

TOTAL STEEL SOLUTION
Steel Frames



■ WALLS

■ ROOFS

■ JOISTS

■ TRUSSES



STRONG STABLE DURABLE

For simply superior frames

■ TOTAL STEEL SOLUTION
Steel Frames

“Steel is simply a superior building material”



“Steel is simply a superior building material”



Steel frames are ideal for new homes, multi-unit developments, apartments, storage units and commercial applications.

Internationally steel frames have been used for over 50 years and are common in countries such as the USA and more applicably Tonga, Australia. Using the same dimensions as traditional timber framing, Jones Industries steel frames and timber frames can be used interchangeably.

The Benefits of Impact Frames

Strong

Steel has one of the highest weight to strength ratios of all construction materials. This strength advantage means better design flexibility, wider spans, larger open spaces and better material usage.

Steel's strength offers you more cost effective design options, for example high stud walls in high wind zone to create a spacious atmosphere in your new home, greater joist spans to create more open spaces, etc. (Architects and designers can contact Jones Industries Frames for all span tables).

Steel's high yield strength and fire-resistant qualities also enable steel framed structures to resist fire, earthquakes and high wind loads far better than wood framed structures.

Stable & Straight

Steel is a totally stable material that provides a consistent product not subject to the variations of nature. Your walls, roof and ceilings are straight and true for the lifetime of your home.

Steel frames will not move after installation, twist, warp or 'settle' as is common with timber, especially treated timber. Jones Industries Frames offer a stable frame for your home and eliminates many common maintenance problems!

Stable & Straight for the lifetime of your home

Durable

The Galvsteel™ or ZINCALUME® coated products supplied by N Z Steel Ltd has an extensive lifespan - it is corrosive resistant, it will not rot or absorb moisture or grow toxic mold, and will not be affected by insects like the borer moth and termites.

Jones Industries Steel Frames' are backed by a 50 year durability statement from NZ Steel Ltd.

Jones Industries frames have an equivalent or better durability than compared to H3.1 treated timber which ensures the longevity of your home.

These durable frames are also used right throughout your whole home; from the bottom plate, to the middle joist, through to the roof; all the frames in your home are supplied in durable, stable and fire resistant steel.



Eco Friendly

Steel is non-toxic, recyclable and reduces your home's fire risk.

Steel requires no preservatives. Steel framed homes do not require pesticides or other toxic substances to protect

them from rot, termites, vermin, or mold. Several countries have completely banned the toxic CCA treated timber for homes.

The American Lung Association also encourages the use of steel framing with its Healthy House Program.



which converts the design into precisely detailed frame components. This computer controlled manufacturing process eliminates job site cutting and sorting material waste, speeds-up pre-fabrication of roof and wall assemblies and thus reduce labour expense in the factory and on-site. Each house is specifically designed and engineered to meet all your local Council's specifications. We provide construction plans and details to help the builder to correctly and quickly assemble the frames.

Fast Construction

Jones Industries steel frames are easy to work with. They are delivered pre-assembled and weigh about 30% less than timber frames. Because the frames are easy to handle on-site, they are quick to install and there is also no delays waiting for frames to dry. Jones Industries can also install the frames and thus by coordinating manufacture, delivery and installation with experienced installers, we can provide a fast construction time. We can even recommend sub-trades to again make your building process easier and faster. During our installation process we also have regular quality inspection checks as well as a final sign-off and supply a completion Producer Statement to ensure your installed frames meet our strict quality standards.

Cost Effective

Steel framing is competitively priced in today's construction market. Compared to the price of wood, steel prices have remained very stable over the past decade. While the price of traditional wood framing materials has been erratic and growing at a rate much faster than inflation, steel prices have only experienced small adjustments over the last few years. Because Jones Industries Steel Frames are the same dimension as timber frames we can quote on your plans drawn in timber.

Simply send us your plans and we'll give you a free quote.

Steel is 100% recyclable and can be recycled an infinite number of times without degradation. Worldwide, during the last decade more than 1 billion tons of steel scrap have been recycled, more than any other material, keeping this valuable commodity out of the nation's dwindling landfills.

Pre-designed

Jones Industries steel frames are manufactured from a computer controlled programme. We can directly import your architect's drawing or load-up your printed copies into our frame design software



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building a better Tonga

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Questions & Answers

Will using steel cost more?

No. It is actually less expensive than timber. The price of traditional timber framing has been erratic and growing at a rate much faster than inflation in NZ; steel prices have only experienced small annual adjustments. Plus, it's a lot faster to erect, saving on manpower.

What design can I use?

Steel framing is very flexible and can be used on any design. Steel's superior strength to weight ratio means you can span greater distances and create unique spaces quite easily.

What about linings and claddings?

Plaster Board linings are glued and screwed to the internal walls and roofs and any cladding choice can be fixed to the external framing.

How do I hang pictures etc. to the wall?

Use a standard picture hook. To find a stud for heavy objects use a magnet or stud finder. Fix the hook with a self drilling Tek screw.

Is steel framing safe electrically, and from lightning?

