CHAPTER 1: SHED BASICS

1.1 INTRODUCTION

PURPOSE

This Guide outlines the principles for the design of *freestanding steel sheds, garages and similar buildings* for construction in Australia. It explains how structural designers should apply existing design criteria and concepts to the design of steel sheds falling within a defined scope. It applies to buildings with structural frames made predominantly from cold-formed steel and clad predominantly with steel wall and roof sheeting. It promotes consistent interpretation of critical requirements for the structural performance of steel sheds. It does not replace the National Construction Code (NCC), its referenced standards and other guidance publications but should be read in conjunction with them.

The Building Code of Australia (BCA) comprises Volumes 1 and 2 of the National Construction Code (NCC) published by the Australian Building Codes Board. The NCC is enabled in each state and territory by relevant local legislation. References to the BCA and NCC in this edition are to NCC 2014.

LIMITATIONS

This Guide is not appropriate for the design of:

- Habitable buildings of any kind, and any structures attached to them.
- Silos and similar produce stores where stored contents apply vertical or lateral wall loads.
- Buildings larger or smaller than the dimensions described in the Scope (see Section 1.5).

The design principles and guidance may be applicable to a wider range of buildings, at the designer's discretion. For habitable buildings, the NASH Standard – *Residential and low-rise steel framing, Part 1: Design criteria* and related publications should be consulted. For low-rise commercial buildings, refer to either the NASH Standard or other relevant standards and publications.

This Design Guide focuses on structural design requirements. Depending on their use and NCC classification, complete buildings will require additional design considerations as specified in the NCC.

ABOUT THE STEEL SHED GROUP

The Australian Steel Institute Steel Shed Group is a special interest group formed and funded by industry members. The Steel Shed Group promotes compliance for engineering, documentation, supply and construction standards for the steel shed industry via technical publications, education and awareness programs.

1.2 WHAT IS A SHED?

'Shed' is a very common term in the community. Buildings fitting the general description of 'shed' may be used for a wide range of purposes. According to the *Macquarie Dictionary*, a shed is:

1. A slight or rough structure built for shelter, storage, etc.
2. A large, strongly built structure, often open at the sides or end.

Whilst 'private garage' is a defined term in the NCC, shed, carport, workshop and farm building are not. Structural designers cannot rely solely on a proposed building's description. They must consider whether the building will be accessible to the public, used as a factory or workplace, as an assembly point or even as an emergency refuge.

For the purposes of this Design Guide:

- ***A shed is any freestanding non-habitable general purpose building used for domestic, commercial, industrial or agricultural purposes***. A *residential shed* is one constructed on a residential allotment and used predominantly for private, domestic purposes.

- ***A garage is a special-purpose freestanding building designed to shelter vehicles and with at least one vehicle-sized door***. Garages may be residential or non-residential. All other vehicle shelters, including those attached to buildings, are carports and are not covered by this Guide.

Buildings supplied by Australian shed manufacturers are frequently used as NCC Class 10a buildings. However, many may be used or adapted as Class 6, 7, 8 or 9b buildings, provided they are designed or modified accordingly. *The actual use of a building – not its physical appearance or commercial description - determines its classification.*

Whilst the majority of 'sheds' will be easy to classify based on intended actual use, importance level is an even more significant consideration. Importance level is a function of the potential human hazard and public impact of building failure. Most 'sheds' will have Importance Level (IL) 1 or 2, but two specific examples illustrate common exceptions:

- An open or partially open shed used as a shade shelter in a large school: IL = 3.
- A garage used for a bush fire service vehicle: IL = 4.

The classification and importance level of a specific building are regulatory matters for the relevant Building Authority. Depending on the building classification and importance level, the designer will make design decisions taking into account the performance requirements or building solutions of the NCC.

- *All sheds should be designed, supplied and constructed in accordance with the NCC and any specific local regulations.*
- ***Regardless of their importance level or classification, buildings should not fail when subjected to the ultimate loading events for which they are certified to be designed.***
- *Each building and its location are unique. The designer must ascertain the appropriate classification and importance level to determine the design actions on the structure.*
- *'Generic' designs should take into account and clearly disclose in documentation and literature, the most adverse use for which a building may be sold or recommended, or is reasonably likely to be used.*

The next two sections discuss building classifications and importance levels in more detail.

1.3 NCC CLASSIFICATION OF SHED USES

The actual use of a building – not its physical appearance or commercial description - determines its *classification*.

The following table examples illustrate typical building uses and classifications. See Appendix 1 for a summary of all Building Classifications.

PHYSICAL DESCRIPTION	USES AND CLASSIFICATIONS
 **Rural shed**	• Where used only for storage purposes, farm sheds are usually Class 10a. • Where selling to the public takes place, Class 6 would apply and for wholesaling, Class 7. If used for manufacturing, Class 8.
 **Domestic garage**	• Domestic garages are Class 10a, even if used for hobbies and other domestic purposes.

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