Solid Wood Wall Systems

Building on a Reputation:-

Lockwood Homes

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Background.

Lockwood Homes have been manufactured in Rotorua since 1951, using their patented method of joining boards, the “X” profile, and steel tie rods connecting floor to roof.
Since that time, Lockwood Buildings have proven resistant to the major problems the construction industry faces in New Zealand:

- Wind
- Water
- Insects
- Earthquakes
- Bureaucracy

Cyclone Tracy caused substantial damage to residential areas in Darwin in 1974. “approximately 90% of all houses and 70% of other structures had lost part or all of their roofs. Loss of wall cladding and severe distortion of the houses were also found to be key characteristics.”

Anecdotal evidence was that Lockwood houses stood up well to the storm.

Salient features of Darwin's post-cyclone building codes (now adopted nationally for cyclone prone areas) include requirements that buildings be clad to protect them against flying debris, and that their roofs be tied to the foundations.
**Water.**

**NO** Lockwood Homes have been implicated in the disastrous “leaky homes” syndrome.

because

Lockwood Homes have always used tried and tested cladding systems, and homes are built by franchised builders, not “cladding contractors”.

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**Insects**

Lockwood Homes have always been treated to appropriate levels to prevent insect damage.
Earthquakes.

NZ has earthquakes, lots of them, and some are BIG.

The BBC’s Beyond 2000: programme featured the Edgecumbe earthquake and documented the fact that the Lockwood house below sat “unscratched” amid the devastation of the earthquake.

Lockwood Homes also carried out simulated EQ testing on a full sized 3 bedroom home, it survived three 7.5 (Richter Scale) earthquakes.
Lockwood Homes can build on these current strengths, but must also look to capitalise on the other strengths of solid wood construction:

- Sustainability
- Embedded energy
- Controlled environment
- Greenhouse gas profile
- Minimisation of landfill from construction process

**Sustainability**

Lockwood homes are built from sustainably grown radiata pine.

Importantly, we do the engineering, so sawmills do not have to spend time and money unnecessarily sorting for high stiffness pieces.

Usage of non-renewable materials is kept to a minimum.

Currently, our major demand is for aluminium external cladding because of its recognised low maintenance qualities, however we also offer cedar and pine exteriors.
**Embedded energy**

A timber framed, sheet clad, plasterboard lined wall has about the same embedded energy as a solid timber wall with 62 mm of timber.

A concrete block wall has about 6 times this amount of embedded energy.

**Controlled environment**

Wood can ameliorate the environment inside a home:-

- Thermal mass will store energy in the walls during warmer hours, and release it when the night has cooled down. (The thermal mass of a wooden wall is about half that of a concrete wall but there are lots of internal walls in a home).

- The heat of hydration of wood helps by the wood releasing heat as it absorbs moister air and absorbs heat as it releases the air.
Greenhouse gas profile

In the last 12 months or so, particularly since the hurricanes in SE USA (Ivan, Dennis, Katrina and Rita) public opinion is much more disposed to believe in global warming, and its effects.

Approximately 2/3 of the weight of wood is CO₂ equivalent.

Wood stores more CO₂ than is generated in its production

Hurricane Katrina destroyed, killed and had a global economic effect.
Minimise landfill from construction process

Building sites are notoriously messy and pollute roads and waterways.

Pre-manufacturing of the building in a factory means less site rubbish to be disposed of.

Solid timber homes use little or no gypsum board. It is now illegal in some states in the USA to put gypsum into a landfill.

Some very nice houses and commercial buildings can be made from solid wood systems.
Conclusions.

The world is changing, and peoples perceptions of the environment in which they wish to live and work are changing.

Lockwood Homes have always been recognised for their wood character and intrinsic values.

In the face of campaigns by other materials to emphasise their own “greenness”, solid wood home manufacturers must undertake an R&D programme to quantify their own environmental standing, and then make sure that this message is heard loud and clear by government, building authorities and customers.