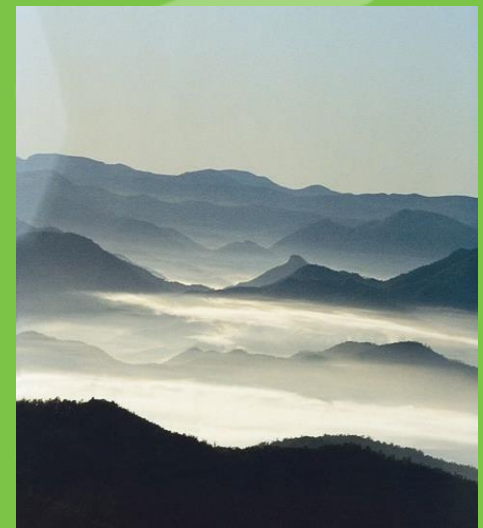


# EWP - the good, the bad or the ugly?

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EWPAAs Symposium, Nov 14, 2014



- Life Cycle
- Sourcing
- Certification
- Eco-Labels
- Health
- Industry & Market
- Future



# Life Cycle

- embodied energy,
- embodied water,
- climate crisis changing ecosystems,
- carbon sinks,
- longevity/durability,
- rapidly renewable,



# Life Cycle

- Wood has
  - low embodied energy, 6 -15 MJ/kg,
  - Low embodied water 800-1,000 litres /tonne?
- Plantation -sustainable framework.  
Sustainable use of water.
- Recycling – pre-industrial waste
- Carbon sink (wood can last 200 years in soil)



# Sourcing

- Source of the fibre –
  - Forest,
  - plantation,
  - re-used, recycled,
  - imported/exported.
- Certification – Forest management, COC
- FSC/PEFC



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# Certification

- Confusion between Wood Certification and other Material and Product Certification
- GreenStar Credits:
  - Formaldehyde,
  - Timber Credit (Certified Wood)
  - Materials Calculator, (Certified Product and/or Certified material)
  - Product VOC emissions

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# Certification

- Project Certification
  - GreenStar, LEED
- Product Certification
  - Green Star Material Calculator
    - Product (Greentag, GECA , Furntech, IMTS),
    -
- Material Certification
  - GreenStar Timber Credit (FSC/PEFC) ,
  - Green Star Material Calculator
    - Ecopreferred Content, includes FSC/PEFC, Greentag, GECA , Furntech, IMTS
- VOC emission testing

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# LEED (USA) Credits

- No added urea formaldehyde resins
  - phenol formaldehyde replaces it
- Rapidly renewable - <10 years
- Pre- & Post-consumer content
- Local harvesting and manufacture <800km
- VOC testing



# Eco-Labels

- EcoLabels – GreenStar
- Product certification;
  - **Greentag**, - require certified wood FSC/PEFC to be used;
  - **GECA** – also allows plantation timber,
  - **Furntech**, - require certified wood FSC/PEFC to be used;
  - **IMTS** –Credits for FSC certified wood
  - **All** – have emissions criteria



# Emissions

- Wood Formaldehyde emissions categorisation
- Different methodologies (AS, JIS, EN, )
- E1,  $< 1.5 \text{ mg/l}$
- E0,  $< 0.5 \text{ mg/l}$
- SuperE0  $\leq 0.3$  (average)  $\text{mg/l}$



# The Ugly?

- Human Health
  - MDF causes Cancer, doesn't it?
- Wood dust, and Formaldehyde- A1 Carcinogens.
- Formaldehyde (A1) + Wood Dust (A1)
- = MDF Dust (A1) ?



# Wood Dust

- IARC
- Wood dust
  - Hardwood, or Mixed hard & soft.
  - No Softwood alone included.



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# Formaldehyde

- Formaldehyde - IARC - A1
- only production site with extraordinary large exposure, not for lower levels of exposure;
- mechanism -  $\text{HCHO}$  plus water  $\rightarrow$  formic acid. Metabolised very rapidly on absorption; Need extraordinary amounts to overcome natural barriers



# Risk Assessment

- Risk Assessment (UKHSE)
  - No significant difference in results of exposure between Particleboard and MDF.
  - except for short term respiratory obstruction.



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# Exposure scale - Formaldehyde

