



THE METAL

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YOUR TRADE NEWSLETTER
UNITING ALL SEGMENTS
OF THE METAL INDUSTRY.

BRIEF

Steel Framed Housing with NZ Steel – the way homes will be built in the Future

The idea of building a home with steel framing is a new one for most New Zealanders. However, steel framed houses are being built across the globe and represent 12% of homes built in Australia (and up to 30% in some regions). Major group home builders are now offering steel framing as an option.

There are significant benefits to using steel framing in your home:

- Steel framing releases no gases and doesn't support mould growth, so there are benefits for occupants with respiratory problems.

- The Asthma and Respiratory Foundation of NZ has recognised the benefits of NZ Steel's galvanised steel - Axxis® Steel for Framing for asthma and allergy sufferers by adding the product to their Sensitive Choice programme - http://www.asthmanz.co.nz/building_frames_trusses_and_joists.php
- Steel does not warp or twist with time and doesn't absorb moisture.
- It does not rot and is galvanised to prevent corrosion when good weathertightness principles are applied to the cladding design and installation.
- Steel frames resist fire and will not burn or support the spread of flame. Lightning is redirected directly to the ground rather than being destructively released within the frame.

- Steel framing's strength and stiffness means that large open rooms can be designed with its ability to span wide areas.

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Tech Spec: Steel Joists
Fire Rated Floor Ceiling Systems
Fire Resistance Rating 60/60/60
Lining Requirements
1 Layer 16mm GIB Fyrelite®

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RFS Expands to meet demand.
RFS have invested \$1 million in machinery and expanded their premises to ensure they are able to keep up with demand and continue to produce a quality product.

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CALENDAR OF EVENTS
Designbuild - Australia, 21 - 23 May
Future Proof Building Roadshows
Build NZ - Auck Showgrounds, 28 - 30 June
Jack of All Trades - TV ONE August 15th



Tech Spec: Steel Joists

FIRE RATED FLOOR CEILING SYSTEMS

FLOOR FRAMING: Steel floor joists shall be a minimum 190mm deep C-section with 45mm flanges and a thickness of 1.55mm, spaced at no more than 600mm centres.

Framing is required at the perimeter of the ceiling lining and at longitudinal sheet joints. Suitable perimeter framing includes a minimum 35mm x 35mm x 0.55mm steel perimeter angle or steel nogs.

Longitudinal sheet joints are supported on 0.55mm thick C-section steel nogs connected to the joists. The nogs have a minimum width of 50mm with 25mm vertical legs.

FLOORING: Flooring shall be nominal 20mm particle board or minimum 17mm structural plywood fixed to the joists in accordance with the manufacturer's specifications.

Flooring sheet joints must have a tongue and groove jointer or be formed over framing. Joints without a jointer must have a bead of fire rated sealant applied before sheets are locked together. Where tongue and groove jointers or sealant are not used the Fire Resistance Rating will reduce to 60/60/45.

CEILING LINING: 1 layer of 16mm GIB Fyrelite® fixed at right angles to the underside of the floor joists.

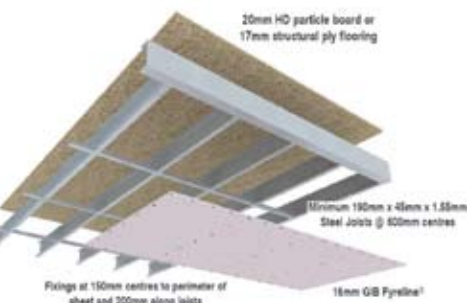
All joints must occur on joists, solid strutting or nogs. Sheets shall be touch fitted.

FASTENERS: 32mm x 6g GIB® Grabber® Scavenger Head Drill Point Drywall screws.

Fastener Centres: 150mm centres around the perimeter of each sheet and at 200mm centres along each joist. Place fasteners 12mm from sheet edges.

WALL/CEILING JUNCTIONS: The internal angle between the ceiling and walls must be protected by GIB-Cove® adhered with GIB-Cove® Bond, or boxed corners (square stopped) filled and taped in accordance with the publication entitled "GIB® Site Guide".

