

0342P TRUECORE® STEEL LIGHT STEEL FRAMING
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Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to framing for structures comprising cold-formed hot-dipped aluminium/magnesium alloy (Activate® technology) coated, TRUECORE® steel sections. It covers residential and low-rise floor, wall, roofing and truss framing.

How to use this worksection

Customise this worksection *Template* for each project. See A guide to NATSPEC worksections (www.natspec.com.au) for information on *Template* structure, word styles, and completing a worksection.

Related material located elsewhere in NATSPEC

If a listed worksection is not part of your subscription package and you wish to purchase it, contact NATSPEC.

Related branded worksections include:

- *0341p GALVSPAN steel purlins and girts in structural steelwork.*
- *0423p COLORBOND steel and ZINCALUME steel in roofing.*
- *0436p COLORBOND steel and ZINCALUME steel in cladding.*

Material not provided by BlueScope

This branded worksection *Template* includes generic material which may not be provided by the Product Partner including:

- Damp-proof courses.
- Vermin barriers.
- Flashings.
- Fasteners.
- Fascias.
- Bargeboards.

Documenting this and related work

You may document this and related work as follows:

- Where cold-formed steel sections are being used for structural framing, it is important that the structural documentation either defines performance criteria (loading, deflection, exposure, fire-resistance) or details the member sizes and the connection details. If the former is adopted, independent certification by a professional engineer of the design, documentation and erected framing, is required.
- Cold-formed sections used in non-load bearing partitions are specified in *0522 Partitions – framed and lined*.
- Cold-formed purlins and girts used in conjunction with structural steel framing are specified in *0341 Structural steelwork*.

The *Normal* style text of this worksection may refer to items as being documented elsewhere in the contract documentation. Make sure they are documented.

Specifying ESD

The following may be specified by retaining default text:

- Durable lightweight TRUECORE® steel frame with up to a 50 year warranty.
- 100% termite and borer proof lightweight TRUECORE® steel frame.
- Activate® technology for enhanced corrosion resistance.
- Higher strength TRUECORE® steel (G450/G500/G550) frame to reduce the amount of steel required to achieve the same performance.

Refer to NATSPEC TECHreport TR 01 on specifying ESD and the following for further information:

- NASH Technical Note 2 (2021), for six star energy efficiency measures and case studies for meeting NCC sustainability requirements for houses.
- NASH-2 (2014) Standard, for energy efficiency details.

1 GENERAL

BlueScope is Australia's largest manufacturer of steel. Steel products manufactured by BlueScope include value-added metal coated and painted steel products such as COLORBOND® steel, ZINCALUME® steel, GALVSPAN® steel and TRUECORE® steel. These products are supplied in coil form then further processed by other manufacturers into products such as roof and wall cladding, insulated panels, rainwater goods, light structural/framing sections and fencing for use in both residential and non-residential construction.

1.1 RESPONSIBILITIES

General

Requirement: Provide TRUECORE® steel light steel framing for enclosed intermediate floors, walls, roofs and trusses, as documented.

Documented is defined in 0171 General requirements as meaning contained in the contract documents.

In this instance, enclosed means not being exposed to any external atmospheric conditions, including exposed subfloors.

Performance

Requirements:

- Suitable for having flooring, linings, cladding and roofing fixed to it.
- Conforming to the documented performance criteria.
- Conforming to the requirements of NASH-1 (2005) or NASH-2 (2014).
- Independently designed and documented.
- Independently certified by a professional engineer for the design and the erected framing.

If frame is not fully documented in the contract documents and design to AS/NZS 4600 (2018) or NASH-1 (2005) is required, consider the inclusion of this *Optional* style text by changing to *Normal* style text.

1.2 DESIGN

This worksection can be used to document the contractor's design and documentation responsibilities in addition to those set out in DESIGN in 0171 General requirements. If the design, or completion of the design, is not the responsibility of the contractor, delete this clause and associated requirements.

Refer to NATSPEC TECHreport TR 03 on specifying design and construct for mechanical services. It discusses some of the issues and presents a range of approaches for preparing design and construct specifications that can be applied more generally.

General

Designer: [complete/delete]

Nominate the designer e.g. Professional engineer.

Requirements

General: To DESIGN in 0171 General requirements.

Performance requirements: [complete/delete]

Define verifiable outcomes relating to the overall worksection or system. Use design schedules here, as appropriate.

Authority requirements: [complete/delete]

In particular, draw attention to any specific requirements of the DA and other regulatory bodies. Consider attaching DA conditions if appropriate.

1.3 COMPANY CONTACTS

BlueScope technical contacts

Website: www.steel.com.au/contact.

