



Design Framework: Safety in Design

Incorporating Safety in Design in the planning, design, construction, tender and operation phases of all NSW school assets.

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Purpose of this document

This document has been created to provide guidance on how School Infrastructure NSW (SINSW)'s programs and projects should incorporate Safety in Design in the planning, design, construction, tender and operation phases of all SINSW assets.

For SINSW, this includes compliance with the following NSW Legislation:

[NSW Work Health and Safety Act 2011 \(“the Act”\)](#)

[NSW Work Health and Safety Regulations 2017 \(“the Regs”\)](#)

Disclaimer

This framework helps design teams easily access information and share successful project methodologies to ensure compliance with the school design principles. Following this framework does not irrevocably replace any project obligations to deliver against Educational Facilities Standards and Guideline requirements. The information within this document once downloaded/printed/exported will be classed as an uncontrolled copy. Its currency must be checked by visiting the EFSG website prior to using the information for any purposes.

Related Documents

This document is to be read in conjunction with:

[NSW Code of Practice: Safe Design of Structures 2019](#)

[Good Work Design - SafeWork Australia](#)

[Australian Work Health and Safety Strategy](#)

Superceded Documents

Safety in Design – Practice Note V-1.0 19 August 2022

For more information on Education Facilities Standards and Guidelines, Technical Standards and a glossary, please visit:

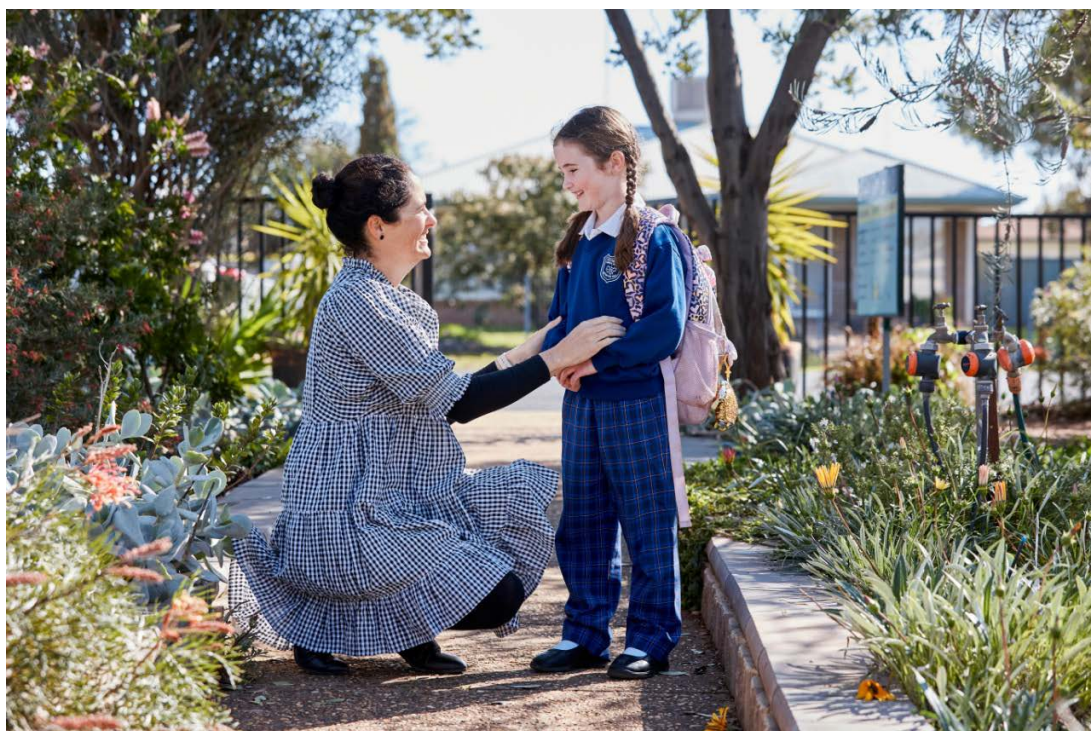
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1. Introduction to Safety in Design

Safety in Design is an integral process for the development of new and upgraded School Infrastructure NSW assets.