JOINTING: All fastener heads stopped and all sheet joints tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".



STEEL FRAME QUALITY

ARTICLE SOURCE - NASH

The frame of your building is hidden from view but the reality is there is much more to wall framing than meets the eye. The wall frame determines the quality of your building in both the short and long term. *For instance you need to think about:*

- How straight are your walls?
- How flat are your walls?
- How square are your rooms?
- How flat is your ceiling?
- How straight is your roof?
- How durable is your building?
- Do your doors or windows jam?
- Have nails popped in the plaster walls?
- Has the plaster cracked?
- Can structural pests cause extensive damage without you knowing?

Expectations

Several years ago, a consumer made a successful claim against a fast food retailer because the burger they bought did not match the appearance shown in the sales poster. The claim was unusual in that it did not involve those factors commonly associated with food complaints, eg ingredients, nutrition, taste, contamination, etc. The consumer's expectation was formed mainly by the photographic appearance of the product. Product safety and performance, even if quite satisfactory, were secondary considerations.

This type of consumer expectation, and the trading laws supporting it, has profound implications for homebuyers, investors and building practitioners. Almost everything a house has, does and displays falls into one of three categories: structural, functional or visual. Any home can achieve a higher or lower standard in one, two or all three categories. Some house attributes can be objectively described and evaluated, others only subjectively – in the eye of the beholder. Some attributes are immediately obvious, while others require expert knowledge or investigation to reveal.

Keeping up appearances

The current trend is to rely on "sample" specification when judging the look and feel of a finished house, and to incorporate these perceptions into building contracts. The client's home should be like the display in functionality and finish – just like the burger in the food poster - because those things can be pinned down by reference to the sample. TV "makeover" programs, in which a group of actor-renovators blitzes a property to increase its sale value or to surprise an occupant, reinforce the notion that appearance counts for everything, regardless of what's underneath.

Many people form their expectations of new homes' appearance and performance by reading journals and visiting display home villages, where they can evaluate a home's design and appearance features, the size and shape of the spaces, their configuration and inter-relationship, nature and colour of the surface finishes, appliances and other inclusions. The underlying materials and features of the home, and their long-term contribution to the "look and feel" of the display, are rarely mentioned, let alone considered in detail.

Style over substance

This as-per-sample trend encourages definition of "quality" in purely superficial terms. It draws attention to visual and functional attributes at the expense of structural ones, even if the structural attributes are essential to support them. It shortens the expectation of building life by focusing on the shell - those things which the client can maintain and if necessary, change or update.

For both the client and the overall community, this direction is potentially quite harmful in the longer term. It has the potential to undermine the long-term value of buildings and improvements, by discounting the value of stronger, safer and more durable structural materials. As long as

the paint is uniform, the tile lines and brick courses are straight and the included appliances work, the client assumes the underlying structure is equally satisfactory. Style prevails over substance and the substance remains largely concealed from view. Providing the building can survive its defect call-back period and its statutory warranty of 6 or 7 years, any shortcomings are neatly transferred to the owner as "repairs and maintenance". It shouldn't be like this, quality should be embedded, not cosmetic.

Focus should be on quality

The codes and standards that govern homebuilding in New Zealand embody an important principle: that homes should be designed and constructed to last a minimum of 50 years. They say very little about paint finishes and straight lines of bricks and tiles, and rightly so. These things have nothing to do with health, safety or functionality, and builders and their clients should rarely be arguing about them. The discussion should focus on quality and value; how long will the building last, what structural materials will it use, what maintenance will it require and how easily can it be modified or extended? If the underlying quality is missing, you can't simulate it with a paint job or a glossy brochure.

Why a high-quality frame is imperative

With framed construction, the most common choice for New Zealand homes, the contribution of the frame to the durability and longevity of the home is immense. The frame bears or transfers all wind loads and most dead and live loads to which the home is subjected. It also supports all cladding and lining materials and most fixtures. Failure of the frame to fulfill this function indefinitely in any part of the home can have serious consequences.