1.4 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

0171 General requirements contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. 0171 General requirements references the 018 Common requirements subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

1.5 STANDARDS

General

Design, materials and protection: To AS/NZS 4600 (2018).

Residential and Low-rise steel framing: To NASH-1 (2005) (National Association of Steel Housing) and NASH-2 (2014).

The NASH-1 (2005) Standard sets out the design criteria to comply with the performance requirements of the NCC for steel framing of low-rise housing as well as commercial buildings. The NASH-2 (2014) Standard provides design solutions that can be used as a means of demonstrating compliance with the NCC requirements.

For buildings in bushfire areas refer to NASH Bushfire Standard (2021) for steel framed construction in bushfire areas.

1.6 MANUFACTURER'S DOCUMENTS

Technical manuals

Website: www.steel.com.au/library.

1.7 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in the NASH-1 (2005) and NASH-2 (2014) apply.

Edit the **Definitions** subclause to suit the project or delete if not required. List alphabetically.

1.8 TOLERANCES

General

Manufacturing, assembly and installation tolerances: To NASH-1 (2005) Appendix D and NASH-2 (2014) Appendix A.

1.9 SUBMISSIONS

Certification

Erected frame: Submit certification that the erected frame conforms to the documented project requirements.

Design documentation

General: If the structural documentation defines performance criteria, submit as follows:

- Design to AS/NZS 4600 (2018) or NASH-1 (2005): Independent design, documentation and certification from a professional engineer.
- To NASH-2 (2014): Certification of conformance to the requirements of NASH-2 (2014) from a professional engineer.

Calculations quantifying wind forces should be provided by a professional engineer.

Reactions: Submit the location and magnitude of reactions that are to be accommodated by the support structure.

Floor and wall frame member sizes: Submit a schedule of proposed member sizes, certified as meeting stated project, and AS/NZS 4600 (2018) or NASH-2 (2014) requirements for span, spacings and loadings.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, requirements for the documented configurations and loadings.

Prefabricated roof trusses: Include the following:

- Plan: Truss layout.
- Elevations: Arrangement of members, allowing for the accommodation of in-roof services, and the size and section type of each member.
- Method of assembly and connection details.

- Holding down and bracing: Details demonstrating capability to resist lateral and uplift forces.

Prefabricated wall frames: Include the following:

- Plan: Wall layout.
- Elevation: Arrangement of members, and size and section type of each member.
- Method of assembly, connection, holding down and bracing.

Prefabricated floor frames/cassettes: Include the following:

- Plan: Level of installation, arrangement of members, and size and section type of each member, including prefabricated floor joists.
- Method of assembly, connection, holding down and bracing.

Warranties

Requirement: Submit TRUECORE® steel product warranty obtained from BlueScope to **COMPLETION, Warranties.**

1.10 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Damp-proof course installed before installation of steel framing.

The damp-proof course may also be pre-installed to the base of the prefabricated wall framing.

- Steel framing erected on site before lining or cladding.

If independent certification is required, delete this clause.

Amend to suit the project adding critical stage inspections required.

Hold points, if required, should be inserted here.

Refer to BlueScope TB-34 (2020) *Steel Building Frames* and include any additional inspections required above.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

SUBSTITUTIONS in *0171 General requirements* sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

Storage and handling

Requirement: Transport all components to site and store, if required, so that components and their coating are not damaged or distorted.

For example truss elements can easily be damaged if, whilst in transportation or storage, they are supported in a location other than their design support locations.

Frames and trusses: If required, store on a flat even surface and do not load with other items.

Exposure: Minimise exposure of components to the weather, both during storage, handling and after erection.

Refer to BlueScope TB-34 (2020) for further information on storage and handling and the installation of the TRUECORE® steel frame.

2.2 COMPONENTS

Damp-proof course

Membrane: To the membrane requirements of AS 2870 (2011) or AS/NZS 2904 (1995).

Type: [complete/delete]

Nominate membrane type.

Alternatively a membrane product carrying CodeMark certification for use as an impermeable membrane for framing applications. Add text if required.

TRUECORE® steel enclosed framing

General: Cold-formed sections from steel, hot-dipped aluminium/zinc/magnesium alloy (Activate® technology) coated to AS 1397 (2021).

Marking: Evidence of conformity to AS 1397 (2021) branding visible on all elements.

Corrosion protection: Activate® technology and the requirements of NASH-2 (2014) Section 8.

Product name: TRUECORE® steel.

Grade: [complete/delete]

Select from the available TRUECORE® steel grades of G450, G500 and G550. Refer to the relevant TRUECORE® steel data sheet for further material properties.

