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Safety in Design Report May 2023

25-29 Prospero Street, Maryland, NSW
General Housing Development (x9)

Safety In Design

Project	General Housing Development (x9)
Job Number	2869.23
Date	19/05/21
Location	25-29 Prospero Street, Maryland, NSW

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1.00 Introduction

1.01 Purpose of Report

This report and the associated processes are intended to satisfy the Work, Health and Safety Act 2011 Section 22 and also Clause 61(3) and Clause 295 of the Work Health and Safety Regulation 2011.

1.02 Process for Architectural Safety in Design

The adopted process for this report is based upon Workcover NSW's Safety in Design Tool that addresses our obligations under Safety in Design (SiD) Legislation by a series of CHAIR reviews. CHAIR stands for Construction Hazard Assessment Implication Review.

Each CHAIR has a list of guidewords and associated risk issues that are to be identified, assessed, and then managed through either elimination or control. Any unique risks that the design raises in addition to any generic risks that are identified in the pro forma checklists are to be addressed.

- **Hazard Identification:** Requires the systematic identification of all potential architectural related hazards that could result in injury or illness throughout the lifecycle of the building or structure.
- **Risk Assessment:** Requires an assessment and prioritisation of each identified risk. Risk's are assessed against the following criteria:
 - Likelihood of Hazard Occurring (H – High, expected to occur; M – Medium, may occur; L – Low, unlikely to occur)
 - Implication if Hazard Occurs (H – High, serious injury or death; M – Medium, significant injury; L – Low, inconvenience, possible injury)
 - Level of Risk (1: Very Low (LxL); 2: Low (LxM or MxL); 3: Medium (MxM); 4: High (MxH or HxM); 5: Very High (HxH).....levels 3, 4 and 5 MUST be managed
- **Risk Elimination or Control:** Requires those risks rated Medium or higher to be eliminated or If the risk cannot be eliminated, use measures to reduce the risk as far as 'reasonably practicable'.

1.03 Limitations

The report is intended to identify the major and reasonably foreseeable risks, which may impact on the safety of parties involved in:

- the construction of the structure or demolition of existing structures
- the use of the structure
- the maintenance of the structure
- any future modifications of the structure
- the demolition of the structure

1.04 Reference Legislation and Codes

Work Health and Safety Act, 2011; NSW Work Health and Safety Amendment Act 2011; NSW Work Health and Safety Regulation 2011; National Construction Code of Australia; Australian Standards

2.00 Safety in Design Reports



Safety In Design - Architectural

Project General Housing Development (x9)
Job Number 2869.23
Date 19/05/23
Location 25-29 Prospero Street, Maryland, NSW

CHAIR # 1
Revision 1

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
Site Considerations						
1		Other property's neighbouring the site will be occupied during construction	People will be in the immediate vicinity of the site, including the access to the site Likelihood = L	Consequences = M	Secure site compound to be created; All construction related traffic is to be monitored entering and exiting the site and site access; Designated pedestrian pathways are to be created	Removal of the risk is not fully possible given the nature of the surrounding properties as occupied homes
2		Project site is immediately adjacent some regularly used internal roads	Traffic in close proximity to construction site and associated hazards Likelihood = L	Consequences = M	Secure site compound to be created; All construction related traffic is to be monitored entering and exiting the site and site access; Designated pedestrian pathways are to be created	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
	Toxicity					
3		Possible presence of lead and/or asbestos on the site and in the ground	Existing soil condition is unknown but is in an established area of Sydney known to have buried lead and/or asbestos Likelihood = L	Consequences = M	Excavation has been limited in the design; All industry practices to be followed in removal of asbestos	Removal of the risk is not fully possible
	Environmental Impact					
4		Dust/Noise/Seepage	Both during construction and demolition there is risk of increased dust/noise/seepage from the site Likelihood = L	Consequences = L	All industry practices to be followed during these phases of the buildings lifecycle	Removal of the risk is not fully possible
	Egress / Access					
5		No of exit points	Must ensure that there are sufficient exit points Likelihood = L	Consequences = M	More than the required number of egress points included in design	Removal of the risk is not fully possible
6		Size of emergency Egress	Must ensure that there are sufficient exit points left 'clear' and always operational Likelihood = L	Consequences = M	Required number of egress points included in design; Egress widths have been increased to reduce risk of anything blocking the exit	Removal of the risk is not fully possible; Occupants must ensure exits remain clear at all times
7		Lighting	Risk that exit points will not be visible and readily usable in the event of an emergency Likelihood = M	Consequences = M	Emergency lights are to be installed to ensure visibility in the event of an emergency	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
	Building Design					
8		Window Operation and Replacement	A number of 'highlight' windows are in areas that may require working at heights Likelihood = L	Consequences = H	Windows have been designed to be replaced from 'inside' the building	Removal of the risk is not fully possible
9		Above Ground Tank				No above ground tank installed on site
10		Structural Engineering	Failure of pre-fabricated and site constructed structure Likelihood = L	Consequences = H	Construction must allow for construction loads and have a predictable sequence for its eventual demolition	Removal of the risk is not fully possible; Builder/Designer must beware of changing the design and not recording changes in the SiD report or WAE drawings
11		Cleaning Roof and Roof Void	Risk of working at heights associated with cleaning the roof and accessing the roof void Likelihood = M	Consequences = M	Certified roof access system is to be installed to the roof and the roof void to allow for safe access	Removal of the risk is not fully possible; safe work methods are to be employed when using roof access system
12		Retaining Walls and Elevated Decks	Risk of falling from heights and failure of elevated/retained structures Likelihood = L	Consequences = M	Balustrades to be installed; soft fall surfaces to be employed wherever possible	Removal of the risk is not fully possible; Balustrades to be checked at regular intervals
13		Raking Ceilings	Working at heights to replace lights and other ceiling mounted items Likelihood = L	Consequences = L	Safe work methods will need to be employed to work on the raking ceiling	Removal of the risk is not fully possible
14		Large Span Openings				No carports on development

