

Fire Protection System Installation (Alarms and Sprinklers)

| | | |
|-------------------|--------|--------|
| Business Name: | | ABN: |
| Business Address: | | |
| Contact Person: | Phone: | Email: |

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

| | | |
|------------|--------|-------|
| Full Name: | | |
| Signature: | Title: | Date: |

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

| | |
|---|----------------|
| Client: | SCOPE OF WORKS |
| Project Name: | |
| Project Address: | |
| Project Manager: | |
| Contact Phone: | |
| Date Risk Assessment supplied to Project Manager: | |



| RISK MATRIX | | | | | | | | | |
|----------------|---------------|------------|------------|---------|--------------|-------------|-----------------------------------|---|--|
| LIKELIHOOD | INSIGNIFICANT | MINOR | MODERATE | MAJOR | CATASTROPHIC | SCORE | ACTION | HIERARCHY OF CONTROLS | |
| ALMOST CERTAIN | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4 ACUTE | | | Elimination Remove the hazard. | |
| LIKELY | 2 MODERATE | 3 HIGH | 3 HIGH | 4 ACUTE | 4 ACUTE | 4A ACUTE | DO NOT PROCEED | Substitution Replace the hazard. | |
| POSSIBLE | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACUTE | 4 ACUTE | 3H HIGH | Review before work starts. | Isolation Isolate People from the hazard | |
| UNLIKELY | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 4 ACUTE | 2M MODERATE | Ensure control measures in place. | Engineering Isolate the hazard | |
| RARE | 1 LOW | 1 LOW | 2 MODERATE | 3 HIGH | 3 HIGH | 1L LOW | Monitor and keep records. | Administrative Change | |
| | | | | | | | | PPE | |

| Risk Rating & Required Action: | |
|--------------------------------|---|
| 4A | Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required. |
| 3H | Review and approve additional controls before task starts. Senior supervisor sign-off needed. |
| 2M | Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions. |
| 1L | Proceed, following standard operating procedures. Monitor and keep records. |

| Consequence Scale: | | | |
|----------------------|---|--------------------|--|
| Consequence | People (injury/illness) | Project / Assets | Compliance / Reputation |
| Catastrophic | Fatality or permanent total disability | project shutdown | Significant regulator intervention; criminal prosecution |
| Major | Serious injury/illness (hospital > 5 days) | critical delay | Improvement notice; major media coverage |
| Moderate | Medical-treatment injury; lost-time > 1 day | moderate delay | Minor breach; adverse client comment |
| Minor | First-aid only, no lost time | negligible delay | Isolated non-conformance |
| Insignificant | No injury | no schedule impact | Deviation caught and corrected on site |

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. **Substitute**
3. **Isolate**
4. **Engineering**
5. **Administrative**
6. **PPE**

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.

| JOB STEP | POTENTIAL HAZARDS | IR | CONTROL MEASURES | RR |
|---|--|--------------|---|---------------|
| SPECIFIC WORK STEPS | HAZARDS THAT MAY ARISE | INITIAL RISK | SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS | RESIDUAL RISK |
| 1. WHS Governance, Legislative Compliance and Roles | <ul style="list-style-type: none"> Lack of clear WHS responsibilities for fire system installation and upgrades Inadequate understanding of WHS Act 2011 and WHS Regulations obligations for fire system work Failure to integrate essential services and fire protection legislation with WHS requirements No formal system to monitor changes in Australian Standards (e.g. AS 1670, AS 2118, AS 2419, AS 1851) Poor coordination of duties between PCBU, principal contractor, sub-contractors and building owner Insufficient consultation mechanisms with workers and Health and Safety Representatives (HSRs) | 4A | <ul style="list-style-type: none"> Develop and implement a WHS governance framework that defines duties, accountability and authority for fire protection system installation and maintenance activities Ensure compliance with WHS Act 2011, WHS Regulations and relevant Australian Standards for fire detection, alarms, sprinklers, in-ground mains and fire proofing systems Establish a formal legal register covering WHS and fire system standards, codes of practice and essential services requirements with a documented review schedule Define and document role descriptions and competency requirements for designers, project managers, supervisors, installers, testers and maintenance personnel Implement a written WHS management plan for projects involving fire alarm and sprinkler system installation, including interfaces with occupiers and occupants Establish consultation procedures with workers and HSRs on changes to work methods, equipment, and fire safety strategies Undertake periodic internal WHS compliance audits focused on fire system projects and address non-conformances through a corrective action process | 3H |
| 2. Design, Engineering and System Integration Risk Management | <ul style="list-style-type: none"> Inadequate fire system design not meeting performance requirements of Australian Standards Failure to coordinate alarm, sprinkler, fire main, heat detector and smoke detector design with building fire engineering strategy Incompatible interfaces between new and existing fire alarm panels, sprinklers and building management systems Poor consideration of maintainability and access for inspection, testing and servicing Undetected design errors resulting in coverage gaps, excessive false alarms or unreliable activation Lack of formal design risk assessment, including consideration of fire spread, structural fire protection and occupant warning needs | 4A | <ul style="list-style-type: none"> Require that fire alarm and sprinkler system design is undertaken or certified by suitably qualified and competent fire services engineers or practitioners of fire safety engineering Implement a documented design review and verification process, including independent checking of calculations, coverage layouts and interface cause-and-effect matrices Ensure design complies with NCC, relevant Australian Standards (e.g. AS 1670 series, AS 2118 series, AS 2419, AS 1530, AS 1851) and local authority / fire brigade requirements Conduct multi-disciplinary design coordination workshops (e.g. with structural, electrical, mechanical and architectural disciplines) to resolve clashes and integration risks Incorporate serviceability and safe access requirements for detectors, sprinkler heads, valves, pumps, in-ground mains and control panels into the design documentation Undertake a formal design risk assessment considering fire scenarios, false alarm triggers, potential for damage to critical equipment and interaction with passive fire protection Apply change control procedures for any design variations during construction, including evaluation of WHS and fire performance impacts before implementation | 2M |
| 3. Contractor Management and Competency Assurance | <ul style="list-style-type: none"> Engagement of installers or sub-contractors without appropriate | 3H | <ul style="list-style-type: none"> Implement a pre-qualification process for fire protection contractors that includes verification of licences, trade certifications, insurance, WHS performance and references | 2M |

