Promoting American Hardwoods

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American Hardwood Export Council
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Top Three Challenges for American Hardwoods:

1) Find New Markets for Graded Lumber

2) Find New Applications

1) Capitalize on Green Credentials
“Middle Class” Outside the U.S. Expected to Double By 2020 – Approaching 1 Billion Households

Worldwide commodity consumption will be impacted

Foreign households with real PPP incomes greater than $20,000 a year (in millions of households)

- Middle class in developing countries projected to increase 138% by 2020 vs. just 15% in developed countries in 2009

Source: Global Insight’s Global Consumer Markets data as analyzed by OGA
“Middle Class” in Developing Countries Could Reach 616 Million Households By 2020, Up 138% From 2009 Levels

25% of households in these countries are middle class. By 2020, this could increase to 49% and the impact on food consumption will be large.

Developing countries with fastest growing “middle class”

<table>
<thead>
<tr>
<th>Country</th>
<th>2009 levels</th>
<th>Proj gains by 2020</th>
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<tbody>
<tr>
<td>China</td>
<td>234</td>
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<tr>
<td>India</td>
<td>60</td>
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<td>Brazil</td>
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<td>Indonesia</td>
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<td>Poland</td>
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<td>Nigeria</td>
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</tbody>
</table>

Households with real PPP incomes greater than $20,000 (in millions)

Source: Global Insight’s Global Consumer Markets data as analyzed by OGA
The world's 10 largest hardwood lumber exporters
2009-2013 ($ million)

Source: Global Trade Atlas
The world's 10 largest hardwood lumber importers
2009-2013 ($ million)

Source: Global Trade Atlas
The 10 largest U.S. hardwood lumber export destinations
Years 2008-2013 (1000 m³)

Source: USDA GATS
US hardwood lumber exports to China
Years 2007-2013 (1000 m3)

Source: USDA GATS
US Exports of Hardwood Lumber to China

China's Growing Middle and Upper Classes Consuming US Hardwoods

1999 - 2006
US Furniture Manufacturing Shift to China and US Housing Boom

1999 - 2006
+ 759.5%

2006 - 2009
US Housing Bust and Worldwide Economic Turmoil

2009 - 2013
+ 192.5%

Source: USDA FAS
Graph: HMR Executive®
Finding New Market Segments in “Mature” Markets:

1) Exterior Uses for American Hardwoods
2) Structural Uses

Research and Testing for New Applications and Technologies
External joinery
Infinity Bench
Designed by Martino Gamper

Heat treated American red oak, ash, soft maple, yellow birch & tulipwood
Heat treatment

Class 1 durability
Improves stability
Changes appearance
Better U values

tulipwood
red oak
soft maple
yellow birch
ash
Museum of European and Mediterranean Civilisations in Marseille
“Window of opportunity” – American tulipwood
1 Accoya-Kiefer strukturell modifiziert
2 Pappel
3 thermisch modifiziert
4 Fichte naturbelassen

Beste Maßhaltigkeit und Dämmigenschaften
Alle Hölzer aus nachhaltigem europäischen Anbau
Prüfzeugnisse für einbruchhemmende Sicherheitsausstattung
Structural Design
Structural Design in American Hardwoods

- 5 US Species Accepted into EU Building Codes following AHEC-Funded Strength Testing
The Timber Wave 2011
First ever production of hardwood cross-laminated timber (CLT)
Endless Stair – adding a new dimension to timber in construction
Murray Grove, London

- Waugh Thistleton Architects
- 9 storey timber building
- Cross laminated lumber
- Completed 2008
- 4 carpenters assembled structure on-site at a rate of 1 storey a week
- Building weighs 300 tonnes
- ¼ weight of equivalent concrete building
- Saves 306 tonnes of carbon to a comparable steel and concrete tower, with 183 tonnes locked into the timber.
Unprecedented media coverage
Top Three Challenges for American Hardwoods:

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1) Capitalize on Green Credentials
US hardwood is under-utilised
“...there is growing concern that the US hardwood resource is now being severely underutilized”
AP Wire/BBC News, February 23, 2014: “A new global monitoring system has been launched that promises "near real time" information on deforestation around the world. Forest campaigners say this is the equivalent of 50 football fields of trees being cut down, every minute of every day over the past 12 years.”
SAY NO TO WOOD.
SAY YES TO KALINGASTONE.