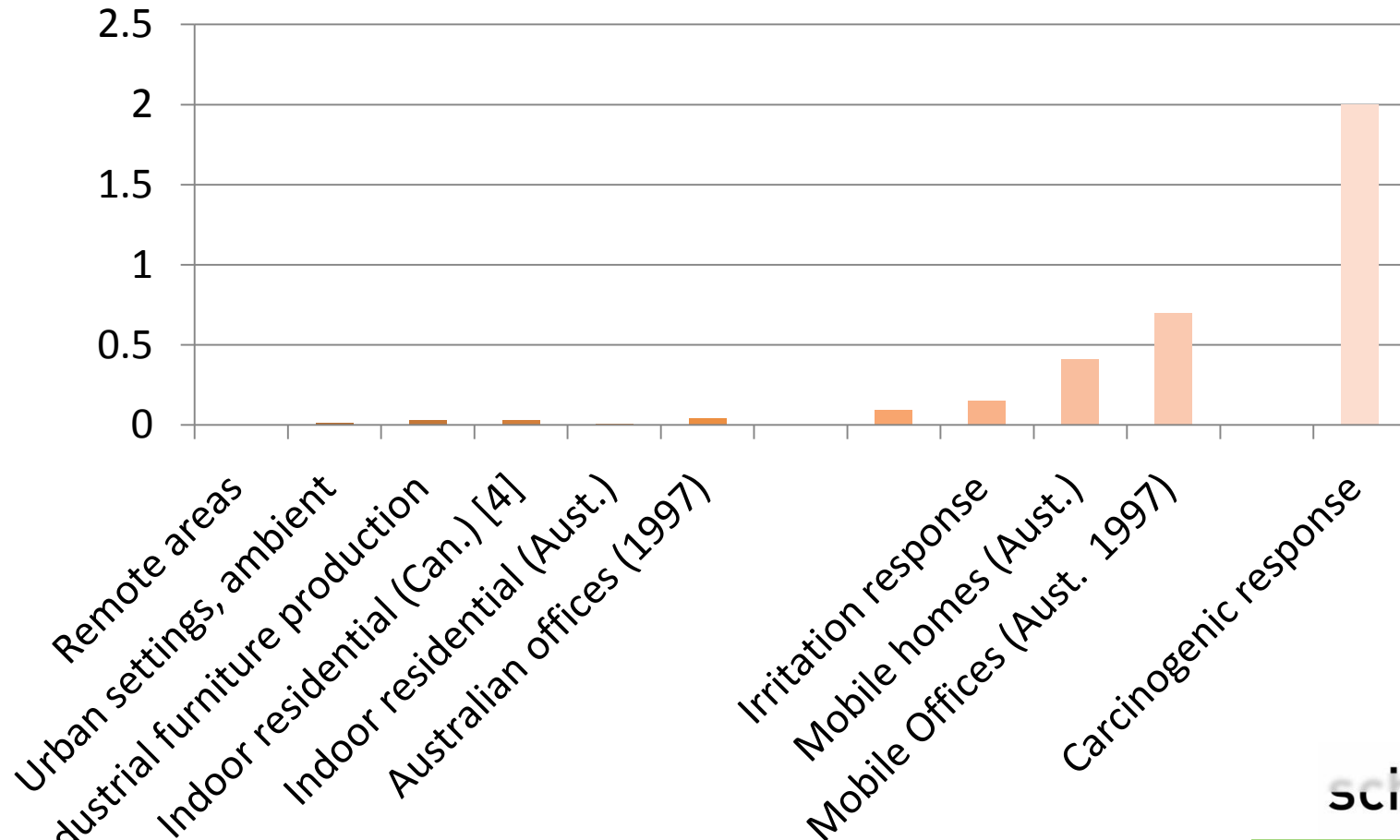
Remote areas	< 0.001	ppm	Standards
Urban settings, ambient	< 0.016	ppm	
Industrial furniture production	<0.031	ppm	1.0 ppm (occupational)
Indoor residential (Can.) [4]	0.03	(mean) ppm	
Indoor residential (Aust.)	0.016 – 0.05	ppm	0.1 ppm (indoor)
Australian offices (1997)	0.04	(average) ppm	1.0 ppm (indoor) 1.0 ppm (occupational)
Indoor residential with unflued heaters (Aust)	0.022 – 0.09	(means) ppm	0.1 ppm (indoor)
Irritation response	above 0.1 – 0.2	ppm	NICNAS LOEL 0.5ppm
Mobile homes (Aust.)	0.41	(average) ppm	0.1 ppm (indoor)
Mobile Offices (Aust. 1997)	0.7	ppm	0.1 ppm (indoor) 1.0 ppm (occupational)
Carcinogenic response	above 2.0 – 4.0	ppm	

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# Formaldehyde Exposure



# Production trends

- Green Star specs.
- Increased water-based finishes
- Low emission board
- Major Supplier (Laminex) standardizing – simplifies for smaller distributors



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# Supply Chain

- Industry (Supply chain and varieties).
- Lead time
  - Europe 12 wks,
  - Laminex 6 wks,
  - Laminex SOE 4 wks,
  - Asia 2-3 wks,
  - Laminex Stock (whiteboard) 2 days



# Products

- OSB,
- Compact Laminated Timber,
- Certified Wood,
- Veneers
- Low formaldehyde
- Wood/plastic
- Low density



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# Criteria

- Low embodied energy or renewable energy,
- Low embodied water
- Ecosystem sustaining (3<sup>rd</sup> party verified)
- Low emissions (lab tested)
- Rapidly renewable
- Resource efficient
- Re-usable and recyclable after use
- Minimising artificial components
- Product Stewardship and take back

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# Conclusion

Not bad,

certainly not ugly,

relatively good if managed properly

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A stylized sun graphic composed of a large light green circle in the top right corner and several light green rays of varying lengths radiating outwards from the bottom left towards the top right. The background is a solid medium green color.

Thank you

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