

The Future of AI in Fire Safety



FIRE
AUSTRALIA2025

60
YEARS

Sydney, 15th of May 2025
Dr. Vitaly Berezka





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What is AI?

“AI is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy”

— IBM



What is digitalization?

Digitalization is the process of converting all the company's business processes into digital format using modern technologies.

Key trending technology in Fire Safety:



BIM and Digital Twin



Artificial Intelligence, Computer Vision and Robotics



Smart devices & IoT



Digital platforms for Inspections and Asset Management



The Role of Digitisation in Fire Safety

Why Digitisation Matters

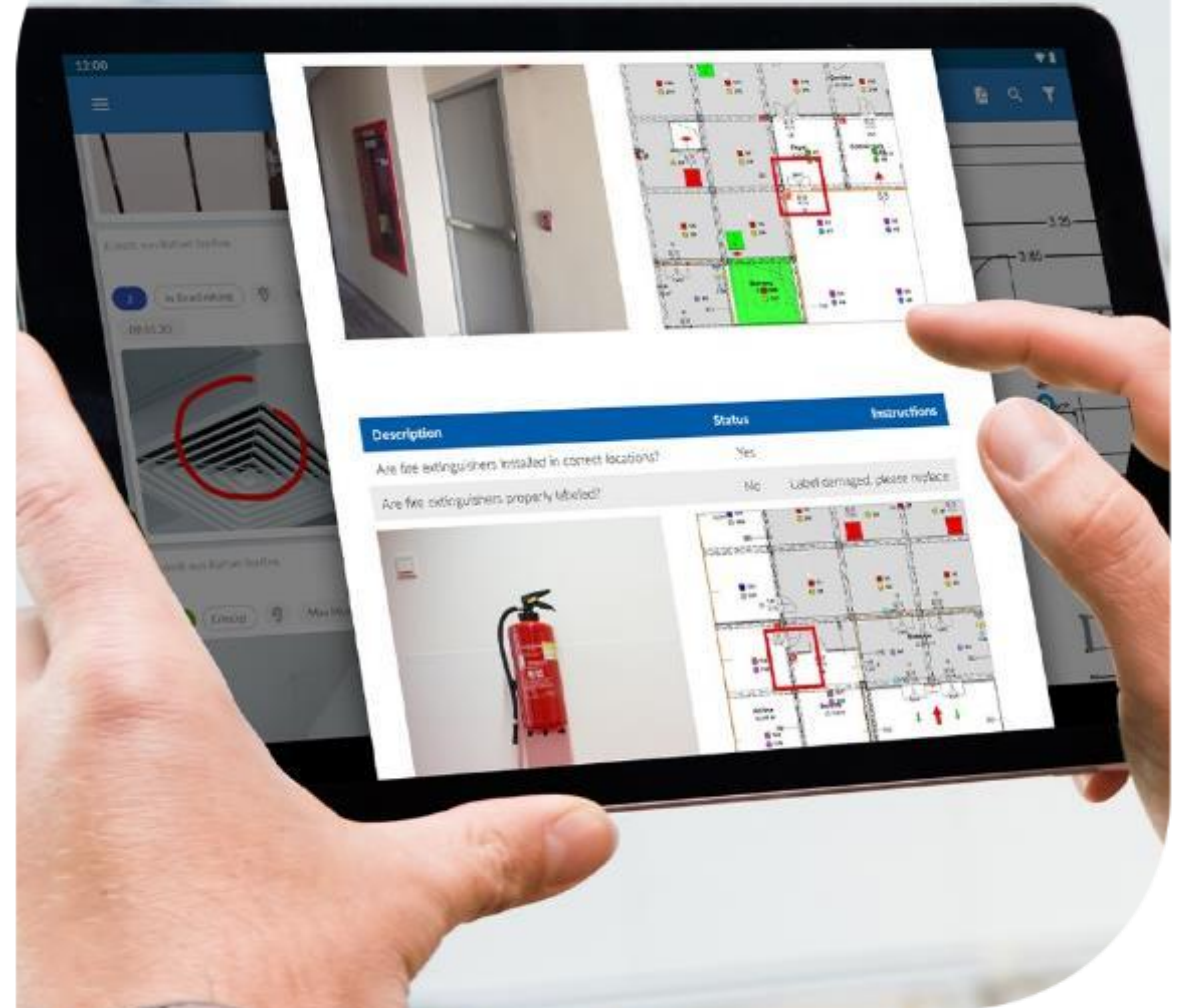
- Enhancing data collection and analytics
- Real-time monitoring and response capabilities
- Boosting compliance and audit capabilities with tamper-proof audit trails



The Future of AI in Fire Safety

Aligning with Australian Standards to Innovate for a Safer Australia

- Australia faces over 50,000 fires annually (Bushfire, Commercial / Residential) as per Aus Institute of Health & Welfare.
- As per AS1670.1 – Design / AS1851 – Routine Service – gives assurance of design integrity & maintenance yet lacks predictive capabilities.
- AI could offer proactive solutions to complement these standards.



