Structural Heavy Demolition and Induced Collapse

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE 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:

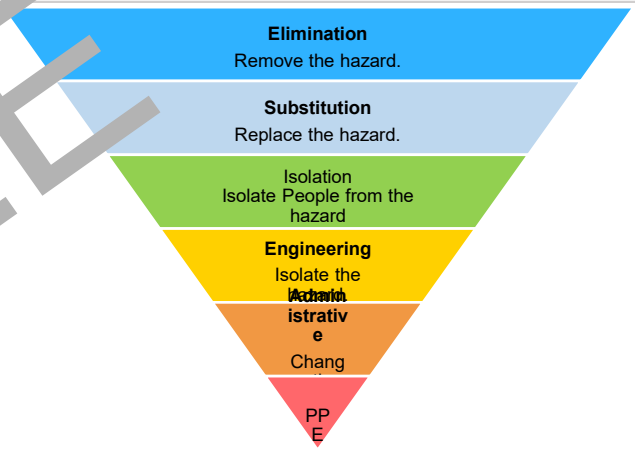
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. 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. Demolition Project Governance & WHS Legal Compliance	• Inadequate understanding of WHS Act 2011 and WHS Regulations as they apply to structural demolition and induced collapse • Lack of clear PCBU roles, responsibilities and consultation arrangements between client, principal contractor and specialist demolition contractor • Failure to appoint a competent demolition contractor for high-risk structural heavy demolition and controlled implosive works • Insufficient WHS budget allocation for engineering studies, monitoring technology and supervision • Poor integration of WHS obligations into procurement and contract conditions • Inadequate WHS performance standards, KPIs and reporting for the demolition phase	4A	• Develop and implement a demolition governance framework that clearly defines PCBU duties, officer due diligence, and worker consultation in line with the WHS Act 2011 and relevant state/territory Codes of Practice for Demolition Work • Ensure procurement processes mandate selection of licensed, experienced and prequalified demolition contractors with demonstrated competence in structural heavy demolition, controlled collapse and implosive demolition • Embed specific WHS obligations, minimum engineering requirements, and incident reporting expectations into contracts and scopes of work for all activities involved in structural dismantling and partial building demolitions • Undertake officer due diligence activities such as commissioning independent WHS audits, design reviews, and structural risk assessments relating to alterations of original building structures and progressive demolition methodologies • Develop a project-specific WHS Management Plan for demolition that integrates demolition methodology, structural engineering verification, emergency planning and change-management controls • Establish regular WHS governance meetings with documented action tracking, focusing on high-risk items such as managing safe damaged buildings, partial collapses and concrete pile removal • Implement WHS performance indicators for demolition works, including lead indicators (engineering sign-offs, inspections completed, non-conformance closure) and lag indicators (incidents, near misses involving structural instability)	3H
2. Structural Engineering Assessment & Design Verification	• Inadequate structural assessment of existing buildings, masonry walls, elevator shafts and concrete piles prior to demolition • Unknown or undocumented alterations to the original building structure affecting load paths and stability • Incorrect assumptions about structural redundancy during partial dismantle or enlargement of elevator openings • Failure to identify defective or faulty masonry, damaged buildings or partially collapsed elements which may collapse unexpectedly • Insufficient structural analysis of induced collapse sequences and controlled implosive demolition • Lack of independent engineering verification of demolition design and collapse models	4A	• Require a comprehensive structural engineering survey and condition assessment of existing structures, including concealed elements and prior alterations, before finalising the demolition strategy • Implement a mandatory structural engineering design process for heavy demolition, structural dismantling, controlled collapse, and controlled implosive demolition, including clearly defined load paths and temporary supports • Ensure demolition plans address specific activities such as creating gateways through existing walls, enlarging elevator openings, removal or alteration of structural components, and concrete pile removal with validated engineering calculations • Require engineers to assess and document risks from masonry wall collapse, partial building collapses and incorrect dismantling procedures, including worst-case and progressive failure modes • Mandate independent peer review of structural demolition design and induced collapse methodology for complex or high-risk structures • Maintain a design change management procedure that requires engineering sign-off for any variation to layers and sequences of demolition, temporary works or structural support arrangements • Implement a system to retain and version-control all engineering calculations, drawings, models and design verification records for audit and reference	2M

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3. Demolition Planning, Methodology & Sequencing Management	• Demolition plan not adequately addressing structural interdependencies and progressive load transfer • Inappropriate layers and sequences of demolition increasing the risk of unplanned collapse • Poor planning for partial building collapses and safety during partial dismantle • Demolition methodology not aligned with actual condition of the structure, including damaged or deteriorated elements • Inadequate planning for gateway creation through existing walls and enlargement of elevator openings in load-bearing masonry • Uncoordinated planning for demolition of old structures that do not meet contemporary design standards • Insufficient consideration of progressive demolition staging and access/egress changes during structural dismantling	4A	• Develop a project-specific demolition plan that describes the overall demolition philosophy, target collapse mechanisms, and high-level sequencing for structural dismantling and controlled collapse activities • Ensure the demolition plan explicitly details the required layers and sequences of demolition for major structural components, including concrete frames, masonry walls, piles, and elevator cores • Integrate structural engineering requirements into the demolition plan, ensuring safe progression for partial demolitions, temporary safe of damaged buildings and managing residual stability of remaining parts of the structure • Incorporate planning controls for specific tasks such as creating gateways through existing walls, demolishing brickwork, dismantling faulty masonry structures, enlarging elevator openings and removal or alteration of structural components • Implement a formal review and approval process for the demolition plan involving project management, structural engineering, WHS and the demolition contractor before work commences • Establish a controlled change-management procedure that requires formal re-assessment and sign-off of the demolition plan when site conditions vary from assumptions or damage is discovered • Develop and maintain high-level staging drawings and 3D visualisations to communicate intended sequences and collapse boundaries to supervisors and key personnel	2M
4. Temporary Works Design, Propping & Structural Stability Systems	• Insufficient temporary propping, bracing or shoring during partial dismantle and structural demolition • Unengineered removal of key structural elements leading to loss of global stability • Inadequate systems for managing risk from incorrect dismantling procedures of masonry walls, beams and load-bearing components • Failure of temporary works under unanticipated loads, wind actions, or vibration from demolition equipment • Poor inspection and maintenance regime for temporary works over the duration of progressive demolition	4A	[redacted]	2M

