# 3421AX AXXIS STEEL FOR FRAMING

## 1. GENERAL

 This section relates to the supply and erection of light steel framing using New Zealand Steel **AXXIS® Steel For Framing**, roll formed and fabricated as a framed structure, or as part of a flush-lined partitioning system;

 - for load bearing structures

 - and non-load bearing partitioning

### 1.1 RELATED WORK

 Refer to ~ for ~.

### 1.2 ABBREVIATIONS AND DEFINITIONS

 Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

 The following abbreviations apply specifically to this section:

 NASH National Association of Steel-framed Housing Inc.

 Website [www.nashnz.org.nz](http://www.nashnz.org.nz).

 **Documents**

### 1.3 DOCUMENTS

 Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

 [AS/NZS 1170.0](http://www.masterspec.co.nz/redirect.aspx?pl=473) Structural design actions - General principles

 [AS/NZS 1170.2](http://www.masterspec.co.nz/redirect.aspx?pl=1110) Structural design actions - Wind actions

 AS 1397 Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

 [NZS 2295](http://www.masterspec.co.nz/redirect.aspx?pl=845) Pliable, permeable building underlays

 [NZS 3604](http://www.masterspec.co.nz/redirect.aspx?pl=301) Timber-framed buildings

 [AS/NZS 4600](http://www.masterspec.co.nz/redirect.aspx?pl=359) Cold formed steel structures

 NZ NASH Standard Residential and low-rise steel framing Part 1: Design Criteria

 [NASH N-11](http://www.masterspec.co.nz/redirect.aspx?pl=1240) House Insulation Guide

 NASH 3405 An alternative solution for steel framed buildings

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

 Manufacturer's and supplier's documents relating to this part of the work:

 **AXXIS® Steel For Framing** A better way to build

 Durability statement for Galvsteel® (galvanised steel) and AXXIS® steel manufactured by New Zealand Steel Limited and used for structural building elements.

 Steel frame Fabricators documents:

 Manufacturer/supplier contact details

 Company: **AXXIS® Steel for Framing**

 Web: [www.axxis.co.nz](http://www.axxis.co.nz)

 Email: info@nzsteel.co.nz

 Telephone: 09 375 8999

 Facsimile: 09 375 8213

 **Requirements**

### 1.5 QUALIFICATIONS

 Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

### 1.6 NO SUBSTITUTIONS

 Substitutions are not permitted to the **AXXIS® Steel** material selection, the specified steel framing fabricators associated components and accessories, and associated products listed in this section.

### 1.7 CO-ORDINATION

 Ensure details and fixings required are provided for in the steel fabricators framing system. Refer to all drawings and calculations.

### 1.8 INSTALLATION

 Install **AXXIS®** roll formed framing to any technical recommendations or instructions given by the steel frame fabricator.

### 1.9 SEPARATION

 Ensure DPC between the bottom plate and concrete slab in residential construction. Ensure separation between any treated timber and **AXXIS® Steel** with DPC. Refer to the Durability statement.

### 1.10 DISSIMILAR METALS

 Avoid contact with dissimilar metals (e.g. between copper and **AXXIS® Steel**). Refer to NZ NASH 3405 for information on the use of stainless steel fixings, and NASH Handbook, 6 **Connectors**. Ensure plumbers take care to isolate copper piping from steel framing by inserting specialised plumbing grommets into the pre punched surface holes in the studs.

### 1.11 THERMAL BREAKS AND CAVITY CONSTRUCTION

 Install suitable thermal break and/or cavity thermal battens. Refer to NASH Handbook, 10.7 **Condensation and Thermal Break** and NASH N-10 **House Insulation Guide,** for information on the selection and installation methods for thermal break and/or cavity thermal battens.

### 1.12 PROVIDE INFORMATION

 Provide a building consent approved producer statement (design) and supplementary drawings showing dimensions, bracing and assembly.

### 1.13 STEEL SECTION TOLERANCES

 Web thickness: 0.50 to 1.00mm: ± 0.06mm

 1.15 to 3.00mm: ± 0.07mm

 Flange thickness: 0.50 to 1.00mm: ± 0.06 mm

 1.15 to 3.00mm: ± 0.07 mm

### 1.14 STRAIGHTNESS

 Hold within L/600. (Approximately 5mm in 3 metres).

### 1.15 LOAD-CARRYING MEMBERS

 Using the specified steel frame fabricators design data, NASH 3405 and NZ NASH Standard Residential and low-rise steel framing Part 1: Design Criteria, select sections that will satisfy the transverse, dead and live load requirements.