Overview of Aus Fire Standards

Current Framework of Australian Standards



AS 1670.1

Fire detection & alarm systems – design & installation.



AS 1851

Maintenance of fire protection systems & equipment.



AS 3959

Construction in bushfire prone areas.



What is the gap?

Limited Integration of real time data or predictive technology.



AI in Fire Prevention

Preventing Fires using AI



Predictive Analytics:

AI uses historical data (bushfire patterns / rainfall / backburning to flag risk areas – enhancing AS 3959 compliance.



IoT Integration:

Smart sensors detect hazards – elec faults / heat / smoke to notify external services.



Example: 1

NSW RFS is notified by the minute of lighting / smoke in rural areas & give evacuation notices to residents immediately.



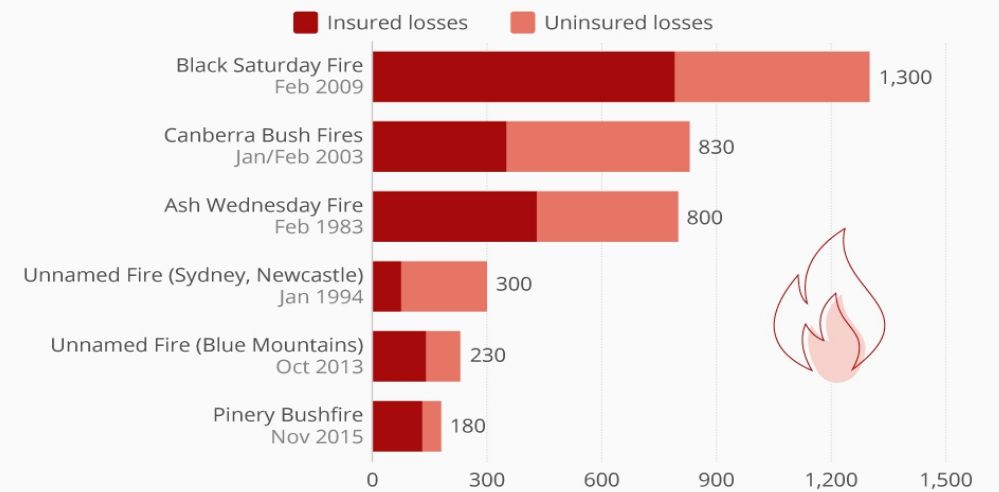
Example: 2

Active sensors are able to measure the probability of an electrical fault due to age, probability of failure over time etc.



The Most Destructive Wildfires in Australia

Australian wildfires by (un)insured and overall losses 1980-2018 (in million U.S. dollars)



AI in Fire Detection

Enhancing Detection Beyond AS 1670.1



Computer Vision:

AI in drones can be utilised far more quickly than a satellite – giving much more prompt response times.



Machine Learning:

Reduces false positives & improving reliability.



