressable systems that can affect maintenance, replacement costs and future planning.

Detector replacement

In many conventional systems, detectors are relatively generic. While compatibility should always be confirmed, it is often possible to replace an obsolete conventional detector with a compatible modern conventional detector without replacing every detector in the zone.

The trade-off is that the fire indicator panel can still only identify the zone where a fault or alarm has occurred, not the individual detector involved.

Addressable systems operate differently. Each detector communicates individually with the fire indicator panel and is programmed with its own address. This allows the panel to identify the exact detector in alarm or fault, but it also means detector compatibility is generally more closely linked to the manufacturer and system design.

Cabling arrangements

Conventional systems are typically wired as individual zones. The cable starts at the fire indicator panel and passes through each detector in the zone before terminating at the last device.

Addressable systems are usually wired as loops. The cable leaves the fire indicator panel, passes through each device on the loop and then returns to the panel.

This difference can become important when considering future replacement works. Converting a conventional system to a fully addressable system may require modifications to the existing cabling, depending on the design of the existing installation and the proposed replacement system.

Changing from conventional to addressable

One of the most common questions for strata buildings with ageing fire detection systems is whether an existing conventional system can be converted to an addressable system.

In some cases, the answer is yes. However, the process is not always as simple as replacing the fire indicator panel.

Important questions include:

- What type of cabling is currently installed?
- Can the existing cabling be reused?
- Are the existing detectors compatible with the proposed new system?
- Can the works be staged?
- Is the existing system layout suitable for reuse?
- Will the building remain occupied during the works?

Because conventional systems are typically wired as individual zones and addressable systems are generally wired as loops, additional cabling works may be required when converting to a fully addressable system.

Some modern fire indicator panels can support conventional detection circuits while also providing a pathway to addressable detection in the future.

This can allow a building to replace an ageing panel while retaining the existing conventional field devices and cabling initially. Additional works can then be undertaken later if the owners corporation decides to move to a fully addressable system.

Whether this approach is possible depends on the manufacturer, the condition of the existing system and the long-term objectives of the building.

A proper assessment is usually needed before deciding the best approach.

Why this matters in strata buildings

Many strata buildings are now reaching the point where older fire detection systems are becoming unreliable, difficult to maintain or unsupported by manufacturers.

When a system reaches end of life or becomes difficult to maintain, the owners corporation may need to consider:

- Whether to retain a conventional system or move to an addressable system
- Whether the works can be staged over time
- Whether existing cabling and field devices can continue to be used
- What approach best supports the building's long-term needs

The right answer depends on the existing system, building layout, applicable requirements, budget and future maintenance expectations.

Is an addressable system always better?

Not always.

Addressable systems offer significant benefits, but they can also involve higher upfront costs and greater installation complexity. In some smaller buildings with minimal devices, a conventional system may still be appropriate as fault finding with a small number of devices is a lot less complicated.

However, for larger strata buildings, addressable systems are often preferred because they provide:

- More accurate alarm location information
- Better fault diagnostics
- Easier system monitoring
- Better flexibility for future changes
- Improved suitability for staged works
- More detailed event history

For a building manager or strata committee, this can reduce confusion during faults and alarms.

Cost considerations

Addressable systems usually cost more than conventional systems at the outset. This is due to the cost of addressable devices, compatible panels, programming, commissioning and sometimes cabling changes.

However, the cheapest upfront option is not always the best long-term option.

A lower-cost replacement may become more expensive over time if:

- Faults are harder to locate
- The system is difficult to expand

- Parts become unavailable
- The building outgrows the system

For strata committees, the decision should be made with the building's long-term needs in mind, not just the initial quotation price.

Questions strata committees should ask before approving fire detection system works

Before committing to a fire detection system replacement or other significant works, ask:

1. Is the current system conventional or addressable?
2. Which parts of the system are obsolete?
3. Are replacement parts still available?
4. Can the existing cabling be reused?
5. Is the proposed system suitable for the size and layout of the building?
6. Is the work being driven by maintenance, end-of-life replacement, a Fire Safety Order, or a broader building process?
7. Can the works be staged?
8. What disruption should residents expect?
9. What future maintenance requirements should be considered?
10. Is this a short-term fix or a long-term plan for the fire detection system?

Final thoughts

The difference between conventional and addressable fire detection systems is not just technical. It affects cost, reliability, fault finding, maintenance and future planning.

For small buildings, a conventional system may still be suitable. For larger or more complex strata buildings, an addressable system may provide better long-term value and operational visibility.

Before approving any fire detection system replacement or significant modification, an owners corporation should obtain advice based on the building's actual condition, applicable requirements and future needs.

Full Circle Fire specialises in fire detection and alarm systems, including the maintenance, repair and replacement of ageing and obsolete equipment, as well as fire detection system works arising from Fire Safety Orders.