 **Compliance information**

### 1.16 DURABILITY

 The work covered by this part of the specification has been designed and constructed to achieve a durability of 50 years. Refer to the following:

 NASH Handbook, **8 Durability**.

 **Performance**

### 1.17 LOADING CODE REQUIREMENT

 To [NZBC B1](http://www.masterspec.co.nz/redirect.aspx?pl=222)/VM1, [AS/NZS 1170.0](http://www.masterspec.co.nz/redirect.aspx?pl=473), [AS/NZS 1170.1](http://www.masterspec.co.nz/redirect.aspx?pl=860), [AS/NZS 1170.2](http://www.masterspec.co.nz/redirect.aspx?pl=1110), [AS/NZS 1170.3](http://www.masterspec.co.nz/redirect.aspx?pl=898), NZS .1170.5, [AS/NZS 4600](http://www.masterspec.co.nz/redirect.aspx?pl=359).

### 1.18 SECTION TOLERANCES

 To NASH Standard D1 Manufacturing and Assembly Tolerances.

 **Performance - Wind (design by contractor)**

### 1.19 DESIGN PARAMETERS - NON SPECIFIC DESIGN

 Design the installation to the wind zone parameters of [NZS 3604](http://www.masterspec.co.nz/redirect.aspx?pl=301), table 5.1.

 Refer to general section 1220 PROJECT for details.

### 1.20 DESIGN PARAMETERS - SPECIFIC DESIGN

 Design the installation to the wind pressure parameters of [AS/NZS 1170.2](http://www.masterspec.co.nz/redirect.aspx?pl=1110).

 Refer to general section 1220 PROJECT for details.

 **Performance - Seismic (design by contractor)**

### 1.21 SEISMIC - NON SPECIFIC DESIGN

 Design the system and its anchorages/fixings to resist the earthquake loads of the earthquake zone in accordance with [NZS 3604](http://www.masterspec.co.nz/redirect.aspx?pl=301), 5.3 **Earthquake bracing demand**.

 Refer to general section 1220 PROJECT for details.

### 1.22 SEISMIC - SPECIFIC DESIGN

 Design the system and its anchorages/fixings to resist the earthquake loads of the seismic zone in accordance with [NZS 1170.5](http://www.masterspec.co.nz/redirect.aspx?pl=872).

 Refer to general section 1220 PROJECT for details.

## 2. PRODUCTS

 **Materials**

### 2.1 STEEL STRIP

 NZ Steel AXXIS® coil,

 Galvanized AS 1397: 275g/m² (Z 275)

 Steel thickness range: 0.50 to 2.25mm (Galvanised)

 Steel grade range: G550 for BMT < 1.00mm, G500 for BMT >1.0 < 1.5mm,

 G450 for BMT>1.5mm

### 2.2 STEEL SECTIONS

 Cold roll-formed steel sections to [AS/NZS 4600](http://www.masterspec.co.nz/redirect.aspx?pl=359), NZ NASH Standard: Residential and low-rise steel framing, Part 1: Design Criteria. To consist of all members required to complete the framing and all to dimensions that satisfy [AS/NZS 1170.0](http://www.masterspec.co.nz/redirect.aspx?pl=473).

### 2.3 CAVITY BATTENS

 Battens to suit application. Refer to SELECTIONS for options.

### 2.4 TIMBER NOGS

 Nogs required for fixing fittings and fixtures that are beyond the scope of the steel nogs shall be timber, SG6 radiata pine, H1.2, kiln dried to 14% moisture content and dimensioned to fit the light steel framing and the application.

### 2.5 DAMP-PROOF COURSE

 Heavy kraft strip laminate saturated and coated with bitumen. Refer to 4161 UNDERLAYS, FOIL AND DPC.

### 2.6 UNDERLAYS

 Breather type, waterproof to [NZS 2295](http://www.masterspec.co.nz/redirect.aspx?pl=845). Refer to 4161 UNDERLAYS, FOIL AND DPC.

 **Components**

### 2.7 SCREWS

 Self-drilling class to suit member, connection method and location and to NASH Handbook, and the fabricators stated requirements.

 Screw corrosion protection to NASH Handbook, **6 Connectors**.

## 3. EXECUTION

 **Conditions**

### 3.1 CONCRETE SLAB

 Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in [NZS 3109](http://www.masterspec.co.nz/redirect.aspx?pl=295): table 5.2, **Tolerances for in situ construction**.

