

Executive Summary

Much has been written in the media, and some books published about a phenomenon in New Zealand called the 'Leaky Homes Syndrome'.

The Syndrome was first identified as a serious problem around 1998, by a pioneer 'whistle-blower' Greg O'Sullivan, a long-time Director of building advisory firm Prendos.

However, successive governments then ignored his pleas, or worse still, totally denied that the problem existed - for many years afterwards.

We are not leaky home victims, at least not in the definition that is used to describe homes which leak and which have untreated radiata pine timber framing in them which has partially, or totally rotted away. Although, both (pre-1995 built) houses owned by the author leak (but have treated framing timber).

In fact the two phenomena are so different in the scale of damage and financial losses resulting from water ingress into timber homes, that they should not both be called by the same name.

The vast majority of industry experts, the media, politicians and lawyers have continued to refer to these phenomena as 'leaky homes', so we will continue to use the term frequently in this Review.

Most people have 'blamed' the damage caused to leaky homes on substandard building practices and substandard building materials (but excluding framing timber); and on the permitting by Councils of 'non-compliant' houses.

But in this Review, we take a different tack. Instead, we believe that there is compelling evidence that 'leaky homes' should much more accurately be called something different. In fact the late media personality Paul Holmes correctly identified the subject of this Review, when in 2010 he stated:

"Leaky homes, or to give them their more correct title, rotting homes, they are a festering, depressing, unhealthy, ongoing sore for thousands of New Zealanders, their woes have gone on for years."

Our premise is that the fact that houses leak is a tautology, and indeed in New Zealand some radiata pine used in house framing in almost all houses will rot sooner or later if it is not properly treated.

This whole catastrophe occurred because the following four words were ignored from 1995-2004, and partially to 2011.

Houses leak. Timber rots.

However, this was not the collective 'wisdom' of swaths of the entire wood processing and timber treatment, building materials and building design and standards industries, as well as government departments, and governments themselves from the early to mid-1990s, for 20 years.

During that time there was a collective conspiracy to consign 100,000 years of experience to the dustbin and to embark on what has led to the greatest financial disasters that will ever be experienced in New Zealand, bar none – and ultimately will also likely be a large human tragedy.

And it was almost entirely avoidable.

Houses have been built using some wood in all continents for millennia. But many wood species in overseas countries are highly durable and very much less susceptible to decay, or houses are built differently, or they leak but only small components of houses are wooden, so leaks do not matter that much.

But the New Zealand housing industry was almost entirely premised on using framing timber for much of the construction. This even included in mid- and high-rise apartments, where timber framing and roof trusses were and are commonly used.

Early New Zealand houses were built using very durable and decay-resistant native species such as Kauri, Rimu, Matai and Totara. Some of the trees from which this timber was cut were more than 1,000 years old, and the timber used was all or mostly extremely decay resistant 'heartwood'.

But as early as the 1920s, houses started to be constructed using an exotic plantation-grown highly perishable pine species, radiata pine, which even if left to grow to 50 years or more, was very much more susceptible to decay fungus than native species.

In fact, we contend that radiata pine is more susceptible to decay fungus attack than any other species used in house building, anywhere in the world.

This was known by scientists, foresters and the building industry from as far back as at least 1925 (and perhaps before that).

As a result a large amount of scientific and practical evidence was built up over the decades. This ensured that radiata pine used in houses should be, and then had to be treated against both decay fungi and borer insects. The fact that these chemicals (and specifically from the early 1950s, boron) prevented decay was widely known and reported on.

This included the State Advances Corporation from the 1940s where mortgage lending was approved only on houses if the timber was treated and the New Zealand Forest Service in 1950 stating categorically that only treated timber must be used in house framing – and following a major national timber treatment inquiry in 1952, the almost universal use of boron treatment for all radiata pine timber house framing.

This led to an unbroken 43 year 'golden period' when there were no measurable decay failures in any New Zealand houses.

In fact during that period, there were no real scientific tests on decay resistance.

There did not need to be. There was very little/no decay.

In addition, there was no timber house decay-failure 'remediation industry' in New Zealand, as there was in several other countries.

There did not need to be. There was no remediation necessary.

Also, during the 1980s and early 1990s there were well documented major decay failures of untreated timber houses in several countries, including Australia, Canada, UK and USA.

By 1991 the amount of historic information and data on the use of timber in houses overseas and in New Zealand was substantial — and was all freely available.

So much so that any rational person would have concluded that there would never be even the slightest possibility that anyone in the wood processing, wood treatment and building industries, and

especially government departments and politicians, would even begin to contemplate the use of untreated radiata pine timber in New Zealand housing.

But no-one had contemplated the focussed energy, nor drive, nor the naked obsession bordering on cult behaviour of some in the New Zealand wood processing/timber treatment industries to reverse that 43 year 'golden period' and instead to engineer a future leaky homes 'nuclear winter' for victims.

This probably started around 1991, and was executed from 1995 to 2004 — and even to 2011.

This has resulted in more than \$50 billion in damage mostly due to rotting untreated radiata pine in leaky homes; and the serious financial damage, a loss of health, and some premature deaths (including suicides) caused to hundreds of thousands of innocent New Zealand house buyers — which continues.

One major company in particular, but ably assisted by another major company, ensured that all previous facts about the 'golden age' for almost half a century were minimised, or suppressed, or even obliterated from the collective consciousness of the industry and government.