Such an important function dictates that the frame should always be made from durable materials, with no less than 50 years' expected defect-free life. Any part of it made from anything else should be readily inspectable to assess any deterioration. The manner in which most homes are designed and constructed makes it impossible to inspect many parts of the frame, including wall frames, intermediate floor framing and cathedral ceiling structures.

The frame's contribution to the serviceability of the building goes well beyond the impact of its possible physical structural deterioration. The frame provides the strength, stiffness and geometric stability of the building. Its ability to stay straight and square indefinitely, through varying seasons, with temperature and humidity changes, is vital to just about everything attached to it - the brick exterior skin, roof tiles or sheeting, window units, door frames, plasterboard wall linings, ceramic tiles and so on.

RFS Expands to meet demand

Despite the challenges businesses in New Zealand and around the world face, RFS have been able to continue with its plans for growth and continual development of world class products.

Todd Forsyth, Rollforming Services Ltd (RFS) General Manager, recently reported that the demand for its products continues to be high and that new products, RFS-Floor Joist System and the RFS-Steel Framing, are experiencing tremendous growth.

RFS have invested \$1 million in machinery and expanded their premises to ensure they are able to keep up with demand and continue to produce a quality product.

The RFS-Floor Joists are a new concept to the market and have a large number of benefits to builders and the end user. Builders are finding them excellent to work with and are reluctant to go back to traditional timber systems once they have used the product. They are a fast system to assemble, with predrilled and punched locating tabs. This eliminates the need for measuring onsite.

The RFS-Floor Joists have also been tested for fire rating and achieved 60 minutes, (Gib system GBSJ 60) Further testing with Winstone Wallboards has proven the product to be an excellent solution for noise control, (GBSJA 60).

RFS provide quality products to customers such as Steel and Tube and Dimond. RFS soon noticed a gap in the market for specialised Floor Joist products, which their customers were having to fill with make-shift solutions.

After investigating other options, RFS staff decided that they could do it better. Since introducing the Steel Floor Joist System to the market last year it has performed exceptionally well and RFS have now completed a specialist machine to further improve the product and expand production capabilities.

This machine is solely for the RFS-FJ240 Floor Joist and uses the Howick Framing machine technology to swage the ends of the Joists to produce very flat floors.

To compliment the expanding range of products, RFS have also invested in a Steel Framing machine and have formed a partnership to provide design and building solutions.

Customers require a complete solution to their needs and we can now provide it. We've recently doubled our floor area, allowing for more efficient assembly of RFS-Steel Frames. With our design and building partners we can now offer a complete solution from "concept to standing" the building.

If you want us to produce the RFS-Steel Frames, and you stand them yourself, we can do that, too.

RFS take pride and care in what they do. We make profiles for the building industry and also manufacture specialist profiles for playgrounds, radiators, lifts, fencing, transport and the garage door industry. This flexibility allows cost effective production runs to be made for a number of profiles.

We send our products all over New Zealand, as well as internationally. RFS-Floor Systems are shipped to Australia and RFS-Steel Framing has gone as far as Tahiti where we have had to satisfy wind loadings of up to 244kph.

"In one particular project for Tahiti the client wanted a building which would withstand a hurricane. Being one of the only manufacturers who can roll 1.6mm Framing, we were able to provide a solution for him."

RFS is a member of the National Association of Steel-Framed Housing Inc, where Todd serves on the board. We are proud to have an association with NASH and be part of this expanding industry. With sustainability and healthy homes being an important part of today's building, it's good to be associated with an industry which can make a difference.

ASK THE EXPERT



My Architect has drawn my house but now I want to build it in steel. How can I do this?

Your Architect can provide RFS with the drawing files. RFS can then convert these to the required Machine files and provide you with drawings labelled with the assembly order.

What happens if I want to change a position of a window after the frames are made and on site?

Every case can be different, however it can be easily changed by removing the sections which need to be changed and replacing them with the new ones. Usually these can be made very quickly and you still get the excellent finish you can expect using steel framing.