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| | <ul style="list-style-type: none"> licences, trade qualifications or fire protection experience Inadequate verification of competencies for technicians working on alarms, sprinklers, in-ground mains and fireproofing No system to confirm familiarity with site-specific hazards, emergency procedures and client requirements Insufficient supervision of apprentices or new workers performing critical tasks such as detector placement or sprinkler head installation Inconsistent safety performance and non-compliance with company WHS procedures by sub-contractors | | <ul style="list-style-type: none"> Maintain a competency and training matrix for all personnel involved in fire system installation, including specific competencies for alarms, sprinklers, in-ground mains and fireproofing products Require evidence of current training in relevant Australian Standards, manufacturer installation requirements and essential services compliance Include WHS requirements, system performance obligations and reporting expectations in all contracts and purchase orders Ensure supervision plans are in place for apprentices, new starters and labour-hire workers, with competent supervisors nominated for each project Conduct periodic contractor performance reviews focusing on WHS, adherence to procedures and installation quality with corrective actions where required | |
| 4. Project Planning, Scheduling and Coordination with Other Trades | <ul style="list-style-type: none"> Poor project planning leading to high time pressure and unsafe shortcuts during installation and commissioning Clashes between fire system installation and other construction activities (e.g. ceiling truss, electrical, mechanical, structural steel fireproofing) Uncontrolled access to work areas by occupants or other contractors during critical fire system works Insufficient planning of outages or isolations when upgrading fire alarm or sprinkler systems Inadequate sequencing for in-ground fire main installation creating interface risks with civil works, traffic and underground services | 4A | <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> | 2M |
| 5. Design Documentation, Change Management and Records | <ul style="list-style-type: none"> Use of outdated drawings, specifications or cause-and-effect matrices during installation Uncontrolled design changes resulting in mismatches between installed systems and as-built documentation | 3H | <p>[REDACTED]</p> <p>[REDACTED]</p> | 2M |

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| | <ul style="list-style-type: none"> • Incomplete or inaccurate records of detector locations, sprinkler head types, in-ground mains routing and fireproofing materials • Loss of traceability for product approvals, test certificates and commissioning data • Miscommunication of changes between designers, installers, certifiers and building owners | | [REDACTED] | |
| 6. Technical Selection of Fire Detection, Alarm and Sprinkler Equipment | <ul style="list-style-type: none"> • Selection of incompatible detection and alarm components with control and indicating equipment • Use of non-compliant or non-listed sprinklers, valves, pumps, pipework or fittings • Improper selection of detector types (e.g. heat vs smoke) for the specific environment, leading to false alarms or failure to detect fire • Inadequate environmental protection for outdoor or harsh environment devices, including in-ground fire main components • Failure to consider interaction with other building systems such as HVAC shutdowns, smoke control and emergency warning systems | | [REDACTED] | 2M |
| 7. Quality Assurance, Inspection, Testing and Commissioning Systems | <ul style="list-style-type: none"> • Undetected installation defects in alarms, sprinklers, in-ground mains and fireproofing systems • Failure to identify and rectify non-conformances prior to handover • Incomplete or poorly executed commissioning resulting in unreliable operation of fire systems • Lack of documented functional testing of interfaces (e.g. detector to alarm, sprinkler flow to alarm, pump start) | 4A | [REDACTED] | 2M |