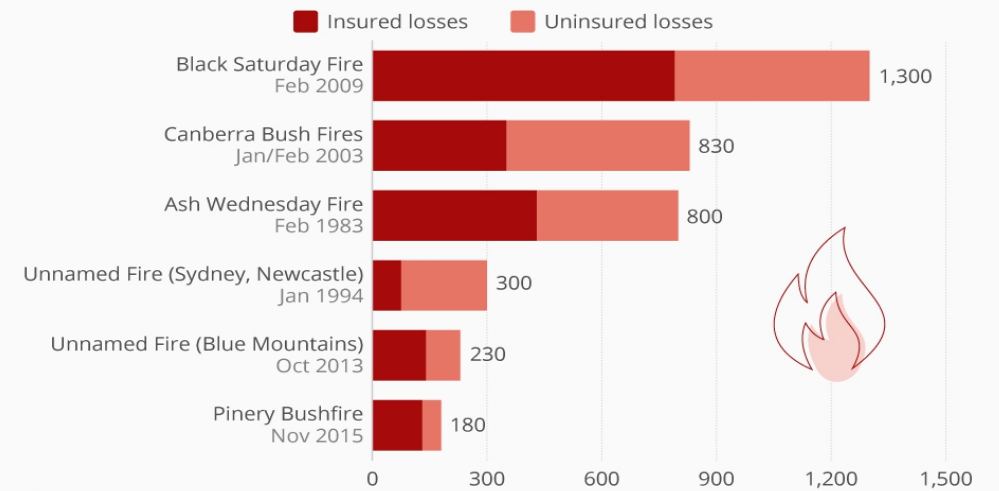
Example: 1

NSW RFS sends out multiple long -range drones across the Blue Mountains & Eastern Regions on high alert days – giving residential areas ample time to evacuate to prevent any loss of life.



The Most Destructive Wildfires in Australia

Australian wildfires by (un)insured and overall losses 1980-2018 (in million U.S. dollars)



AI in Fire Response

Smarter Response for Australian Firefighters



Real Time Mapping:

AI guides crews through smoke filled buildings to prevent injury.



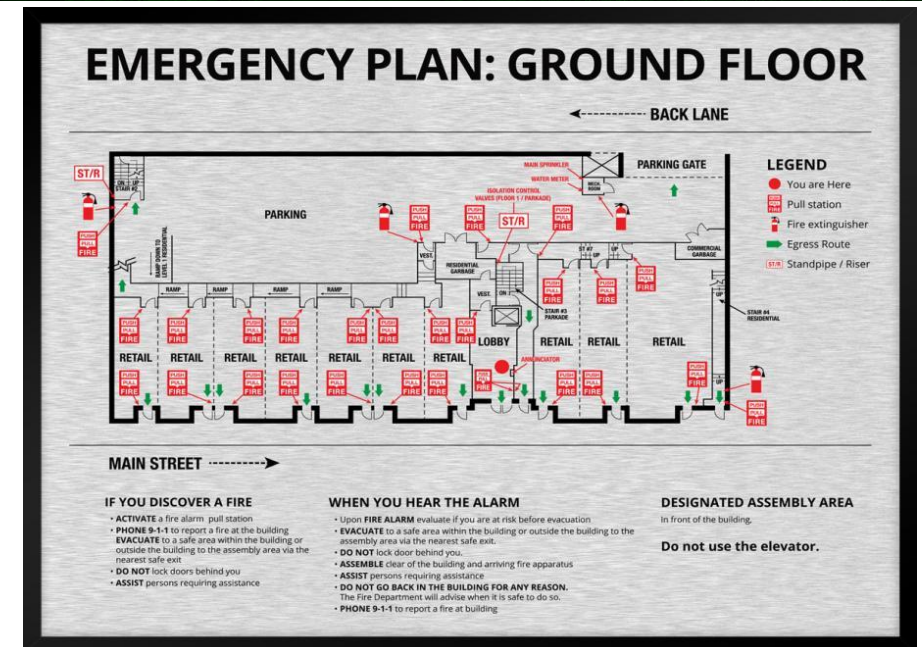
Robotics:

AI drones / robots assess hazards in buildings or in the landscape to feed active data back to the teams in the assembly area,



Example: 1

AI links in with Fire System / Elec System / intercom to self isolate the fire to a specific area in the building to prevent further damage.



Aligning with Aus Standards.

Integrating AI into AS Frameworks

- Standards Aus Roadmap 2020 calls for AI Standardisation in Safety Tech
- Voluntary AI Safety Standards (2024) gives 10 “guardrails” (transparency / reliability) to apply to Fire Safety.
- Future Possibilities: Updated AS1670.1 / 1851 to mandate an AI ready system.



Benefits for Australia

What AI Brings to the Table



Accuracy

Fewer false alarms improve trust in systems.



Speed

Faster detection aligns with AS 1670.1 goals



Forecasting

Track probability of incidents before they occur.