AND, DO YOUR BIT TO CONSERVE NATURE.

Use of wood leads to deforestation and massive destruction of nature. Use our engineered stone and show your commitment to conservation of nature. Our engineered marble and quartz collection is maintenance free and long lasting, and thus has become the preference of architects and interior designers globally, rapidly becoming an identity for CMC in India. Get high quality engineered stone from Kalingastone.
WPC protects primeval forests. Our first objective was to develop the technology to create a composite wood superior to natural wood in order to combat the thoughtless lumbering of forest trees.

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www.einwood.com

EINWOOD
COMPOSITE DECKING
Looks Like Wood
Feels Like Wood
Smells Like Wood

“The real alternative to exotic hardwoods”

www.nahar.ae
einwood@nahar.ae
We may run out of wood but not Aluminium

Well at least not for the next 200 years

Century Extrusions Ltd (CEL) commenced commercial operations in April 1991. The Company has extrusion manufacturing facility spread over an area of 7.31 Acres at Kharagpur (West Bengal, India, with an installed capacity of 15000 M.T. per annum.

THE COMPANY

The company has three extrusion lines with presses of capacities 2700 M.T. & 1620 M.T. (UBE, Japan) and 1250 M.T. (Indigenous) catering to a very large range of extrusions. These presses are capable of producing extrusions in alloys ranging from 1xxx to 7xxx series.

The Company has complete in-house facilities for Die manufacturing and for Heat Treatment of Dies. Renelt Sweden is used for manufacture of Billets besides the facilities for Extrusion and Quality Assurance.

PRODUCT RANGE

The Company manufactures and supplies extrusions for various applications, such as Architecture, Road Transport Vehicles, Railway, Electrical & Electronic Applications, Consumer Durables, Irrigation, General Engineering, Defence applications, etc.

The Company has an inventory of more than 6000 Die sets to manufacture more than 4000 different profiles.

QUALITY ASSURANCE

The Company has an excellent Quality Management System. The plant has been accredited with ISO-9001:2008 by DNV, The Netherlands.

The Company usually supplies extrusions as per the tolerances prescribed by the Bureau of Indian Standards (BIS). The Company is well equipped to supply extrusions as per the tolerances specified in other similar standards such as BS, DIN & others and also as per customers' specifications, by mutual agreement.

MARKET NETWORK

The Company has market presence all over India with its Market offices in North, South, East & West Regions.
Steel: the ultimate sustainable material

The sustainable qualities of steel are built into the material. Simply choosing steel as a building material enables specifiers to deliver unrivalled sustainability performance – for life, and for all its subsequent lives.

Research shows that the optimum floor thickness required to achieve an effective thermal mass is readily delivered by steel-framed buildings. This myth has probably arisen because buildings such as churches were cool in the summer. However, the main reason that churches stay cool is because they have very few windows, which reduces solar gain.

The thermal mass—myth

In recent buildings, the greatest accessible mass is found in the concrete floor slab. Independent research has shown that the optimum thickness of concrete floor slab for providing thermal mass is 75-100mm. This thickness of concrete floor slab is readily available in almost all steel-framed buildings, which are generally the lightest weight form of construction.

The extra weight associated with heavy, bulky concrete frames is not required to improve thermal mass and is surplus to requirements. In fact, the extra mass of heavyweight concrete components may actually increase the energy required to heat and cool the building.