Yes. The steel frames offer better protection than any other construction system because the frames are earthed and all new housing is required to be fitted with "safety switches" to protect against earth leakage in the wiring. Being earthed, the steel frame will conduct any strike directly to earth, reducing the likelihood of explosions, secondary fires, or personal injury.

How is electrical and data cabling installed in steel framing?

The studs and plates have factory punched service holes to facilitate easy cable installation. Grommets can be fitted to protect cables and additional service holes can be drilled or punched on site, if required.



Strong

- offering more design options

Stable

- during the complete lifetime of your home

Durable

- backed by NZ Steel Ltd for at least 50 years

TOTAL STEEL SOLUTION
Frames offer a superior steel frame at a competitive price.

Ph 29-860 Fax 23-418

Mail: PO Box 34, Nuku'alofa Tongfa Office: Tau'fahau Rd, Tofoa
Email: steel@jonesindustries.com.to

Questions & Answers

Can steel framed homes be built on piers or concrete slabs?

Either. Steel frames can be fixed to a concrete slab or fixed to a lightweight steel floor system on brick, concrete or steel piers. Lightweight steel flooring systems are ideal for elevated or sloping slights as they can minimise foundation requirements.

Are more trade skills required to work with steel framing?

No. Constructing and finishing frames is about geometry, accuracy and familiarity with tools and procedures. Most trade operations with steel framing are the same as with timber. Some trade operations require specific information provided by Jones Industries while others need less and are simpler.

Can I have my frames and trusses pre-assembled, and are there any advantages in their off-site construction?

Yes, and the advantages are:

- Able to be stood up in inclement weather
- Shorter onsite construction time
- Lessens impact on local environment
- Safer construction
- Factory production minimizes material wastage
- Wastage and trimming are recyclable
- CAD integrated technology ensures precision components
- Eliminates the requirement for on-site skilled labour
- Just in time delivery - no need for onsite storage
- Ideal for situations where site access is difficult or restricted
- Easy to assemble, just follow the supplied layout plans
- Allows roof to be placed earlier
- Less overall labour costs

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"Self Healing Properties of Galvanized Light Steel

Galvanizing - Light Gauge Steel Corrosion Protection

Ken Vought, USS-POSCO

Engineers and builders who work with light gauge steel will automatically specify galvanized steel for their projects but may not understand why this material is so resistant to rust.

Galvanization provides a tough, metallurgically bonded zinc coating which completely covers the steel surface and seals it from the corrosive action of its environment in addition, the sacrificial action of zinc protects the steel even were damage or minor discontinuity occurs in the coating.

Zinc is a reactive metal that oxidizes in air to form a corrosion resistant film o zinc oxide.

The zinc oxide layer is very thin. Hard and tenacious and is the first "step" in the development of the protective corrosion product layer normally associated with the galvanized coating.

When this surface has access to freely moving air in normal atmospheric exposure, the surface reacts with rainfall or dew to form zinc hydroxide.

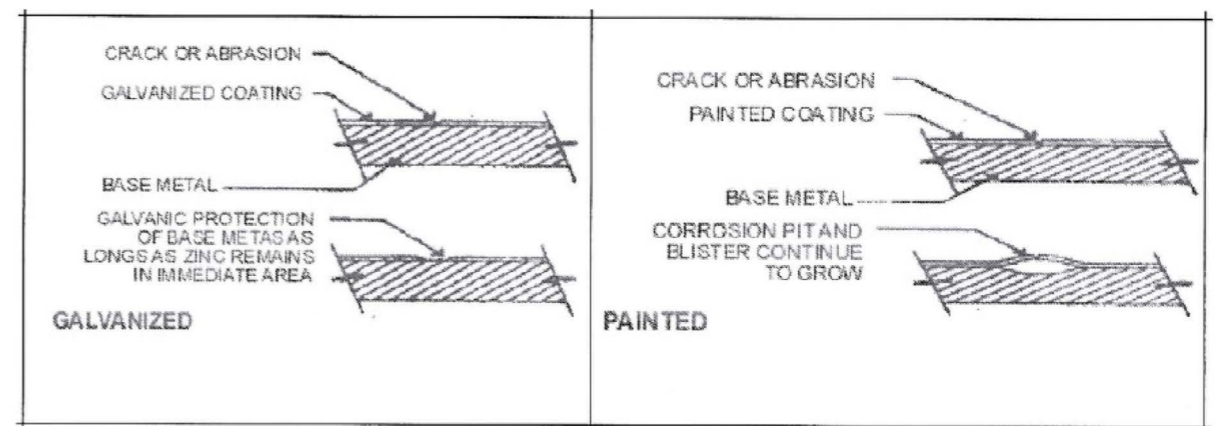
As the surface dries, the zinc hydroxide reacts with carbon dioxide in the air and is converted into a microscopically thin but extremely tough and adherent layer of basic zinc carbonate.

Because it is relatively insoluble, this layer is weather-resistant and, once, formed, minimizes further corrosion.

Painted steel: cannot offer the same degree of protection against corrosion.

When the surface of painted steel is scratched, the exposed steel corrodes and forms a pocket of rust.

This action lifts the paint film from the metal surface, to form a blister and corrosion pit which will continue to grow.