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
	Ease of Initial Construction					
15		Sequencing	Construction and demolition activities imposing injury risk on surrounding properties Likelihood = M	Consequences = M	Nature of the building has been reduced to a series of small parts that can be sequenced by builder/demolition teams; Close communication required with surrounding properties; Designer has designated a 'builders compound' which can also be used during demolition	Removal of the risk is not fully possible; workplace areas outside of the compound are inadequately defined
	Building Materials					
16		Slippery Floors	Risk of slip on wet surfaces Likelihood = H	Consequences = H	Slip resistant tiles and paints are specified by designer	Removal of the risk is not fully possible; wet cleaning of other surfaces with low slip resistance
17		Breathing Hazards	Risk of breathing hazards from VOC's and fine particles Likelihood = M	Consequences = H	Safe work methods are to be employed by construction/renovation/demolition teams; Low VOC materials specified by designer	Removal of the risk is not fully possible
18		Paints	Risk of VOC's associated with the paints that can be used Likelihood = M	Consequences = H	Safe work methods are to be employed by construction/renovation/demolition teams; Low VOC materials specified by designer	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
19		Glues	Risk of VOC's associated with the glues and adhesives that can be used Likelihood = M	Consequences = H	Safe work methods are to be employed by construction/renovation/demolition teams; Low VOC materials specified by designer	Removal of the risk is not fully possible
	Environmental Conditions					
20		Extreme Weather	Risk of flood and damage due to extreme weather Likelihood = M	Consequences = M	Standard materials have been employed in the design allowing easy replacement; Overland flow paths are designed to control direction of flood waters	Removal of the risk is not fully possible
21		Temperature	Risk of extreme heat/cold in various seasons Likelihood = M	Consequences = M	Good passive controls including ventilation and solar control employed in design and abundant insulation to help reduce temperature differences inside the building	Removal of the risk is not fully possible
	Utilities & Services					
22		Lighting	Risk that insufficient light will be provided in certain critical areas; Working at Heights risks to replace lights	Consequences = H	Additional 'backup' lights installed at critical areas including entry's, exits and areas where unrestrained falls can	Removal of the risk is not fully possible; maintenance will need to be regularly carried out

