“New Zealand was built on forests and wood. It was the material of choice for housing, for farm buildings and fences and it provided energy and heating. At the core of the pioneer economy wood took New Zealand forward to become a first world country.

At this time wood’s role was clear – the foundation of our development

“Fast forward to today and wood is at the centre of a new challenge. Our forests stand between us and the harmful CO2 which is threatening climate change. For this reason alone wood has new meaning in our country.”

I have been asked to speak on the changing role of wood in New Zealand’s building and construction industry and set the scene for today’s conference. My contention is that to go forward in the way we all want wood has to positively define its role in contemporary society and economy. Today’s economy is dynamic. It will not be enough to rest on the traditions of past wood use. Instead wood’s value proposition needs to be restated and redefined.

What’s more, a strong future for wood is not going to just happen. It needs to be actively shaped.

As I am sure we will hear from today’s conference presentations, wood is potentially standing on the threshold of a new era of development. The challenge is to be able to take hold of the opportunities presented on a scale that will make a significant difference, not just identify them.

Before considering these developments, let’s step back a bit. If we take a long term historical view of wood it has lost a lot of ground domestically. From dominating most aspects of residential construction wood is not the force it once was. The losses have been primarily in specialist product areas for use in new houses such as cladding (with around a 15% share in new housing), windows (less than 3%) and flooring (less than 25%). The beneficiaries of this loss have been substitutes such as brick, fibre cement and steel cladding, aluminium window systems and concrete slab flooring systems.
This has been a slow process of erosion where substitute products have offered benefits wood has not easily been able to match, whether on durability, ease of application, performance or availability. Wood has been presented with a challenge and too often has not been able to see off the competitor. The dominance of brick veneer in new housing has, for example, arisen from the maintenance concerns associated with wood. Aluminium windows have proven to be a highly effective system and the convenience and stability of the concrete slab foundation has relegated traditional pile construction largely to sloping sites.

Wood’s dominance has been pared back area by area. It has, however, been able to maintain its edge in framing. Why - because of its flexibility, lightweight construction and cost effectiveness. Yet, this space is under attack from steel substitutes which claim the same attributes.

Wood continues to be used for alterations to match existing materials, but even in this use it has suffered at the hands of substitutes. Matching like for like, wood with wood, seems to be less important to people these days. Other considerations such as cost and performance are influencing their choices.

There is a real danger that wood will gradually get relegated to character or appearance uses unless it can be attributed with new purpose and meaning. There is nothing wrong with character use, in fact the appearance of wood is one of its great assets, but when you consider the small size of the character market then there is cause for concern. Whether new or alterations, character houses are generally designed by architects, but when one considers that less than 7% of new houses are designed by architects, this is hardly a mainstream market.

So wood, once so dominant, has become more vulnerable. In the early days of NZ Wood the TV advertising programme reversed the falling trend of wood use for framing in residential homes. It lifted wood framing market share from a low of 88% and falling, back up to 94%. This level was held for three years, but latterly there is again evidence of it beginning to fall. Wood is certainly vulnerable.

In the other area of building material consumption - industrial, commercial and community construction - wood has largely been a bystander in a struggle fought out between the two juggernauts - concrete and steel. Wood has picked up some share here and there such as in
education, hostel and some community uses, and especially in appearance areas such as interiors, but wood’s share in all the main areas of this type of construction rarely rises above 15-20%.

Is wood losing its role? Is it becoming less relevant? Do new substitutes have more to offer?

The New Zealand timber industry does not have this situation on its own. Australia, Canada and the US are in similar positions where timber is the first choice for residential framing but they have likewise lost share in special uses such as cladding and floors. In Europe and the UK timber is, of course, a minority-use product except in the Scandinavian countries and parts of Germany. Wood promotion is an international concern and there is a growing body of international knowledge about how to approach it.

Other traditional industries are trying to address related problems. The red meat industry, which has been at odds with itself for years with competition from white meats, poor returns, gruesome and expensive procurement wars and undercutting of each other in international markets has recently tried to address this situation. Their issues are somewhat different but comparison is useful. They have recognised that the problem is less a product one and more people one. Industry dynamics are getting in the way of progress.

They engaged external consultants to prepare a strategy and dozens of industry meetings later they launched their strategy earlier this year. Its focus is to start from the market and work back to the farm rather than vice versa. Instead of pasture to plate, which is a product-driven philosophy, their new thinking is plate back to pasture – a market-led approach.

The jury is still out as to whether there is the leadership in the meat industry to overcome the proprietary commercial forces that work against this type of approach. But at least they have tried to grasp the nettle and something positive will surely come from it.