WHY STEEL?

"Why you should use STEEL"

Houses have been built with wood for hundreds of years. Old growth trees make a good building material. However, a dwindling supply of old growth trees and environment concerns has caused the quality to diminish. Today, it is clear that there is a need for a new building material. Despite the myths that still surround the use of light gauge steel framing, it has come to the forefront as the best and most feasible alternative building material for residential and light commercial construction.

Steel is a Superior Construction Material

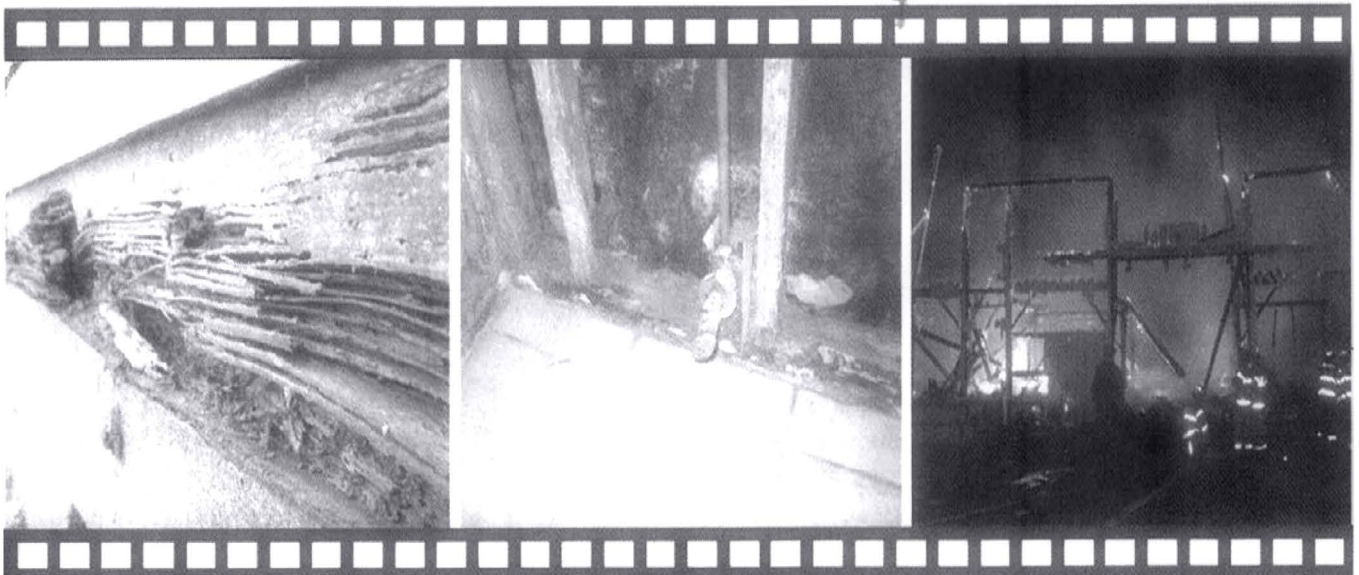
- Highest strength-to-weight ratio of any building material
- 100% recyclable
- Non-combustible - does not burn and will not contribute fuel to the spread of a fire
- Inorganic - will not rot, warp, split, crack or creep
- Dimensionally stable - does not expand or contract with moisture content
- Consistent material quality - produced in strict accordance with national standards, no regional variations

Benefits to the Consumer

- High strength results in safer structures, less maintenance and slower aging of structure
- Fire safety
- Not vulnerable to termites
- No Toxic chemicals are used to treat steel, unlike the treatment of timber.
- Not vulnerable to any type of fungi or organism
- Less probability of foundation problems - 5 times lighter than wood which results in less movement
- Less probability of damage in an earthquake - lighter structure with stronger connections results in less seismic force
- Less probability of damage in high winds - stronger connections, riveted and screwed versus nailed

Benefits to the Builder

- Lighter than other framing materials - no lifting equipment required on site. One person can easily carry a 5-metre fabricated panel
- Easy material selection - no need to cull or sort
- Straight walls and Square corners
- Calls backs due to cracks are eliminated
- Windows and doors open and close as they should
- Less scrap and waste (2% for steel vs. 20% for timber)
- Environmental selling and green positioning
- Consumer perceives steel as better
- No drying out period in wet weather, resulting in no delays



Termite Damage

Termites are known to destroy the wall and roofing timbers of a home within 3 months of construction.

As an example, termites cause more damage to homes in Australia than fire, floods and storms, combined.

Severe termite damage to a building is not uncommon. To compound the problem, your termites.

Toxic Mould

Moulds in Your Home can cause health problems and structural damage. The most common toxic mould is *Stachybotrys chartarum*, a slimy greenish-black mould that grows on moisture-laden materials. It does not grow on steel, nor does steel promote the growth of mould.

Mould can cause severe lung problems in infants and the elderly. Steel does not contain moisture like wood. Even kiln dried wood still has residual water content.

Fire Resistance

Steel framing is non-combustible and will not fuel a fire.

Steel will not ignite and withstands higher temperatures