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	• Unclear ownership and responsibility for design, installation, modification and removal of temporary works		[redacted]	
5. Controlled Collapse & Implosive Demolition Management	• Uncontrolled or premature collapse during induced collapse and implosive demolition activities • Inaccurate prediction of collapse behaviour due to unknown structural modifications or degradation • Failure to adequately design and verify blast or pull-down patterns for controlled collapse • Inadequate control of exclusion zones and public protection systems during induced collapse events • Lack of contingency planning for parti building collapses or incomplete collapse following an in • Insufficient blast v ration and overpressure man ement aff adjacent structures	4A	[redacted]	2M
6. Management of Adjacent Structures, Services & Interfaces	• Unrecognised load shari structural interaction between the building being demolished and neighbouring structures • Damage to adjacent buildings, including masonry wall collapse, due to vibration, impact or unplanned collapse • Inadequate isolation and protection of essential services (gas, electricity, water, communications) during heavy demolition and induced collapse • Inappropriate sequencing of demolition near live plant, public roads or rail infrastructure	3H	[redacted]	2M

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	• Lack of coordination with asset owners and local authorities regarding service isolations and structural interfaces		[redacted]	
7. Site Access, Exclusion Zones & Public Interface Control	• Unauthorised access by workers or the public into high-risk structural demolition zones • Poorly defined or inadequately enforced exclusion zones during structural collapses, partial dismantling and implosive demolition • Inadequate traffic and pedestrian management around the boundary of demolition sites • Insufficient control of site access poin during critical structural dismantling operations • Failure to adapt e clusion zones and access routes as l ers and es of demolition progre	3H	[redacted]	1L
8. Contractor Competency, Training & Supervision Systems	• Engagement of demolition workers or supervisors without sufficient competency in structural heavy demolition and partial dismantling • Inadequate training in recognising structural instability, masonry wall collapse indicators and damaged buildings • Poor supervision during high-risk activities such as controlled collapse, dismantling faulty masonry structures and concrete pile removal	3H	[redacted]	2M

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	• Lack of competency in interpreting demolition plans, engineering drawings and structural sequencing requirements • Insufficient verification of licences, qualifications and experience for specialist roles (e.g. blasting engineers, riggers, plant operators)		[redacted]	
9. Plant, Equipment & Maintenance Systems for Structural Demolition	• Use of unsuitable or poorly maintained plant for heavy demolition and structural dismantling • Equipment failure during critical structural cuts, lifts or pulls, leading to unplanned collapse • Lack of engineering controls on demolition plant (e.g. load limiting, slew restriction) relevant to induced collapse operations • Inadequate inspection and maintenance regimes for specialist equipment used in concrete pile remova and masonry dismantlin • Improper integrati between plant capability and eng eered demoli sequences	3H	[redacted]	2M
10. Monitoring, Inspection & Structural Condition Surveillance	• Failure to detect progressive structural deterioration or unexpected movement during demolition • Inadequate inspection frequency for partially demolished or damaged buildings • Lack of systematic monitoring for cracks, deflection, settlement or masonry wall instability • Overreliance on ad hoc observations rather than structured inspection systems	3H	[redacted]	1L

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	• Delayed response to warning signs of partial building collapses or temporary works failure		[redacted]	
11. Change Management & Design Variation Control	• Uncontrolled changes to demolition methodology, sequences or structural supports on site • Field decisions by supervisors or operators that bypass engineering assumptions and design limits • Failure to reassess risk when site conditions differ from original structural assessments • Inadequate communication of design variations to all affected workers and subcontractors • Cumulative impact of minor undocumented changes increasing risk of partial collapse	3H	[redacted]	1L
12. Emergency Preparedness, Partial Collapse & Rescue Planning	• Insufficient planning for emergencies involving partial building collapses or masonry wall failures • Lack of clear procedures for evacuation, site control and rescue after unplanned structural events • Inadequate coordination with emergency services regarding structural hazards and access constraints • Failure to plan for secondary collapse risks during rescue or make-safe operations • Poor communication systems for rapid notification of structural emergencies across the site	3H	[redacted]	2M

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			[redacted]	
13. Health, Fatigue & Psychosocial Risk Management for Demolition Teams	• Fatigue and reduced decision-making capacity during extended demolition shifts or critical collapse operations • Stress and psychological impacts associated with high-risk structural demolition and implosive events • Complacency or risk normalisation when working for extended periods around unstable structures • Inadequate reporting and management of health conditions that may affect fitness for work in demolition environments	2M	[redacted]	1L
14. Documentation, Records & Continuous Improvement	• Incomplete or ina[redacted]curate rec[redacted]f demolition design, [redacted] and structural decisions • Loss of critical information need[redacted]or incident investigation or l[redacted] compliance • Failure to capture lessons learned from structural heavy demolition and induced collapse projects • Inability to demonstrate compliance with WHS Act 2011 due diligence requirements	2M	[redacted]	1L

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

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-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/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

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.

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

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

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

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