Wood Preservation Conference
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Disposal of Treated Timber
Murray Parrish
Carter Holt Harvey

Wood is good c/f steel, concrete, plastic, etc.

• Natural renewable resource.
• Low inputs and good soil / water c/f other productive land uses.
• Solar powered (photo synthetic) production
• Stores atmospheric carbon dioxide.
• Processing residues utilised as biofuel; low embodied carbon footprint.
“Sustainability” is a subjective term used selectively!

- Worldsteel Association 2008 sustainability report summarises environmental sustainability as:
  - Eco-efficient steel products that are 100% recyclable
  - Synergies with other industries to maximise by-product recycling
  - Responsible use of natural resources

Things they may not tell you?

- $2\text{Fe}_2\text{O}_3 + 3\text{C} = 4\text{Fe} + 3\text{CO}_2$
- 1 tonne steel = 8 coal = 24 tonnes CO2e
- Steel is ‘treated’ with zinc, chromium and paint.
- Metal conducts c/f wood: implications for in-service energy costs?
- Limited biodiversity / recreation in average coal pit!
- Easy to criticise or accentuate the positive!
Climate Change/Carbon Footprint of Growing Interest

- Aluminium: 227.0 MJ/kg
- Steel: 35.0 MJ/kg
- Cement: 7.8 MJ/kg
- Timber: 0.3 MJ/kg
Wood at ‘end of life’ a fly in our ointment?

- Forestry residues biodegrade or are utilised for energy etc.
- Waste Paper has a value with recovery and recycling systems world wide, but....
- Wood based building products including treated wood are mostly landfilled.

Product Stewardship is based on the idea that companies that profit from the creation and sale of products should take back their products once their customers have finished with them, rather than relying on taxpayers to pick up the tab when they get chucked out. The added costs make companies think about increasing the lifespan of products they produce.
Waste Minimisation Act 2008 (and equivalents in Australia)

- **Purpose:** “encourage waste minimisation and a decrease in waste disposal”.
- The Minister may, by notice in the Gazette, declare a product a priority product.
- Imposes a **reviewable** levy ($10) on waste.
- Levy ‘hypothecated’ fund for local government, researchers etc…..(like busy bees to honey?!)

CCA (and other) timber treatment

- In increasing use since the 1950’s.
- Safe and efficacious product.*
- Phased out of domestic use in Europe and North America.
- Extensively reviewed by APVMA (Australia) and ERMA (NZ) in the 2000s; domestic use retained.*
- APVMA and ERMA identified ‘end of life’ disposal as ‘a perceptual issue’; municipal landfill is acceptable.
- Weathertightness motivating greater use of treated timber, including CCA.

* "CCA-treated wood has ...been in use for many years without discernable adverse health effects suggesting that if there is a true increased risk it is very small.” (ERMA Report on CCA: Read; 2003)
Product Stewardship; options and issues

- Treated wood waste is increasing in volume and as percentage of total; ‘recycling’ of steel and masonry, age of housing stock, earthquake recovery.
- Limited reuse occurs; a delay at best.
- Incineration (with or without energy recovery) possible but likely opposed. (neighbours, recycling industry and landfill operators.)
- Reprocessing for recovery of ‘actives’ technically possible, eg pyrolysis and chemical extraction.
- Issues to resolve include...

Product Stewardship; options and issues cont...

- 2008 (NZ) WPA request for levy funding of ‘actives’ recycling declined by (NZ)MF E.
- Separation at source or transfer station difficult and costly (eg earthquake recovery)
- Cross-contaminants include fastenings, concrete footings, varying chemical treatments, etc.
- Possible opposition from ‘losers’: landfill operators? treatment chemical suppliers? free-riders? customers?
Wood Products In Landfill

- Wood increasing % of ‘C and D’ waste, and from an identifiable ‘producer’.
- 2.3 million tonnes solid wood disposed of to landfill out of an estimated total of 9 million tonnes (2003/4).*
- Wood persists in landfill, losing only 20% of carbon content over 50 years.*
- Treated wood likely more persistent than average waste, therefore not a significant leachate and landfill gas risk.

*The Decomposition of Wood Products in Landfills in Sydney, Australia; Ximenes et al 2007.
Treated Wood Waste Equals ‘Carbon Capture and Storage’

- Internationally agreed; wood products have carbon storage ‘half life’ of 35 yrs. (Climate Change COP; Dec 2011).
- Wood waste in landfill has positive environmental value; therefore = cost effective ‘product stewardship’?
- Caution; reality does not always equal perception!
- Separation of wood waste at source ‘or transfer station’ could improve management and perception through segregated burial; paid for through carbon storage value.
- Segregation a precursor to alternative use and or recovery / recycling of treatment chemicals.
Perception does not always equal reality.

Conclusions

• Wood is good!
• ‘End of life’ a ‘fly in our ointment’.
• Disposal of wood waste to municipal landfill environmentally acceptable and cost effective.
• Continued investigation of recovery for recycling is desirable; could be made mandatory in future.
• Wood in municipal landfill and or segregated ‘store’ is ‘carbon capture and storage’.
• Proactive management of ‘alternative use’ issue needed to maintain regulator / customer perception of wood as environmentally responsible choice.