Resilience

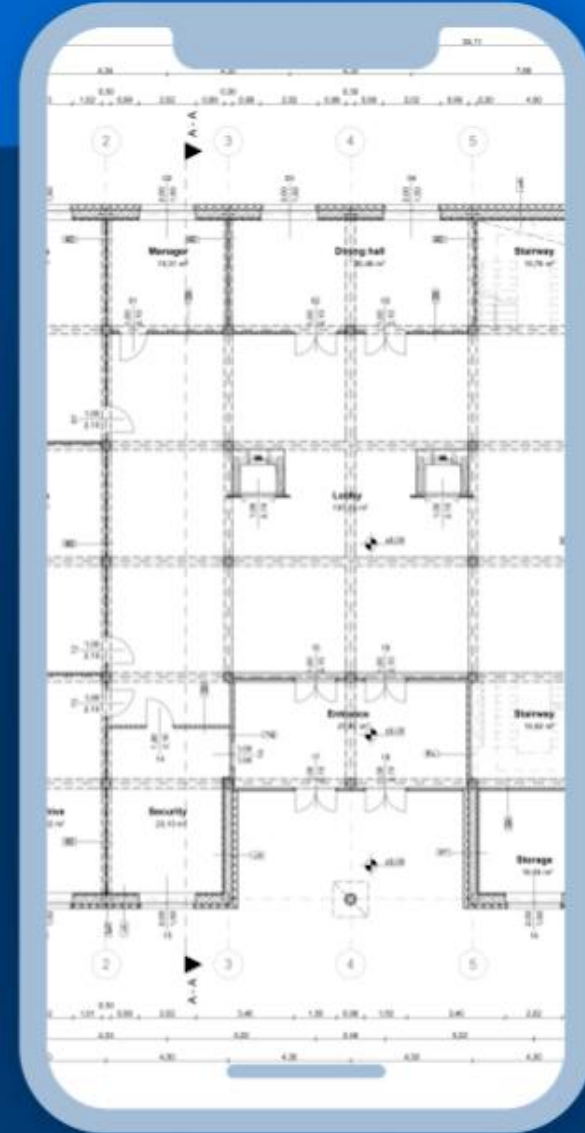
Protects bushfire prone areas under AS 3959



PlanRadar in Short

Our Mission

We make working together easier



A truly global player



With a local Australian expertise



image courtesy of www.pmc.gov.au

PlanRadar SiteView

360° reality capture

With SiteView, a simple site walk with a camera mounted on a helmet, delivers full 360° imagery, automatically mapped to the path walked on a 2D plan.

Streamline on-site visual documentation



Effortless reality capture

Get accurate visual documentation by simply walking the site.



View the site, even if you're not at the site

Access photo, progress and as-built documentation from anywhere.



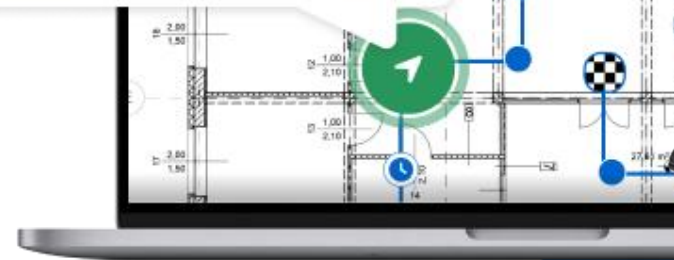
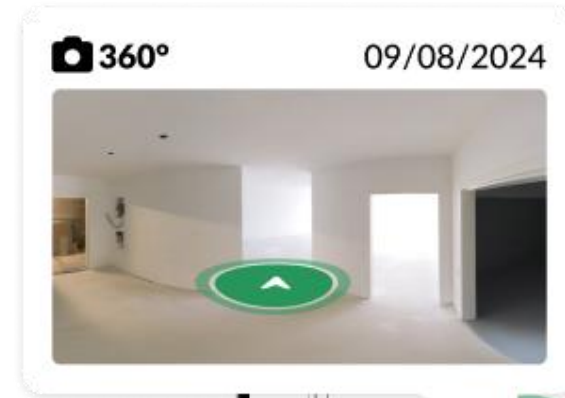
Elevate your documentation processes

Pin tickets on 360° images for enhanced documentation & communication.