The impasse in rural water management, irrigation, where the environment versus development debate had ended in the environment court again and again with little or no resolution and horrific cost, has been rethought and collaborative initiatives such as the Canterbury Water Management Strategy are creating new opportunities. This approach focuses on the stakeholders and relationship building to overcome enmities.
The challenges of the fertiliser industry with nitrogen and nutrient loading and sourcing their material has likewise seen the consolidation of that industry down to what today is just two main players and a tight focus on the industry’s challenges. They recognise that the indiscriminate flogging of product is going to damage farming and ultimately their own interest. They have funded science and innovation to encourage sustainable use of fertiliser. This has been a big mindset change.

Right under wood’s nose, the concrete and steel industries have changed dramatically. Partly as a result of the mortal struggle between the two of them for the commercial high rise market during the 1980s and 1990s these two industries have become battle hardened. They have consolidated and there is strong vertical integration. The result is a small number of large players controlling industry strategy. Of particular interest to the wood industry is that the steel industry established HERA, an advisory service to engineers in particular but also architects. It represented the whole industry and was a major factor in the resurgence of steel in commercial construction during the 1990s and 2000s.

Much of this is about the industry – the people dimension – as much as it is about the product. What can wood learn from this? For a start, the timber industry does not use a levy which many others do and which, interestingly, is where the North American industry has recently moved to. But we will come back to that.

So change has taken place in industries around the wood industry. What about changes in the perceptions of the product. I would like to cover a number of these.

- **Sustainability/renewability**

  There is a view that sustainability is just “so 2008” and that that tree hugging business promulgated by the Labour administration is now over. Nothing could be less true. Just visit Europe and see how much further advanced this thinking is than here in New Zealand. The emphasis has shifted a little to energy efficiency, but significant improvements in the energy efficiency of houses in the UK, for example, is now legislated with stringent regulations to take effect between 2012 and 2015. It’s real and gaining momentum throughout Europe.
There is another potential milestone ahead in international carbon policy. The carbon stored in harvested wood could be counted into carbon storage as with live trees. This could be a major advance for the contribution of wood to the mitigation of climate change. It may finally wake up the Green Building Council to the value of wood.

Let’s also not forget that we have an operative ETS regulation here in New Zealand - now. It is here to stay in some form. Agriculture is scheduled to join it within five years.

It is true that sustainability has been tempered by affordability considerations as a result of the global financial crisis, but still up towards 30% of the market regards sustainability as important.

Wood is a hugely renewable product and that characteristic of wood is firmly lodged in the consumer’s mind as a result of the NZ Wood programme.

- **Durability/flexibility**

  The cost of building is increasing. This is not just the cost of new materials, but the disposal of demolition materials. Yet the life of particular building configurations is shortening. A building may need to be reconfigured (or retrofitted) several times in its life to adapt to changing requirements. The cost of adaption to new uses and the material flexibility to allow it is becoming important.

  Once again this is an advantage of wood that is gradually growing in the consumer and professional mind.

- **New technologies**

  You are all aware of the new technologies emerging in multi-storey timber construction through the use of engineered woods. Engineered woods, together with design innovations developed through STIC at Canterbury University have exciting prospects. These technologies give wood greater flexibility but in particular they address the core consumer (and construction industry) concerns about wood which are strength, stiffness and consistency.
• **Speed of erection**

Time is money. A long construction time is a cost to the client. The quicker a building can be erected the better. This is largely a supply chain issue as more and more of a building is fabricated off-site and the onsite task distils down to assembly. Factory-based fabrication is quicker, more energy-efficient, reduces waste and enables the maintenance of high standards of production.

The light weight nature of wood makes off-site fabrication and transportation to site that much easier and therefore potentially less expensive. The frame and truss industry is already built around this premise and the learnings from this can be equally applied to multi-storey commercial construction.

• **Price v cost**

The total cost envelope is increasingly becoming the focus rather than just the material cost. Other costs such as transportation of materials to the site, crane use, reduced workforce requirements and length of construction all figure in the final cost equation. If the total cost envelope can be reduced then this is potentially attractive to the client and makes wood that much more competitive.

When I was in the UK earlier this year visiting a number of wooden apartment tower blocks including the Murray Grove Studhaus Building designed by Andrew Waugh, who is in New Zealand this week delivering a seminar series on his work, I saw wooden buildings where there was no visible wood! Clad in brick or some other veneer and lined with plaster board, these cross-laminated timber buildings were, I was told, 15% cheaper than competing buildings in concrete, much faster to erect and just as solid as anything in concrete or steel.

These are not wood character buildings. You can’t even see the wood. They are mainstream constructions built by the best performing material available – that is, wood.

Why was wood cheaper and at least equivalent on all other criteria? I was told that the real innovation was not in the product, although that’s important, but in the supply chain. Precut in Austria and trucked to the UK, the large made-to-measure members were quickly lifted into place with lighter cranage because they were relatively low weight and easily manoeuvred. With impeccable teutonic exactness these buildings represent a significant
advance. Andrew Waugh is currently designing a large medium rise hotel using exactly the same approach.