Framing members

TRUECORE® steel enclosed framing for proprietary systems: To NASH-1 (2005) or NASH-2 (2014).

Steel roof trusses type: [complete/delete]

Steel wall frame type: [complete/delete]

Steel floor frame type: [complete/delete]

Fascias and barge boards

Product: [complete/delete]

Profile: [complete/delete]

Finish: [complete/delete]

Colour: [complete/delete]

Fascias are sometimes part of a proprietary steel truss system. Delete if not required.

3 EXECUTION

3.1 GENERAL

Frame fabrication

Length: Cut members accurately to length so that they fit firmly against abutting members.

Service holes: If not pre-punched, form holes by drilling or punching, without compromising the structural integrity of the frame, located centrally within the centre third span of the element, conforming to the requirements of NASH-2 (2014).

Holes and bushes for services are usually dealt with by the services subcontractors.

Swarf: Immediately remove swarf and other debris from cold-formed steel framing.

Fastening

Prefabricated framing: Fasten framing elements using fasteners, as documented, to the fabricator's requirements.

Fabricators specify the fixing and fastening requirements for their framing elements. The documented requirements cannot be substituted for other fastening methods.

Framing built in situ: Use fasteners, as documented, from the following types:

- Bolting.
- Self-drilling, self-tapping screws.
- Blind rivets.
- Proprietary clinching system.
- Structural adhesives.
- Welding. On-site welded connections are not permitted.

Compatibility: Compatible with steel frame to prevent galvanic corrosion of dissimilar metals.

Refer to BlueScope Corrosion Technical Bulletin BlueScope CTB-12 (2022) *Dissimilar metals* for further information.

Welding

Burning: Avoid procedures that result in greater than localised burning of the sheets or framing members.

Prefabricated frames

General: Protect frames from damage or distortion during erection.

Unseasoned or CCA treated timber

General: Do not fix in contact with framing without fully painting the timber and/or the steel.

Unseasoned timber (in which the average moisture content exceeds 25%) and timber treated with acidic preservatives of the copper chromium arsenic type can be corrosive to the majority of metallic building components. The use of seasoned timber species is recommended for any situation where contact between the (metallic-coated) steel and timber is considered. If unseasoned or CCA treated timbers need to be used, the timber and/or steel should be sealed by fully painting before installation. Refer to NATSPEC TECHnote PRO 001 CCA treated timber.

Earthing

Requirement: To AS/NZS 3000 (2018). Provide temporary earthing during erection until the permanent earthing is installed.

The local authority may have requirements for permanent earthing of the frame.

Refer to AS/NZS 3000 (2018) Section 5 for earthing arrangements and earthing conductors.

Protection

General: Restore coatings that have been damaged by welding or other causes. Thoroughly clean affected areas back to base metal and coat with a zinc rich organic primer.

Refer to BlueScope TB-02 (2022) Overpainting and restoration of exterior BlueScope coated steel products for further information.

Metal separation: Install lagging to separate non-ferrous service pipes and accessories from the framing.

Timber noggings or supports can be used to isolate the service pipes and accessories from the steel framing.

Grommets: Provide grommets to isolate piping and wiring from cold-formed steel framing.

Site cut holes: Provide plastic bushes or grommets to site cut holes.

3.2 FLOOR FRAMING

General

Protection: If floor framing is for ground floor construction, make sure that it is protected from moisture.

Construction loads: If construction loading exceeds design loading, provide additional support so as to avoid overstressing of members.

Refer to NASH-1 (2005) Appendix A.

3.3 WALL FRAMING

Wall studs

General: Provide studs in single lengths without splices. Place a stud and a stiffened top plate under each structural load point from the roof or ceiling (except at openings). Provide multiple studs at points of concentrated load.

Maximum stud spacing: 600 mm.

Heads to openings

Requirement: Provide lintels appropriate to load and span.

Additional support

General: Provide additional support in the form of noggings, trimmers and studs for support and fixing of lining, cladding, hardware, accessories, fixtures and fittings.

Provide the location and details of any fixtures and fittings such as plumbing services or air-conditioning units.

Vermin barriers

Brick veneer barrier: Close nail steel wire mesh, with a maximum aperture of 10 mm, to the underside of the bottom plate of external stud walls, extending across the cavity for building into brickwork.

Stud wall barrier: Metallic-coated steel sheet, 600 mm wide x 0.6 mm thick, fixed to each side of the external stud wall frame at the base. Lap joints 25 mm.

Add this *Optional* style text, if required by the responsible authorities, by changing to *Normal* style text.