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
			Likelihood = M		occur; Safe Work Methods to be employed to replace lights/lamps on a regular basis; Maintenance to be regularly carried out on critical lighting	
23		Air	Risk of insufficient ventilation to the building Likelihood = L	Consequences = H	Designer has provided operable fenestration to all habitable spaces	Removal of the risk is not fully possible
24		Electricity	Risk of electrocution in the building Likelihood = H	Consequences = H	A safety switch is to be installed in the building	Removal of the risk is not fully possible
	Documentation					
25		Operations and Maintenance Manuals	Risk that operations and maintenance manuals are not thoroughly documented and handed over at end of the project Likelihood = L	Consequences = L	Operations and Maintenance Manuals to be thoroughly documented and handed over at end of each life cycle stage	Removal of the risk is not fully possible
26		Inspection and Testing	Risk that required inspections and testing is not regularly completed Likelihood = M	Consequences = M	All inspections and testing is to be documented in the specification and by the builder and is to be regularly completed in accordance with documentation provided at handover of project; designer has located plant and equipment in	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
					easy to access places to facilitate inspections	
27		Emergencies	Risk that an emergency may not have a clearly defined response Likelihood = M	Consequences = H	Emergency Drills and procedures are to be established during the construction/demolition and occupancy phases; Signage is to be provided around the building	Removal of the risk is not fully possible
28		Records and Reports	Risk that records and reports will not keep abreast of changes during construction/occupancy of the building Likelihood = L	Consequences = M	Records for the building are to be updated with any change during the buildings lifecycle	Removal of the risk is not fully possible
	Construction					
29		Sequencing	Construction and demolition activities imposing injury risk on surrounding properties Likelihood = M	Consequences = M	Nature of the building has been reduced to a series of small parts that can be sequenced by builder/demolition teams; Close communication required with surrounding properties; Designer has designated a 'builders compound' which can also be used during demolition	Removal of the risk is not fully possible; workplace areas outside of the compound are inadequately defined
30		Equipment requirements	Risk of injury associated with equipment being poorly maintained	Consequences = H	All equipment to be regularly inspected	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
31		Working at Heights	Likelihood = M Risks associated with working at heights Likelihood = M	Consequences = H	Safe Work Methods are to be employed when working at heights; Safety equipment is to be used at all times	Removal of the risk is not fully possible
32		Scaffolding	Risks associated with working at heights and items dropping from heights Likelihood = M	Consequences = H	Safe Work Methods are to be employed when working on and around scaffolds; temporary balustrade is to be installed to scaffolds; Safety equipment is to be worn at all times around scaffold	Removal of the risk is not fully possible
33		Confined Spaces	Risks associated with working in confined spaces Likelihood = M	Consequences = M	Designer has minimised the number of confined spaces associated with the building; Safe Work Methods are to be employed when working in confined spaces	Removal of the risk is not fully possible
	Demolition					
34		Ease of demolition and other issues	Risk of injury associated with demolition of building at end of life span Likelihood = M	Consequences = M	Safe work method statements are to be prepared acknowledging and addressing this risk; Standard materials have been employed in the design allowing industry experience to be used to design appropriate demolition techniques; Demolition compound to	Removal of the risk is not fully possible; demolition compound may still result in poorly defined work zones outside of compound

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
					be established around building during demolition	
	Commission / Startup / Shutdown					
35		Requirements	Risk that manufacturer requirements will not be employed by those commissioning, using, starting and stopping equipment Likelihood = L	Consequences = M	Manufacturer requirements to be followed by construction/occupant/demolition teams	Removal of the risk is not fully possible
36		Sequencing	Risk that equipment could be installed or removed from the building in incorrect sequence resulting in injury or loss of life Likelihood = M	Consequences = M	Safe work method statements are to be prepared acknowledging and addressing this risk; designer has located plant and equipment in easy to access places; Work as Executed Drawings and Manuals to be kept up to date during lifecycle of building	Removal of the risk is not fully possible
37		Inspection	Risk that equipment is not regularly inspected Likelihood = M	Consequences = M	All equipment to be regularly inspected in accordance with documentation provided at handover of project; designer has located plant and equipment in easy to access places to facilitate inspections	Removal of the risk is not fully possible

No.	guideword	risk issue(s)	nature &/or causes of the risk (likelihood – l/m/h)	consequences (implication – l/m/h)	Safeguards and mitigation by designer	action(s) and residual risk
38	Ergonomics	Posture and manual handling	Some large and heavy items are to be installed and used within the building Likelihood = L	Consequences = L	Corridor widths have been widened to allow lifting aids to be used within the building and minimise risks due to manual handling without assistance	Removal of the risk is not fully possible



