

Table B1 *Preliminary design considerations for roof members*

Member	Actions			Strength design		Serviceability design		
	G	Q	W_u	Restraints	Criteria	G	Q	W_s
Roof battens	Weight of roofing	1.1 kN	as per NASH Standard see also Section 2.4	Top: distance between fixing screws Bottom: distance between trusses or rafters	Bending under $1.2G+1.5Q$ $W_u-0.9G$	L/300	L/150	L/150
Roof rafters	Weight of roof (and ceiling if carried by rafters)	0.25 kPa 1.1 kN	as per NASH Standard see also Section 2.7	Top: distance between battens	Bending under $1.2G+1.5Q$ $W_u-0.9G$	Lesser of L/300 & 20 mm	L/250	L/150
Roof trusses	Weight of roof and ceiling distributed to top and bottom chord as appropriate	0.25 kPa 1.1 kN	as per NASH Standard see also Section 2.9	Top chord: distance between roof battens Bottom chord: distance between ceiling joists or battens Web members: pinned at nodal points	Top and bottom chords: Combined compression (truss action) and bending (from UDL and concentrated load) Web members: Pinned ended members for compression and tension load capacities	Top chord Lesser of L/300 & 20 mm Bottom chord L/300	Top chord $d/200^{**}$ Top chord $d/200^{**}$ Bottom chord $d/250^{**}$	L/150
Ceiling battens	Weight of ceiling		Internal pressure	Top: distance between trusses Bottom: fully restrained by ceiling	Bending under $1.2G$ $W_u-0.9G$	L/300 - L/600 To suit the level of finish required*		L/200
Ceiling joists	Weight of ceiling	1.1 kN	Internal pressure	as for batten	Bending under $1.2G$ $W_u-0.9G$	L/300 - L/600 To suit the level of finish required*	L/300	L/200

Note: For final design, all combinations that are likely to produce the worst effects should be checked.

* L/600 is required for Class 5 finish in accordance with AS/NZS 2589.1 [1.39].

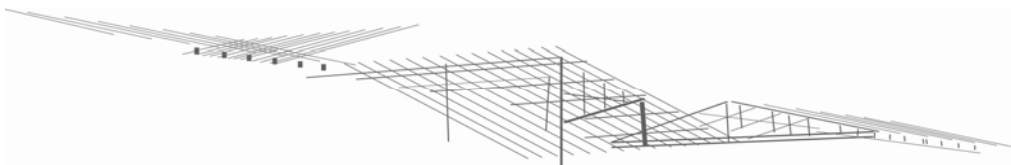
** d = distance between nodal points.



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NASH Handbook

Design of Residential and Low-rise Steel Framing



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Preface

Steel framing is commonly chosen for houses and other forms of low-rise construction as it is:

- Cost effective
- Dimensionally stable
- Non combustible
- Termite and borer proof
- Durable
- Strong but lightweight
- 100 percent recyclable
- Consistent in its properties and performance

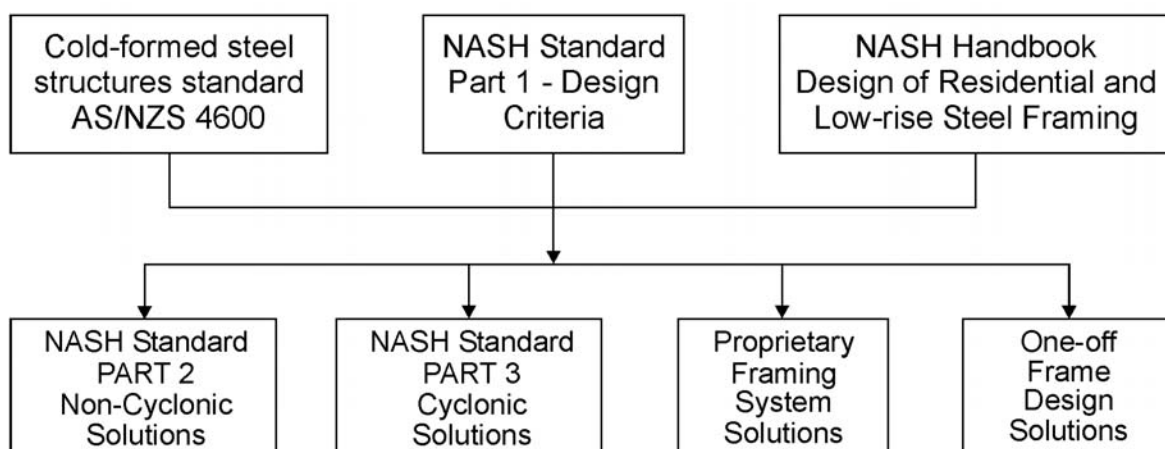
The NASH Standard – Residential and Low-rise Steel Framing Part 1: Design Criteria sets out the design criteria, in terms of structural adequacy and serviceability, for use in the design of low-rise steel framing. This includes houses as well as other low-rise residential and commercial buildings.

This Handbook aims to assist the steel framing designer in the application of the NASH Standard Part 1. However, it does not purport to provide a detailed guide on the use of the Cold-formed steel structures standard AS/NZS 4600 or replace engineering judgement.

The Handbook contains performance data for a number of proprietary components such as screws, rivets, bolts and anchors. This information has been reproduced in Appendices in good faith from information provided by the relevant manufacturers. It has been included to assist the use of the Handbook as a reference for users, but is not exhaustive. Handbook users should contact relevant manufacturers directly for additional performance information.

Two separate Standards (Part 2 & 3) are being developed to provide steel framing span tables and related information and these will be published in due course. The relationship between the Standards and this Handbook is illustrated below.

The NASH web site www.nash.asn.au is regularly updated and provides supplementary information to this Handbook.



National Association of Steel-Framed Housing Inc

NASH is an active industry association centred on light structural framing systems for residential and similar construction. NASH represents the interests of suppliers, fabricators and customers – all those involved in steel framing systems.

NASH's key objectives are to:

- Support the long term growth and sustainability of the steel frame industry.
- Maximise awareness of the steel frame industry in the market place.
- Promote the advantages of steel frames to the building industry and homeowners.

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