### 3.2 HANDLE AND STORE

 Handle and store channels and accessories to avoid damage. Keep dry in transit, store clear of the ground allowing full circulation.

### 3.3 PREFABRICATED FRAMES AND TRUSSES

 Do not bring on to site until the subfloor is complete and members can be temporarily stacked on it and from there immediately erected and fixed.

### 3.4 SUBSTRATE

 Ensure substrate is plumb, level and in true alignment. Do not start erection if the substrate will not allow work of the required standard. Complete any remedial work found necessary before starting light steel framing erection.

### 3.5 COMMENCING THIS WORK

 Commencing this work means the substrate is accepted as allowing work of the required standard.

 **Fabrication**

### 3.6 FABRICATION GENERALLY

 To NASH Standard and Nash Handbook.

 **Installation - steel framing**

### 3.7 INSTALLATION GENERALLY

 To Nash Handbook and Axxis requirements.

### 3.8 INSTALL WALL FRAMING

 From one corner erect the first two panels, Tek screwing the corner studs together. Continue each panel to complete the longer external wall with another return panel and screw together. Check dimensions and fit and bolt or screw the first corner to the subfloor. Continue with the erection from out of the first corner, Tek screwing studs together and checking dimensions before bolt or screw fixing to the subfloor. Leave all this work plumb, square and true to line and face.

### 3.9 INSTALL UPPER FLOOR FRAMING

 Erect and fix floor joists to form upper floors all level and true to line. Fit and screw fix ceiling battens, lapped and cut to length.

### 3.10 ERECT UPPER WALLS

 Erect wall frames, bolting or screwing bottom plates to steel frame and/or floor joists and corner studs to each other, all plumb and square and true to line and face.

### 3.11 ERECT ROOF

 Erect trusses and rafters screwing them to framing to leave them square and true to line and plane. Fit and screw fix purlins and ceiling battens lapped and cut to length.

### 3.12 PROVIDE TIMBER NOGS

 Provide nogs and fixings required for the fixing of the claddings, linings, fittings and other accessories, all to the manufacturer's requirements. Cut timber square to fit the steel framing and Tek screw firmly in place true to line and face.

### 3.13 PROVIDE TIMBER NOGS

 Provide nogs and fixings required for the fixing of fittings and other accessories, all to the manufacturer's requirements. Cut timber square to fit the steel framing and screw firmly in place true to line and face.

### 3.14 INSTALL THERMAL BREAKS

 Install thermal breaks to Nash Handbook and to Axxis requirements.

 **Completion**

### 3.15 LEAVE

 Leave work to the standard required by following procedures.

### 3.16 REMOVE

 Remove all debris, unused materials and elements from the site.

## 4. SELECTIONS

### 4.1 SYSTEM

 Type: **AXXIS® Steel For Framing**

 System: ~

### 4.2 STEEL SECTION - EXTERIOR

|  |  |  |
| --- | --- | --- |
| **Member** | **Dimensions** | **Centres** |
| Bottom plates | ~ x ~ x ~ mm thick | ~ mm |
| Top plates | ~ x ~ x ~ mm thick | ~ mm |
| Studs | ~ x ~ x ~ mm thick | ~ mm |
| Nogs | ~ x ~ x ~ mm thick | ~ mm |

### 4.3 STEEL SECTION - INTERIOR

|  |  |  |
| --- | --- | --- |
| **Member** | **Dimensions** | **Centres** |
| Bottom plates | ~ x ~ x ~ mm thick | ~ mm |
| Top plates | ~ x ~ x ~ mm thick | ~ mm |
| Studs | ~ x ~ x ~ mm thick | ~ mm |
| Nogs | ~ x ~ x ~ mm thick | ~ mm |

### 4.4 TRUSS

|  |  |  |
| --- | --- | --- |
| **Member** | **Dimensions** | **Centres** |
| Cords | ~ x ~ x ~ mm thick | ~ mm |
| Web | ~ x ~ x ~ mm thick | ~ mm |

### 4.5 CEILING BATTENS

|  |  |  |
| --- | --- | --- |
| **Member** | **Dimensions** | **Centres** |
| Type | ~ x ~ x ~ mm thick | ~ mm |

### 4.6 ROOF BATTENS

|  |  |  |
| --- | --- | --- |
| **Member** | **Dimensions** | **Centres** |
| Type | ~ x ~ x ~ mm thick | ~ mm |

### 4.7 EXTERIOR THERMAL BREAK

 Studs and plates: ~

### 4.8 CAVITY BATTENS

 Type: ~