The Safety in Design Framework provides the guidance to be followed when undertaking this type of activity.

This has been developed to comply with the requirements of the NSW WHS legislation and the Safe Design of Structures Code of Practice.

This design framework covers the following design development phases:

Phase 0 Project initiation



Phase 1 Master planning



Phase 2 Concept design



Phase 3 Schematic design



Phase 4 Design development



Phase 5 Tender evaluation



Phase 6 Tender, evaluate and award



Phase 7 Construction administration



Phase 8 Commissioning and handover



Phase 9 Post completion and warranty



Policy context

SINSW is tasked by the Department of Education (DoE) to provide fit-for-purpose educational facilities to meet the changing demographics whilst meeting and statutory requirements.

SINSW's Work Health and Safety vision is:

To produce, operate, and maintain safe purposeful assets for the NSW community to access and to ensure the safety of all impacted by the asset.

Safe design requires integrating hazard identification and risk assessment methods early in the design process, to eliminate or, if this is not reasonably practicable, minimise risks of injury throughout the life of an asset. This applies to buildings, structures, and equipment. It considers both the safety of those who will construct and those who will use these assets.

It is acknowledged that safe design will always be part of a wider set of design objectives, including practicability, aesthetics, cost, and functionality. These sometimes-competing objectives need to be balanced in a manner that, so far as is reasonably practicable, does not compromise the health and safety of those who work on or use the structure over its life.

The NSW Work Health and Safety Act 2011 requires that 'reasonably practicable' measures are taken to eliminate risk in design. Deciding what is 'reasonably practicable' to protect people from harm requires considering

and weighing up all relevant matters, including:

- the likelihood of the hazard or risk occurring;
- the degree of harm that might result from the hazard or the risk;
- knowledge, or expectance of reasonable knowledge, about the hazard or risk;
- the availability and suitability of ways to eliminate or minimise the risk, and
- assessment of whether the cost of minimising the risk is disproportionate to the risk itself.



Aims and principles

SINSW has adapted the ten principles of practice from Good Work Design - SafeWork Australia to align with the Australian Work Health and Safety Strategy, which are structured into three categories:

Why Safety in Design is important

1. Gives the highest level of protection so far as is reasonably practicable;
2. Enhances health and wellbeing, and
3. Enhances business success and productivity.

How safe assets are designed

4. Addresses physical, biomechanical, cognitive, and psychosocial characteristics of work, together with the needs and capabilities of the people involved;
5. Considers the business needs, context, and work environment, and;
6. Needs to be applied along the supply chain and across the asset's operational lifecycle of the asset.

What needs to be considered to ensure Safety in Design:

7. Engage decision makers and leaders;
8. Actively involve the people who do the work, including those in the supply chain and networks;
9. Learn from experts, evidence, and experience; and
10. Identify hazards, assess and control risks, and seek continuous improvement.

2. Key Areas of Engagement



Department of Education (DoE)

DoE, as the owner, has the primary duty under the NSW Work Health and Safety Act 2011 to ensure, so far as is reasonably practicable, that workers and other persons are not exposed to health and safety risks arising from the business or undertaking.

For SINSW projects, the following Safety in Design obligations apply:

DoE Asset Management:

- Participate in Safety in Design workshops to ensure that assets are being designed to eliminate WHS risks, and
- Add value to the prevention of injuries and illness to maintenance and repair workers.

End User

- Participate in training workshops during commissioning and handover to enable safe use and operation of the facility, in accordance with DoE policies.

Need more information?

Engage with...

- Your regional Asset Management Unit (AMU)



Design Consultants

Designers under NSW Work Health and Safety Act 2011 must ensure that designs of structures, plant and substances are without risk, so far as reasonably practicable, to those that will construct, use or be exposed to them. Designers must also give adequate information communicating any risks that may be inherent in the design.