Reduce rework for a high-quality build

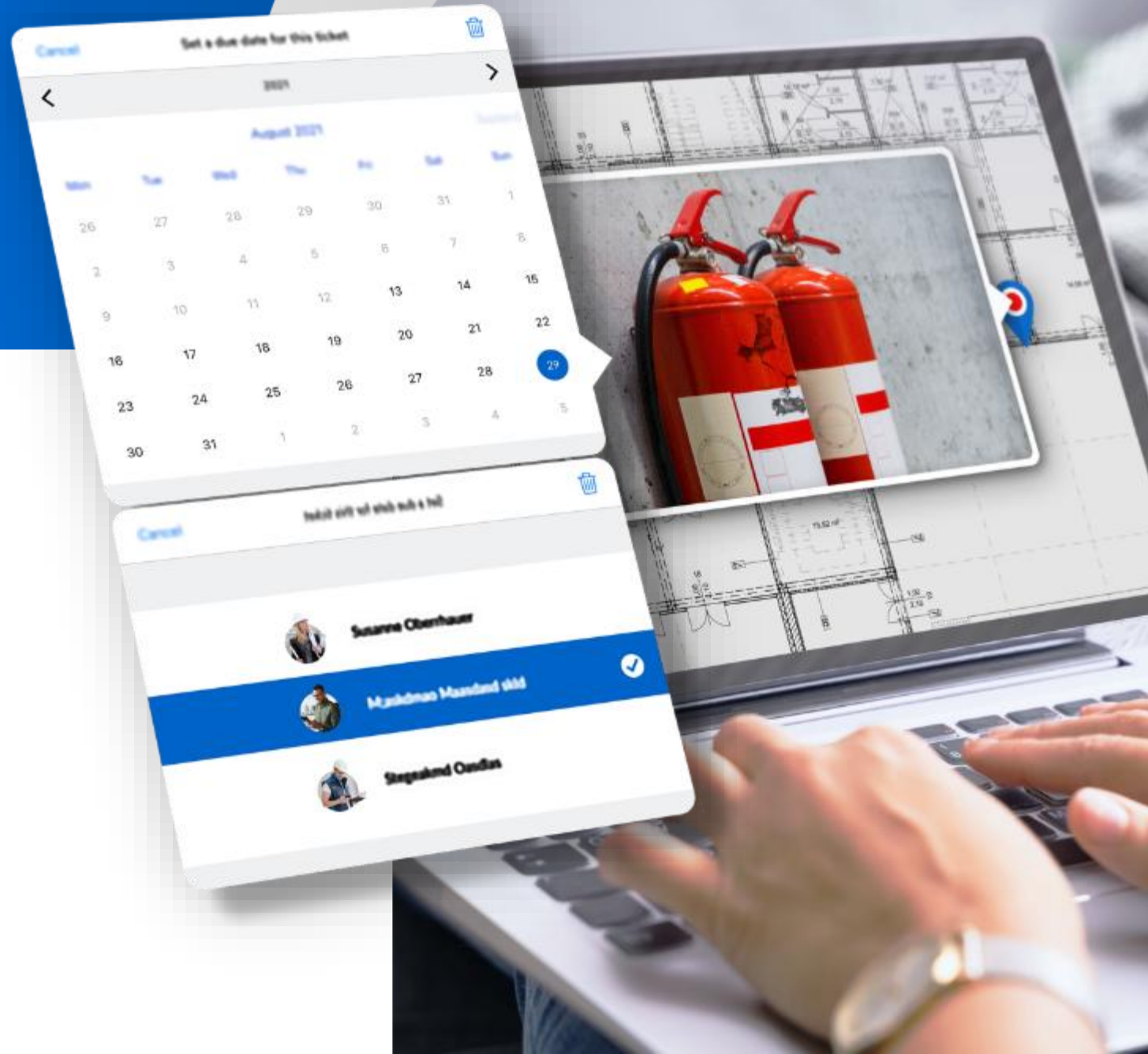
Compare progress over time and explore "behind the wall" views.



Fire Safety & FRAs

Ensure the highest fire safety standards on your projects

- Immediately capture and resolve risks on-site
- Upload photos, videos, plan annotations, documents, voice memos and comments for a complete picture of your findings
- Easily document facts during fire risk assessments
- Retrieve fire protection documentation at any time
- From regular fire safety assessments and fire safety checklists to EWS1 forms and more, build custom versions in PlanRadar and have your team complete them in the field



QR-codes & NFC tags

**Reduce the time it takes to find
the information and tasks you need**

- Place QR-codes or NFC tags on the construction site or equipment and link them directly to tickets in the system
- Scan QR-codes and NFC tags for quick access to information even without an internet connection
- Store all history of equipment maintenance or other information



Highly Secure and Reliable Environment

Compliance Certifications, operating in compliance with leading industry standards and certifications to ensure the safety of your data

- Encryption at rest
- Multi-factor authentication
- Single Sign-on
- Advanced Permission System
- Custom expiring password policies
- Biometric security for mobile apps
- High security mode
- PIN-protected & encrypted mobile Devices