Damp-proof course

Requirement: Provide damp-proof courses under the bottom plate of stud walls built off slabs, to the requirement of BlueScope TB-34 (2020) if not documented otherwise:

Installation: Lay in long lengths. Lap full width at angles and intersections and at least 150 mm at joints.

Junctions: Preserve continuity of damp-proofing at junctions of damp-proof courses, sarking and waterproof membranes.

Flashings

Location: Provide flashings to external openings sufficient to prevent the entry of moisture. Form trays at the ends of sill flashings.

Masonry veneer construction: Extend across cavities and build into brickwork.

3.4 ROOF AND CEILING FRAMING**Beam framing**

General: Construct framing for flat or pitched roofs where the ceiling follows the roof line, consisting of prefabricated roof beams, rafters or purlins supporting both ceiling and roof covering.

Additional support

Requirement: Provide additional frame members at the following locations:

- Hanging light fittings.
- Ceiling fans.
- Access panels.
- Any other hanging services or fixtures and fittings.

Water tank or heater in roof space: Provide a support platform to AS/NZS 3500.4 (2021) clause 5.5.1.

Provide the location and details of any service or fixture and fitting within or outside the roof space.

Battens

Requirement: Supply and fix battens suitable for span, spacing and proposed roofing material.

Anti-ponding boards

Standard: To AS 4200.2 (2017).

Material: [complete/delete]

This applies to low pitched roofs.

3.5 TRUSSES**Fabrication**

Assembly: Factory assemble trusses.

Supports for in roof services

General: If walkways, mechanical plant or other services are to be supported within the roof space, provide support and make sure trusses have been designed to carry the loads.

Water tank and heater: If a water tank or heater is located in the roof space, provide a support platform to AS/NZS 3500.4 (2021) clause 5.5.1 and make sure trusses have been designed to carry the loads.

Marking

General: Permanently mark each truss to show:

- Project identification.
- Manufacturer.
- Tag or number.
- Location.
- Support points.

Installation

Support: Support and fix trusses to the truss fabricator's recommendations.

Vertical movement: Over internal walls not providing support to trusses, provide at least 10 mm vertical clearance and use wall bracing methods that allow for vertical movements, to the truss fabricator's recommendations.

3.6 ROOF TRIM**Fascia, valley and barge boards**

Requirement: Fix fascia, valley gutter boards and barge boards in conformance with the manufacturer's recommendations.

3.7 COMPLETION

Cleaning

General: On completion of framing remove debris from any gaps between members and make sure void between bottom chord of roof trusses and top of any non-supporting internal wall is clear.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: [complete/delete]

Use only if warranties extending beyond the defects liability period are available for the particular system. Insert the required warranty period and terms, which should be negotiated beforehand. If the warranty is in the form of separate material and installation warranties, require the signatures of both supplier and installer.

The form(s) required should be provided as part of the contract documentation.

Discuss with BlueScope the warranty period available. BlueScope offers a warranty of up to 50 years on TRUECORE® for selected residential building classes, applications, and environments and is subject to application and eligibility criteria. Commercial warranties may be available on application. The minimum location, design and installation criteria for warranty include the requirements outlined in BlueScope TB-34 (2020) Steel Building Frames. For full terms and conditions and to determine the eligibility of your building for a warranty visit warranties.bluescopesteel.com.au or call BlueScope. In some instances a pre-approved warranty may be applied for before frame erection or completion. Warranties provided by BlueScope do not affect consumer rights under the Australian Consumer Law.

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS 1397	2021	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 2870	2011	Residential slabs and footings
AS/NZS 2904	1995	Damp-proof courses and flashings
AS/NZS 3000	2018	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3500		Plumbing and drainage
AS/NZS 3500.4	2021	Heated water services
AS 4200		Pliable building membranes and underlays
AS 4200.2	2017	Installation
AS/NZS 4600	2018	Cold-formed steel structures
BlueScope TB-34	2020	Steel building frames
NASH		NASH Standard residential and low-rise steel framing
NASH-1	2005	Design criteria
NASH-2	2014	Design solutions

The following documents are mentioned only in the *Guidance text*:

BlueScope CTB-12	2022	Dissimilar metals
BlueScope TB-02	2022	Overpainting and restoration of exterior BlueScope coated steel products
NASH Bushfire Standard	2021	NASH standard - Steel framed construction in bushfire areas
NASH Technical Note 2	2021	Energy efficiency measures for NCC class 1 buildings - houses, town houses
NATSPEC GEN 006		Product specifying and substitution
NATSPEC PRO 001		CCA (Copper chrome arsenate) treated timber
NATSPEC TR 01		Specifying ESD
NATSPEC TR 03		Specifying design and construct for mechanical services