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| | <ul style="list-style-type: none"> No systematic approach for re-testing after modifications or rectifications | | [REDACTED] | |
| 8. Emergency Planning During Installation, Upgrades and Commissioning | <ul style="list-style-type: none"> Reduced fire protection coverage during system installation, upgrading or isolation of existing systems Confusion among workers and occupants regarding temporary evacuation arrangements Delayed response to fire or other emergencies due to reliance on partially completed systems Inadequate communication with emergency services regarding impaired fire protection systems Failure to manage fire loads and hot works in areas where systems are not fully functional | 4A | [REDACTED] | 2M |
| 9. System Reliability, Redundancy and False Alarm Management | <ul style="list-style-type: none"> Excessive false alarms causing complacency among occupants and emergency responders Single points of failure within alarm or sprinkler systems reducing reliability Inadequate monitoring of system faults, isolations and disablements Failure to analyse and address recurring faults or false alarm trends Inadvertent long-term isolation of detectors, zones, sprinkler valves or pumps following maintenance or construction activities | 3H | [REDACTED] | 1L |

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| 10. Maintenance, Inspection and Lifecycle Management Systems | <ul style="list-style-type: none"> • Failure of fire alarm, sprinkler and in-ground main systems due to inadequate ongoing maintenance • Lack of scheduling and tracking for routine inspections and testing per AS 1851 • Deterioration of fireproofing products reducing structural fire resistance • Undocumented modifications by tenants or other trades compromising system performance • Obsolescence of alarm and detection equipment without a planned upgrade strategy | 4A | [REDACTED] | 2M |
| 11. Training, Competency and Information for Workers and Building Users | <ul style="list-style-type: none"> • Workers lacking knowledge of correct installation standards and system interactions • Building management not understanding limitations of partially completed or upgraded systems • Inadequate instruction on operation of alarm panels, isolation controls and emergency procedures • Failure to provide up-to-date information to occupants on changes to evacuation signals or location of fire equipment | 3H | [REDACTED] | 2M |
| 12. Procurement, Storage and Handling of Fire System Materials | <ul style="list-style-type: none"> • Purchase of counterfeit or non-compliant fire detection, alarm and sprinkler components • Damage or degradation of sensitive equipment (e.g. detectors, electronics, fireproofing materials) due to poor storage conditions • Incorrect materials being installed due to inadequate labelling or segregation in storage | 3H | [REDACTED] | 2M |

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| | <ul style="list-style-type: none"> Supply chain disruptions leading to substitution of unapproved products | | [REDACTED] | |
| 13. Interface with Existing Buildings, Occupants and Operations | <ul style="list-style-type: none"> Disruption to normal building operations and critical services during installation or upgrades Inadequate communication with occupants about noise, access restrictions, or temporary loss of fire protection coverage Uncontrolled dust, vibration or other impacts affecting sensitive equipment or health of occupants during detector and sprinkler installation Failure to manage heritage or special-use areas where standard fire system approaches may be unsuitable | 3H | [REDACTED] | 2M |
| 14. Environmental and Underground Services Risk Management (In-Ground Fire Mains) | <ul style="list-style-type: none"> Damage to underground utilities (gas, electrical, communications, water, sewer) during in-ground fire main installation Soil contamination or uncontrolled discharge of water during air flushing of fire mains Erosion, instability or collapse of excavations affecting fire main integrity over time Inadequate protection of buried fire mains from corrosion, physical damage or vehicle loading | 3H | [REDACTED] | 1L |
| 15. Continuous Improvement, Incident Reporting and Audit | <ul style="list-style-type: none"> Repeat failures or near misses due to lack of learning from past incidents Systematic weaknesses in design, installation or maintenance processes remaining undetected | 3H | [REDACTED] | 2M |

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| | <ul style="list-style-type: none"> • Non-compliance with internal procedures and external requirements not being identified or addressed • Lack of worker involvement in identifying system and management issues with fire protection activities | | <div style="background-color: black; height: 15px; width: 100%;"></div> | |
| | | | | |

SAMPLE

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2011
 Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>
 Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>
 Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>
 Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

Victoria

Occupational Health and Safety Act 2004
 Occupational Health and Safety Regulations 2017
 Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>
 Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

New South Wales

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2025
 Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>
 Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

Western Australia

Work Health and Safety Act 2020
 Work Health and Safety Regulations 2022
 Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>
 Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

Northern Territory

Work Health and Safety (National Uniform Legislation) Act 2011
 Work Health and Safety (National Uniform Legislation) Regulation 2011
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>
 Codes of Practice NT: <https://worksafe.nt.gov.au/laws-and-compliance/codes-of-practice>

Safe Work Australia Links

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>
 Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

South Australia

Work Health and Safety Act 2012 (SA)
 Work Health and Safety Regulations 2012 (SA)
 Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>
 Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

Tasmania

Work Health and Safety Act 2012
 Work Health and Safety (Transitional and Consequential Provisions) Act 2012
 Work Health and Safety Regulations 2012
 Work Health and Safety (Transitional) Regulations 2012
 Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>
 Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.