There is enormous potential for a favourable cost envelope using wood.

- **Seismic**
  More recently since the earthquake season that seems to be upon us (and other countries around the world), seismic resilience has become a major consideration. As a generalisation, current design protects life but not necessarily the building structure. Materials and construction methods that also ensure the ongoing post-quake functionality of the building are becoming more attractive.

Even if people are told that heavy concrete and steel high rises are safe, for now at least, many people are going to be reluctant to work in them – definitely in Christchurch. I was fascinated in Wellington after the second Christchurch earthquake that all the tenants of the 12 story building we occupy insisted that the owner get an engineering seismic assessment of the building for the purpose of reassuring jittery staff.

The potential for wood in multi-storey buildings to provide earthquake resilience that is better than concrete and steel equivalents, and to be seen to do this, is significant.

There is another trend that we need to consider and that is the city of the future. This is the broader context into which all this sits. With less than 10% of our population left in the rural areas, New Zealand, like all western countries, is now highly urbanised. Increasingly cities define countries. Take Auckland, a city in transition. Is it a sub-regional centre in the South Pacific or is it an international city like Sydney, Melbourne, Singapore and Hong Kong? The answer is that it is somewhere in between, trapped in something of a no-man's-land and in transition. New Zealand needs Auckland to be part of the international big city network. It needs to be large enough to have international critical mass. That's how we will retain talented people for our future development – too many of them are fleeing to other cities around the world. But those same people also want to live in cities that while large, are of a human scale, that reflect the environmental values of New Zealand. This is a challenge for the designers. The quality of the living/working environment will be vital. The nature of open space and the textures of it will be important. The future of cities is a
primary concern of such organisations as the Institute of Architects. Stop and think what that might mean for the timber industry.

Our second largest city, Christchurch, as a result of the tragic events there, now has an opportunity. The challenge is to create the city of the 21st century almost from a clean sheet. Planning activity on a scale never before undertaken in New Zealand is being done in Christchurch. Ideas are being created and churned. The vision emerging is of a low to mid rise city interweaving residential, commercial and recreational. It will be an integrated city less dependent on oil because it will have to survive through the upcoming peak oil impacts.

The discussion about wood’s role in Christchurch is well advanced. We should be engaged in a similar discussion about the future of Auckland. The wood industry needs to be actively participating in this thinking to help it define its role and contribution. We are not talking about flogging more product, we are talking about positioning the product for the future.

So what is the role of wood in the future?

The answer: what the industry chooses to make of it. The industry needs to see itself less as reactive to trends and more involved in the shaping of trends. The involvement of NZ Wood in Christchurch, which you will hear about today, is about shaping a future for Christchurch where wood is a vital ingredient.

Undoubtedly, a strong coordinated effort is required. The timber industry is a diversified even fragmented industry. The consolidation of the fertiliser or concrete and steel industries may neither be desirable nor possible for wood. Maybe a more collaborative approach is required more along the lines of what is emerging in the meat or irrigation industries. What is for sure is without positive strategic leadership then the unique opportunity presented by these trends that I have outlined will not be grasped. One thing we can be sure of is that other industries, seeing these trends, will adapt and the opportunity for wood may close off.

What are some of the vital ingredients?

- A significant industry presence able to undertake the shaping task I have referred to
• An industry levy that pays for this work on an equitable basis and avoids the free-loader problems
• Engagement internationally and use of international best practice
• Long term consistency and commitment – Rome wasn’t built in a day

In closing I can’t help but reference the Rugby World Cup as we are almost upon it, or it on us.

The flare in attack (and defence) that we saw in the All Blacks in their early games in the Tri-Nations this year was breathtaking. They put that half-baked Springbok side to the sword and dismantled the hapless Wallabies, primarily by exerting enormous pressure on the opposition defence which cracked. It reminded me that the All Blacks are shapers in the international game.

Then, no more than a fortnight later we saw the same team, themselves this time the hapless ones, being outplayed by those very same teams who had become more organised and proactive while the All Blacks had defaulted to a very studied and defensive style with ineffectual and uncoordinated attacking moves.

What happened in just a fortnight? What is the lesson here? It is so easy to take one’s eye off the ball, stop shaping and default to reaction. It is too easy to default to playing as a bunch of individuals rather than a team. We also know you don’t win anything by being solely defensive, although defence is a vital ingredient of winning. But to win you have to put points on the board. You have initiate, innovate and execute. You have to make trends work for you.

We are all on tenterhooks about whether the All Blacks will get the combination of sturdy defence and strategic attack in the right proportions.

If we are going to change the role of wood we need to play an expansive game. You win a game by scoring more points than the opposition. Wood needs the capability and the attitude to take initiatives, counter attack if you like, and score winning points. I will leave you with that thought.

Thank you

Geoff Henley