For more information visit www.concreteconstruct.com/thermalmass
Global Warming Potential for 1 kg of different species of 1" KD US hardwood lumber delivered to the Japanese market

Kg CO2 equivalent

- For~
- Kiln drying
- Sawmill
- Transport: forest to kiln
- Transport: kiln to customer
- Carbon uptake

Derived from PE/AHEC ireport
Wood: The Substitution Effect

1m³ Concrete → REPLACE WITH 1m³ Timber = 1 Tonne CO₂
Out Of The Woods
Environmental Profiling

The creation of 12 hardwood chairs

Snelson

NET IMPACT: 0.077 KG, 10.6% NET IMPACT: 0.005 KG, 0.8% NET IMPACT: 0.008 KG, 1.2% NET IMPACT: 0.014 KG, 2.1% NET IMPACT: 0.007 KG, 1.0%
Endless Stair LCA data collection & modelling

A flow chart to show the processes measured during the production of Endless Stair.
Endless Stair LCA data collection & modelling

AHEC lumber study data

A flow chart to show the processes measured during the production of Endless Stair.

Project specific data derived from project partners & collated by PE
Endless Stair LCA data collection & modelling

AHEC lumber study data

Transport distances and modes using actual data from project partners where possible

Project specific data derived from project partners & collated by PE
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AHEC lumber study data

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Transport of CLT

FABRICATION AT NÜSSLI

TRANSPORT OF COMPONENTS

INSTALLATION AT DESIGN FESTIVAL

PE Gabi database provides industry average data - e.g. on non-wood materials

Project specific data derived from project partners & collated by PE
Acidification Potential
172 kg SO\textsubscript{2} equivalent

Eutrophication Potential
24 kg Phosphate equivalent

Global Warming Potential
13 tonnes CO\textsubscript{2} equivalent

Photochemical Ozone Creation Potential
47 kg Ethene equivalent

Total Primary Energy Demand
from non-renewables 161 GJ

Total Primary Energy Demand from renewables & non-renewables 1087 GJ
Building Information Modelling

- One system integrating:
  - 3-D CAD
  - Cost data
  - LCA data

- All building life cycle stages - building, use & decommissioning

- Standardised data requirements and decision-making processes

- Shared knowledge resource for clients, designers and contractors
LEED: A Step in the Right Direction

- Increased Reliance on LCA
- “Responsible Extraction” credit highlights uneven treatment of wood/other extractive industries
LEED outstrips BREEAM across the globe – including Europe

New research by the AJ shows the LEED sustainable building certification system dominates everywhere except in the UK.

SUSTAINABILITY LEED is now the dominant green building standard in emerging markets and Europe, with BREEAM leading only in the UK.

New research by the AJ has found only one project going through BREEAM certification in China, while LEED, the sustainable building certification system developed by the US Green Building Council, has already certified 534 schemes there and has another 533 in the system. BREEAM has so far failed altogether in India and Brazil, whereas LEED has certified 142 schemes and is looking at another 232 in India. LEED has nearly 700 projects or potential schemes on its books in Brazil.

In Europe LEED has 1,350 projects on its books, compared with BREEAM’s 646.

‘BREEAM is the principal measure of sustainability in buildings in the UK and is embedded in regulations, but everywhere else in the world LEED wins outright,’ said Nigel Ostime, director of whitroome architecture. BREEAM’s record in the UK is the most impressive, with 2,365 projects certified or in process, compared with 134 LEED buildings, 99 of which are currently in process, suggesting the certification may be gaining ground.

‘BREEAM is thoroughly established in the UK but in due course market pressures may lead to a switch to LEED,’ concluded Ostime.

In the Middle East the battle already appears to have been lost. BREEAM Gulf, launched in 2009 to certify projects in the UAE, Oman, Qatar, Bahrain, Saudi Arabia, and Kuwait, was abandoned after two years. But LEED has already certified 75 projects in the region and has more than 1,075 in the pipeline.

Richard Smith of Atkins added: ‘In the Middle East decision-makers often have a US education. This results in them gravitating towards the American LEED system.’ He also blamed the failure of BREEAM on ‘marketing’, adding: ‘LEED was marketed very well in the Middle East. They offered training for practices, so staff became very clued-up in the system.’

A leading industry professional added: ‘BREEAM was privatised some years ago and has since been criticised for charging significant fees for one-off assessments, when more standardisation was possible.’ Laura Mark
China hardwood lumber imports
Volume by supply region (1000 m3)

Source: Global Trade Atlas
Questions?

www.americanhardwood.org