The amount of effort and propaganda skills, apart from reported and alleged chicanery, which went into this process, was truly monumental.

It resulted in the majority in the industry and government being so totally overwhelmed with this tsunami of propaganda, to the point that in 1995 building standards were revised (by otherwise sane and sensible people, including some industry icons) to allow totally untreated radiata pine framing to be used in New Zealand houses.

Those who resisted the move, including some eminent New Zealand scientists with international reputations, and some New Zealand wood treatment specialists, were all tossed aside like rag dolls, or worse.

It must be noted that even this propaganda would have failed but for the complicity of government to actually adopt new building standards. Without that happening, there would have been leaky homes — thousands of them — from 1995 to 2014 and to 2011, but any financial damage caused by leaks would have been but a fraction of what has occurred and continues to occur had the timber been treated against fungal attack.

It is not possible to quantify the specific damage costs of rotting timber by itself, isolated from other elements, but we estimate that damage costs of leaky houses if they had treated timber might account for only about 10–15% of what the costs would be with untreated timber.

It soon became obvious that the change to kiln-dried untreated timber was causing serious damage, to the extent that increasing cases of total destruction of framing in houses which leaked was occurring. However, from 1998 until 2004, no effort was made to change the standards and so pent-up damage, and new damage just kept growing—exponentially.

These years became some of the most shameful in New Zealand's political history.

Successive governments, including Prime Ministers ignored what was smothering their faces to the point of suffocation, and one in 2002 even publicly denied there was any problem, while at the same time plotting (successfully) to pass legislation which built a firewall between leaky homes victims and any government liability.

During this period from 1998 to 2004, major processing companies and their associations, and government departments were all trying to suppress and minimise any publicity about damage; but finally they were dragged kicking and screaming into having to face facts. The standards allowing the use of untreated timber were partially rescinded in 2004, but not finally rescinded until 2011.

The cost in financial and human suffering resulting from the use of untreated timber in houses has continued to escalate — from a crisis to a catastrophe. Various reports, from as early as 2002, have been made of the financial cost, which has escalated from less than \$1.0 million to between \$11 billion and as high as \$22 billion in a PwC report in 2008.

We are confident the costs are magnitudes higher than this — and will be at least \$50 billion and maybe as high as more than \$100 billion.

So many shrink wrapped plastic ‘tents’ are over houses throughout New Zealand in 2017–2018 (signifying major damage remediation or even total house destruction due to severe rotting of timber), that we have only half-jokingly suggested that this plastic tent has become the new national flower of New Zealand.

So as the carnage continues, and will for years/decades to come, have we learnt anything?

Yes, we have, particularly in modified house design and building materials, which may reduce future damage.

However in other areas we have not learnt from history.

For starters the government, which ultimately caused the catastrophe by changing building standards, has continually downplayed, through to totally denying, that there has been a problem.

A reluctant National government introduced a ‘surface scratching’ subsidy scheme in 2010 to partially help some victims, but that has already been terminated, after less than 1% of the total costs were allocated.

Indeed New Zealand governments have paid out more for Americas Cup regattas than to hundreds of thousands of leaky homes victims.

If governments had applied the same level of self-censorship to the Christchurch and Kaikoura earthquakes that it has to reporting on leaky homes, the New Zealand public would have been told there were almost no deaths and hardly any property damage in Christchurch in 2010–2011, and that only a few small pebbles fell onto the main road and onto the main rail-line in Kaikoura in 2016.

The government continues to ignore the problem to this day.

For instance, the government building Ministry, which briefed the incoming Ardern government on building issues in late 2017 ignored that there is any existing leaky building problem (there is — a massive one) and made scant mention of earlier lessons. It even used 10 year old damage cost estimates which even then those at the periphery of the leaky homes catastrophe knew to be only a fraction of the true cost to date.

But possibly the worst of all; in 2016–2017 industry, science and government officials met to completely rewrite building standards as they relate to the use of treatment chemicals in timber, and the use in houses.

Inexplicably they have voted to re-introduce untreated timber into houses; albeit with a requirement for an ‘envelope’ of anti-decay boron treatment around the surface of timber framing. Almost 50% of the timber will be 100% untreated, and will still comply with the building code.

If history is any guide, and it will be, New Zealand house builders and owners may yet again be facing sloppy manufacture and treatment — or worse; and sloppy handling and installation of this timber in houses — or worse.

Will it be ‘Back to the Future’?

In summary

Would we buy a house made out of radiata pine framing which was built before 1995?

Yes, but we would ask for the timber to be checked if it was built between 1992 and 1995?

Would we buy a house made out of radiata pine framing which was built between 1995 and 2004?

No.

Would we buy a house made out of radiata pine framing which was built between 2004 and 2011?

Maybe — but we would want the timber in the house to be checked.

Would we buy a house made out of radiata pine framing which was built between 2012 and 2017?

Yes

Would we buy a house made out of radiata pine framing which will be built from say mid-2018?

If we could guarantee it was built with fully treated H 1.2 framing timber?

Yes.

But, if there is even a suspicion that it was built using H 1.2 E framing timber?

No.

But — In conclusion

By following some simple rules, properly treated and properly supply chain managed, radiata pine framing timber can be the envy of the world as a building material.