SAFETY IN DESIGN

25 - 29 Prospero Street, Maryland

NO.	Guideword	Risk Issue(s)	Causes	Consequences	Safeguards	Action(s)
1	Demolition	Hazardous materials present on site	Presence of asbestos and lead	Health risk to workers	Ensure correct protective measures in place	Note made on architectural plans and project supplement
2	Landscape installation	Movement of bulk materials	Spreading of soil/ mulch materials	Risk of injury to workers from earth works machinery	Temporary fence off areas	Contractor to provide safe work statement and install fencing
3	Spraying herbicide	Herbicide treatment to weeds and lawn	Risk of exposure to contractors	Poisoning of contractors	Follow manufacturers guidelines	Contractor to ensure workers are trained in herbicide safe spraying practices
4	Egress/Access	Accessing utilities such as water meters and electrical cupboards	Falling/tripping	Injury to workers	Water and Gas meters and electrical cupboard can be accessed via the ground floor.	Note made on architectural plans
5	Slip	Water on path	Excessive rain	Injury to residents	Ensure adequate drainage to minimise water sitting on pathways	Specification of surface material must be slip resistant. Ensure adequate drainage is specified and installed during construction
6	Fall	Crossovers	Trip hazard at edge of concrete	Injury to pedestrians	Ensure edges of paths and driveways are flush with surrounding surface	Building contractor to ensure this during construction
7	Slip	Foliage or fruit dropped from trees	Fruit or flowers falling on pathways	Injury to residents	Ensure selected plant species near paths to not drop berries etc	Ensure any pathways are cleaned regularly
8	Crime	CPTED - Crime Prevention Through Environmental Design	Areas for people to hide within gardens	Injury or theft	Ensure adequate lighting and reduce areas of planting where people can hide. Ensure clear sight lines	Lighting to be on at night. Garden maintenance to be carried out periodically to ensure plants do not overgrow the specified location



CIVIL SAFETY IN DESIGN

**PROPOSED RESIDENTIAL DEVELOPMENT
25-29 PROSPERO STREET MARYLAND**

**PREPARED FOR
LAHC**

**ARCHITECT
STANTON DAHL ARCHITECTS**



Background

The Australian Safety and Compensation Council (ASCC) leads and coordinates national efforts to prevent workplace death, injury and disease in Australia and aims to improve national workers' compensation arrangements and return to work of injured employees.

This report provides information and advice on eliminating hazards and controlling risks at the design stage to persons involved in the design or modification of products (including buildings, structures, equipment and vehicles), processes used for work as well as maintenance and repair of products.

The risk level shown Appendix A follows the table shown in Figure 1.

Risk Assessment Table					
		Consequences			
		Major e.g. death, disability, large financial loss	Serious e.g. serious injury, cash flow shortage	Minor e.g. first aid injury, temporary supply shortage	Insignificant e.g. incident but no injury, non- essential staff ill
Likelihood	Very likely, almost certain to happen	Extreme risk	High risk	High risk	Medium risk
	Likely, will probably happen at some time	High risk	High risk	Medium risk	Medium risk
	Unlikely, could happen at some time	High risk	Medium risk	Medium risk	Low risk
	Very unlikely, might happen rarely	Medium risk	Medium risk	Low risk	Low risk

