

# Advisory

A service to A.G.Coombs Group clients

# note

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## False Alarms and Automatic Fire Protection Systems

### Background

Around 30-50% of all brigade 'turnouts' are to monitored fire protection systems and it is estimated that well over 90% of those turnouts are classified as False Alarms, also referred to as Unwanted Alarms or Nuisance Alarms. Coupled with the increasing prevalence of monitored systems there is significant impact on Fire Brigade Operations and as such all Fire Authorities are placing an increasing priority on false alarm reduction.

Irrespective of pressure from Fire Authorities, False Alarms also have a number of direct impacts, such as:

- Business interruption for building occupants.
- Reduced occupant perception of system reliability encouraging complacency & reducing safety.
- Unwanted release of suppression agents.
- Unwanted shutdown of plant and equipment.

Combined with any fees and charges levied by the Fire Brigade a false alarm can result in many thousands of dollars of both direct and indirect costs.

Due to the failsafe nature of automatic fire protection system false alarms can never be fully eliminated, however they need to be reduced as far as practical to minimise the impact of the above effects.

### Causes of False Alarms

To help identify suitable ways to reduce the potential for false alarms it is useful to understand what the primary causes are. While there are many possible causes they can be classified into a number of broad categories as follows:

- Failure or malfunction of fire protection equipment.
- Inadequate ventilation of fumes or vapour.
- Unsuitable system design / installation.
- Inadequate / incorrect maintenance.
- Internal / External Environmental effects.
- Operator error (accidental or malicious)
- Mechanical Damage (accidental or malicious)

### Reducing False Alarms

There are many different approaches to minimise false alarms and their effects. Ideally minimisation of false alarms should be considered holistically during building design to include consideration of room use and layout, architectural features, ventilation as well as fire system equipment selection and design.

The reality is that in new building design minimisation of false alarms is rarely considered a priority thus it is only addressed during operation of the building once it becomes problematic.

Strategies to minimise the potential for false alarms may comprise either engineering solutions, management solutions or a combination of both.

Engineering solutions can include

- Relocation or replacement of detectors
- Cleaning of detectors
- Alarm Investigation / Alarm Acknowledgement
- Improve ventilation
- Detection referencing / dependency
- Retard chambers / jacking pump adjustment

These solutions address technical causes of false alarms, however many causes of false alarms are not technical related.

To address the risk of false alarms and help reduce any known false alarm problems a False Alarm management plan should be developed. The plan should include:

- Review of historical events.
- Building / System audit to identify potential issues.
- Work permit & Isolation / Desolation procedures.
- Training
- System modification / tuning
- Consideration of Cost / Benefit

The extent and mix of these or any other elements in a false alarm management plan will need to be tailored to the specific needs of the building.

### Additional Resources

The following Australian Fire Authorities currently have specific web pages containing useful information dedicated to reduction of False Alarms.

- Melbourne Metropolitan Fire Brigade  
<http://www.mfb.vic.gov.au/Incidents/Managing-False-Alarms.html>
- New South Wales Fire Brigade  
<http://www.fire.nsw.gov.au/page.php?id=26>
- Queensland Fire & Rescue Authority  
<http://www.fire.qld.gov.au/buildingsafety/unwanted/default.asp>
- South Australia Metropolitan Fire Brigade  
[http://www.samfs.sa.gov.au/site/fire\\_alarms.jsp](http://www.samfs.sa.gov.au/site/fire_alarms.jsp)

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