For SINSW projects, the following Safety in Design obligations apply:

Designers (architects, engineers, external WHS consultants etc.):

- Are required by legislation to design assets to be safe throughout their lifecycle as a workplace. The legislation is prescriptive and non-transferrable.
- Ensure that SiD is embedded in the design and executed during construction to the required standard.

i Need more information?

Engage with...

- The specific Project Delivery Team



Project Managers

Project Managers under NSW Work Health and Safety Act 2011 must provide designers with any information in relation to the hazards and risks at the site where the construction work is to be carried out. Project managers are also required to consult with designers about how to ensure that health and safety risks arising from the design are eliminated or minimised during construction.

For SINSW projects, the following Safety in Design obligations apply:

Project Director/Project Manager

- Ensures the DoE's Safety in Design WHS legislative obligations are fulfilled;
- Monitors, reviews, and makes certain that safety is integrated into the design, construction, commissioning, and handover process, and
- Ensures that all Safety in Design outcomes are completed to the highest standard and in a timely fashion.

Need more information?

Engage with...

- The specific Project Delivery Team
- Your regional Asset Management Unit (AMU)



Principal Contractors

Principal Contractors under the NSW Work Health and Safety Act 2011 must ensure that the construction work is planned and managed in a way that eliminates or minimises health and safety risks so far as is reasonably practicable.

For SINSW projects, the following Safety in Design obligations apply:

Principal Contactor

- Ensures that the construction work is planned and managed in a way that eliminates or minimises health and safety risks so far as is reasonably practicable;
- Must consult with the designer and provide feedback to designers about the 'buildability' of their designs, and
- If the principal contractor alters or modifies a design without consulting the original designer, then they assume the duties of a designer.

Need more information?

Engage with...

- The specific Project Delivery Team

3. Supporting Safety in Design

Each project will ensure that:

1. School sites and new acquisitions are comprehensively assessed with regards to health and safety including:

- Physical on-site assessment of the site and facilities;
- Research all external records in regards to the asset and the surrounding areas to extract information that could be beneficial to produce a safe design for future use, i.e. traffic records, previous site use, community crime data, etc;
- Analyse all DoE / SINSW information in regards to the asset, including information stored within TRIM;
- Review all potential WHS hazard categories.

2. The project team is aware, and executes at every stage, its obligation to consider Safety in Design for the construction of life of the asset being designed.

3. The end users are made aware (appropriate and adequate training provided in the Commissioning and Handover Phase), and continue to use and operate DoE assets as designed with safety principles in the forefront.



Principals of Practice

Safe design begins at the concept development phase when making decisions about:

- the design and its intended purpose;
- materials to be used;
- possible methods of construction, maintenance, operation, demolition or dismantling and disposal, and
- what legislation, codes of practice and standards need to be considered and complied with.



Safe Work Australia identifies 5 principles of safe design:



1. Persons with control

Those who make decisions affecting the design of products, facilities or processes are able to promote health and safety at the source.



2. Product lifecycle

Safe design applies to every stage in the lifecycle from conception through to disposal. It involves eliminating hazards or minimising risks as early in the lifecycle as possible.



3. Systematic risk management

Apply hazard identification, risk assessment, and risk control processes to achieve safe design.



4. Safe Design knowledge and capability

Should be either demonstrated or acquired by those who control design.



5. Information transfer

Effective communication and documentation of design and risk control information amongst everyone involved in the phases of the lifecycle is essential for the safe design approach.

SINSW Processes

Considering health and safety risks during the design phases is outlined below, as extracted from the NSW Code of Practice: Safe Design of Structures:

Pre-design

Phase 0 Project initiation

Phase 1 Master Planning

Establish the design context

Establish consultation methods with client

Obtain information including:

- Intended use of structure
- Industry injury/illness profile and statistics
- Guidance on structure hazards and possible solutions

Design

Phase 2 Concept design

Phase 3 Schematic design

Conduct preliminary hazard analysis and consultation

Framework for the preliminary hazard analysis:

- Siting
- High consequence of hazards
- Systems of work
- Environment
- Incidence mitigation

Identify hazards that are affected by the design of the structure, and are within the control of the designer