Figure 1. Risk Assessment Table

Appendix A

Safety in Design Risk Register – Civil Services

Hazard	Description	Likelihood	Severity	Risk Level	Mitigation Strategy	Residual Risk	Implementation		
							Action By	Due Date	Completed
During Construction									
Site Planning/Excavation	Damage of services during excavation	Likely	Serious	High	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Perform Dial Before You Dig Survey Inground Services.</div> <div>- Ensure care is taken in locating services prior to excavation.</div> <div>- Manually excavate around areas where services are anticipated to be located.</div> <div>- Clearly identify inground services locations and record them for future reference.</div>	Low	Principal Contractor		
Manual Work	Lifting of stormwater assets may result in injuries	Likely	Minor	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Coordinate in a team to lift heavy objects.</div> <div>- Use mobile lifting equipment to help in lifting and moving heavy objects where accessible.</div>	Low	Principal Contractor		
Hazardous Substance	Use of PVC-U solvent cement/primer	Likely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Use appropriate safety equipment such as mask and gloves when handling equipment</div> <div>- Conduct work in a well-ventilated space</div>	Low	Principal Contractor		
	Use of solder flux	Likely	Serious	Med					
Fire and Emergency	Sparks from cutting and welding could initiate fire when in contact with flammable liquid. Any activity involving open flames (i.e. soldering pipework) capable of initiating fire or explosions	Unlikely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- All personnel are to be inducted on emergency evacuation equipment and procedures.</div> <div>- Avoid hot works where possible, this may be done via use of press fit compression fittings for water/gas services.</div> <div>- Contractor to complete a hot works permit to identify and manage/control risks associated with works.</div> <div>- Contractors need to provide the appropriate fire suppression equipment.</div>	Med	Principal Contractor		
Electrical	Overloading due to the use of numerous electrical equipment could result in overheating and may cause fire.	Very Unlikely	Serious	Med	<div>- Electrical installations should comply with AS 3000 and the requirement of the local electricity supply authority.</div> <div>- Ensure dedicate construction power supply is available.</div> <div>- Flexible cables should be kept to a minimum. Plug/socket connections by flex cable should be mechanically protected</div>	Low	Principal Contractor		
Electrical	Potential for electrocution when undertaking works on or near energized electrical installations or services	Unlikely	Major	High	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Isolate the adjacent power supply if it is a risk.</div>	Low	Principal Contractor		
Noise	Excessive noise due to use of power tools or other plant / machinery.	Likely	Serious	High	<div>- Use of hearing protection required when noise levels are excessive.</div>	Low	Principal Contractor		
Lighting and Ventilation	If works to take place at night, inadequate lighting could contribute to trips, slips and falls	Likely	Minor	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Provide adequate lighting as to comply with Construction Work: Code of Practice</div>	Low	Principal Contractor		
Maintenance and Repair									
Excavation	Damage of services during excavation	Likely	Serious	High	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Perform Dial Before You Dig Survey Inground Services.</div> <div>- Ensure care is taken in locating services prior to excavation.</div> <div>- Manually excavate around areas where services are anticipated to be located.</div> <div>- Refer to inground services record drawings for locations references.</div>	Low	Principal Contractor / Maintenance Contractor		
Manual Work	Lifting of heavy hot water plant and equipment may result in injuries	Likely	Minor	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Coordinate in a team to lift heavy objects.</div> <div>- Use mobile lifting equipment to help in lifting and moving heavy objects where accessible</div>	Low	Maintenance Contractor		
Working at Height	Workers could fall when attempting to maintain hot water plant and box gutter on roof. Workers could fall when attempting to replace/repair pipework at high level.	Unlikely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Ladders to be thoroughly inspected before each use, after mishaps and periodically.</div> <div>- Utilisation of ladder should comply with AS 1892.5</div> <div>- Use industrial rope access harness to prevent workers from falling from heights (roof work).</div>	Low	Maintenance Contractor		
Falling Objects	Potential for equipment to fall while being handled at height	Unlikely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Contractor to provide traffic management plan to avoid objects falling to pedestrians.</div> <div>- Utilization of ladders should comply, with AS 1892.5.</div>	Low	Maintenance Contractor		
Hazardous Substances	Use of materials to undertake works (e.g. PVC-U solvent cement/primer) releases vapours or may leak and harm workers.	Likely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- Use appropriate safety equipment such as mask and gloves when handling equipment</div> <div>- Conduct work in a well-ventilated space</div>	Low	Maintenance Contractor		
Fire and Emergency	Sparks from cutting and welding could initiate fire when in contact with flammable liquid. Any activity involving open flames (i.e. soldering pipework) capable of initiating fire or explosions	Unlikely	Serious	Med	<div>- Contractor to address this via Safe Work Method Statement prior to commencing work.</div> <div>- All personnel are to be inducted on emergency evacuation equipment and procedures.</div> <div>- Avoid hot works where possible, this may be done via use of press fit compression fittings for water/gas services.</div> <div>- Contractor to complete a hot works permit to identify and manage/control risks associated with works.</div> <div>- Contractors need to provide the appropriate fire suppression equipment.</div>	Low	Maintenance Contractor		

Electrical	Potential for electrocution when undertaking works on or near energized electrical installations or services	Unlikely	Major	High	- Contractor will need to prepare a Safework Method Statement (SWMS) prior to commencing work. - Isolate the adjacent power supply if it is a risk.	Low	Maintenance Contractor		
Noise	Excessive noise due to use of power tools or other plant / machinery.	Likely	Serious	High	- Use of hearing protection required when noise levels are excessive.	Low	Maintenance Contractor		
Lighting and Ventilation	If works to take place at night, inadequate lighting could contribute to trips, slips and falls	Likely	Minor	Med	- Contractor will need to prepare a Safework Method Statement (SWMS) prior to commencing work. - Provide adequate lighting as to comply with Construction Work: Code of Practice	Low	Maintenance Contractor		