GDPR regulates the processing of personal data by data processors within the European Union. In Accordance with the GDPR we ensure, among other things, the protection and confidentiality of all information



ISO 27001 provides a framework to identify, control and decrease risks associated with data security. PlanRadar is ISO 27001 certified, ensuring that all technical and organisational procedures in our data processing are at the highest standard



Don't just take our word for it – our customer survey results speak for themselves



Companies on average save

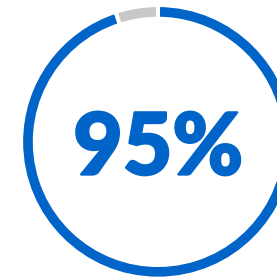
7 Hours/week
Per User

Our customers see an ROI of up to

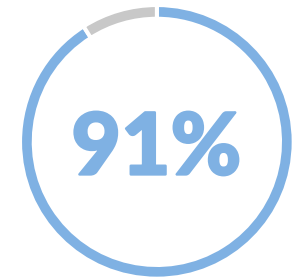
900 %



of our customers report a positive experience with PlanRadar*



of customers are likely to use PlanRadar in new projects



of subcontractors said PlanRadar is easy to use

Practice: Use of ChatGPT – prompt engineering

ChatGPT 4o ▾



Section_7_Smoke_control_systems_AS1...
Document

Act as an Australia fire safety consultant, preparing an email to a client, informing them about the requirements for installing automatic smoke detection systems. Prepare a draft of a technical specification

Email to Client

Subject: Technical Specification for Installation of Smoke Detection System – AS 1670.1:2018 Compliance

Dear [Client's Name],

I hope this message finds you well.

As part of your upcoming fire safety compliance and building system upgrades, we have reviewed the requirements set out in *Australian Standard AS 1670.1:2018 – Fire detection, warning, control and intercom systems – System design, installation and commissioning*, in relation to the installation of automatic smoke detection systems. Based on your request, I am pleased to share a preliminary technical specification for the deployment of **10 photoelectric smoke detectors**.

These specifications ensure full alignment with Australian fire safety standards and aim to achieve optimal coverage, reliability, and response in case of smoke detection.

Please see the attached draft of the technical specification for your review.

Should you require further clarification or wish to discuss installation coordination, do not hesitate to contact us.

Best regards,

[Your Full Name]

Fire Safety Consultant

photoelectric smoke detectors
the walls and the detectors.
standard AS 1670.1:2018 attached

Technical Specification (Extract)

Project Title: Supply and Installation of Photoelectric Smoke Detection System

Standard Reference: AS 1670.1:2018

System Type: Photoelectric Point-Type Smoke Detection

Detector Quantity: 10 Units

1. Detector Type & Standard

- Smoke detectors shall be photoelectric point-type detectors.
- All detectors shall be compliant with AS 3786 and connected to the Fire Detection Control and Indicating Equipment (FDCIE) as per Clause 7.5.1(a).

2. Detector Placement and Spacing

- Detectors shall be ceiling-mounted in accordance with Clause 7.5.2.1.
- The **maximum spacing** between detectors shall not exceed **15 metres**.
- Detectors must be installed **no more than 7.5 metres** from any wall, bulkhead, or perimeter boundary of the circulation space (Clause 7.5.1(c)).

3. Distance from Walls

- To avoid "dead air" space near junctions, detectors should be located a **minimum of 300 mm** away from any wall or ceiling obstruction.
- In rooms with fire-isolated exit pressurisation, smoke detectors adjacent to exits shall be positioned **between 300 mm and 1.5 m** from the door opening (Clause 7.5.4(a)).

4. Environment and Geometry Consideration

- Detectors shall be positioned at **natural collection points** for hot smoke, factoring in ceiling geometry and potential smoke migration paths (Clause 7.5.2.1).

5. Compliance & Labelling

- All detectors must be permanently labelled with detector ID, zone designation, and corresponding equipment identifier.
- System commissioning and final placement must comply with Appendix A of AS 1670.1:2018.



“The real promise of AI is not automation – it’s augmentation, helping humans to think and create in ways we’ve never imagined.”

– Kai-Fu Lee

Keep
in touch.
Thank you!

Dr. Vitaly Berezka

Regional Head
MENA & APAC

+61 413 156 881

@ v.berezka@planradar.com

www.planradar.com



PlanRadar Pty Ltd

Level 11, 10 Carrington Street,
Brookfield Place - Sydney -
Australia