Can I put in additional service holes once the frames are installed?

Yes, easily as drilling a hole or using a chassis punch. Service hole grommets are available for extra holes.

Superficial and so-called "nuisance" defects in these materials, like sticking doors and windows, brickwork and cornice cracks, nail popping in wall linings and sagging roof lines, are often traced to instability in the frame. While these defects may not threaten the structural integrity of the home, their contribution to the overall cost of ownership and loss of its value can be significant.

Steel framing: the best option for building better

When strength, durability & quality are the important selection factors, steel framing is the natural choice for brick-veneer and direct-clad construction of homes and similar low-rise buildings. Steel framing also offers other outstanding building advantages:

- Design freedom, to easily create optimum architectural forms to suit client needs and local building conditions.
- Wide availability, so the preferred design can be built virtually anywhere in NZ.
- Fire resistance, with excellent early fire hazard properties so you just can't ignite it, and it doesn't add fuel to a fire.
- Low maintenance requirements, requiring low cost and effort to keep its design qualities intact.

- Trade familiarity, so there is always ready access to the skills to modify or extend the building.
- Reliability, so no need to replace steel building products because of technical fashion or new research.

NASH believes homebuyers and building practitioners should adopt the same definitions when it comes to the quality of the homes in which they share a common interest:

- Consumer Quality
- A well-informed consumer acting in a reasonable manner is satisfied with the appearance and functionality of the building at hand-over.
- Asset Quality
- A well-informed consumer acting in a reasonable manner is satisfied that the building has a 50 year life expectancy with reasonable maintenance.
- Reasonable Maintenance:
- An annualised maintenance cost not exceeding an agreed percentage of the original construction contract value.

Light, strong steel frames when quality matters – Steel: building better

CALENDAR

OF

EVENTS

FLOOR
JOIST
SYSTEM

STEEL
FRAMING
SYSTEM

FOR MORE INFORMATION ON RFS STEEL FRAMING OR RFS FLOOR JOISTS SYSTEMS SEE US AT ONE OF THE TRADE SHOWS BELOW

— **Designbuild**

Sydney Australia – 21 to 23 May 2009

— **Future Proof Building Roadshows**

Taupo – 9 June 2009

Napier – 10 June 2009

Tauranga – 11 June 2009

— **BuildNZ**

Auckland Showgrounds – 28 to 30 June 2009

— **Future Proof Building Roadshows**

New Plymouth – 25 August 2009

Palmerston North – 26 August 2009

Wellington – 27 August 2009

— **Jack of All Trades**

Television show featuring;
RFS-Floor Joists and RFS-Steel Framing
Saturday 3pm - Aug 15th TV ONE

Open Polytechnic
KURATINI TUWHERA



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Steel Framed Housing with NZ Steel – the way homes will be built in the Future

- Non-load bearing walls can be moved after the house is built so your home can be reconfigured to meet new requirements
- There's also speed as a factor – framing for a typical home can be erected by a small crew over two to three days
- Because steel studs don't absorb moisture and are dimensionally stable there is increased accuracy in construction, improving quality of finish and avoiding cracking in linings
- Insulation and wall linings can be installed faster without having to wait for the moisture content of wooden framing to fall to acceptable levels
- Steel framing is environmentally friendly – framing is 100% recyclable, wastage in steel plants is typically less than 1% and it can be reused or recycled when the building is demolished
- Steel frames are 100% termite, rodent, borer and dry-rot proof

- The cost of the framing is comparable with timber and there can be considerable time savings in construction itself
- NZ Steel offers a 50 year durability statement.

If you're building a home or doing additions to your existing home, steel framing is an option you should discuss with your designer and builder. Ask your builder if they're familiar with erecting steel framing as there are specific requirements they should be aware of.

Axxis STEEL FOR FRAMING
PROTECTING YOUR FUTURE



Visit the Axxis® website –

www.axxis.co.nz or the

National Association of Steel Framed

Housing – www.nashnz.org.nz for more information.

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