Growth Prospects for steel in the Construction Market

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INTRODUCTION

• Construction is a very conservative market
• Its steels largest market but our share is very low
• Markets need to be nurtured and grown.
• The solutions required are varied
  – hot – cold, earthquakes- typhoons, high density - low density etc
• I will show how steel responds to these demands
  – Human comfort
  – Safety in a range of environments
  – Affordability
  – Quality of life
  – Sustainable – Environmental, Social, Financial
What we will Cover

- Population Demographics out to 2050
- Impact on residential construction generally
- Specifiers (architects, engineers, developers etc) perceptions of steel as a building material
- Impact on steel product & construction technologies
- Challenges/Opportunities over the next decade
Global Population Trends  
(Data from UN World Population Prospects 2008 Revision)

- A strongly increasing population
- Increasing urbanised
- Aging
- Most Growth in “Developing” economies (China, India, Africa)

### World population by age group in 2010 and 2050

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2010</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15-24</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25-59</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>60+</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>80+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

### Population of selected countries and regions from 1950 to 2050

- Africa
- Brazil
- China
- Europe
- India
- USA
Housing market size and growth for selected countries

**Increasing Residential Market Size**

**Increasing Market Growth Rate**

- Indonesia
- Brazil
- Russia
- South Africa
- Saudia Arabia
- Turkey
- UK
- USA
- Canada
- France
- India
- China

Source – 2010, World Steel Association – Living Steel II Draft Ver 3, pg 6
### Country Analysis

<table>
<thead>
<tr>
<th>Country</th>
<th>2008 Housing Starts</th>
<th>Estimated Steel Share</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>1.8 million units</td>
<td>&lt;1 %</td>
<td>Concrete is dominant construction technology. Most steel use is rebar. Large informal market.</td>
</tr>
<tr>
<td>China</td>
<td>800,000 m²</td>
<td>&lt;1 %</td>
<td>Concrete is dominant construction technology. Most steel use is rebar.</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>29,000 units</td>
<td>2-3 %</td>
<td>Cold-formed steel is generally used for temporary structures, such as housing for labourers. Otherwise most steel is rebar.</td>
</tr>
<tr>
<td>South Africa</td>
<td>82,812 units</td>
<td>Very Low</td>
<td>Large need for affordable housing. Most steel is rebar, particularly for affordable housing.</td>
</tr>
<tr>
<td>Turkey</td>
<td>319,000 units</td>
<td>2 %</td>
<td>Most steel is rebar used in concrete construction. Some structural sections are used, and little cold-formed steel is used.</td>
</tr>
</tbody>
</table>

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**Notes:**

- **Estimated steel share** is the percentage of steel structure houses out of all total house structures.

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**BUT steels market share in these markets is low.**
GNI/capita and estimate of affordable housing expenditure for selected countries.

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>48,120</td>
<td>14,436</td>
</tr>
<tr>
<td>United States</td>
<td>47,580</td>
<td>14,274</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>45,390</td>
<td>13,617</td>
</tr>
<tr>
<td>France</td>
<td>42,250</td>
<td>12,675</td>
</tr>
<tr>
<td>Australia</td>
<td>40,350</td>
<td>12,105</td>
</tr>
<tr>
<td>Japan</td>
<td>38,210</td>
<td>11,463</td>
</tr>
<tr>
<td>South Korea</td>
<td>21,530</td>
<td>6,459</td>
</tr>
<tr>
<td>Poland</td>
<td>11,880</td>
<td>3,564</td>
</tr>
<tr>
<td>Mexico</td>
<td>9,980</td>
<td>2,994</td>
</tr>
<tr>
<td>Russia</td>
<td>9,620</td>
<td>2,886</td>
</tr>
<tr>
<td>Turkey</td>
<td>9,340</td>
<td>2,802</td>
</tr>
<tr>
<td>Brazil</td>
<td>7,350</td>
<td>2,205</td>
</tr>
<tr>
<td>South Africa</td>
<td>5,820</td>
<td>1,746</td>
</tr>
<tr>
<td>China</td>
<td>2,940</td>
<td>882</td>
</tr>
<tr>
<td>India</td>
<td>1,070</td>
<td>321</td>
</tr>
<tr>
<td>Vietnam</td>
<td>890</td>
<td>267</td>
</tr>
</tbody>
</table>

Source - World Bank data.
Specifier perception of steel vs. other materials for housing

Source – 2010, World Steel Association – Living Steel II Draft Ver 3, pg8
What is Steels value proposition to the construction industry

• Its strong, light, tough, strong & durable
• It can be formed, worked, shaped & joined into almost any structure
• It is resistant to most environments with appropriate treatments
• It allows buildings to be redeveloped & altered at low cost to meet changing needs
• It can be readily recycled & reused at the end of its life.
• It is readily transported either as a component, panel or module.
• It lends itself to a variety of construction techniques.
• It offers the most cost effective solution many building applications
Case Study 2 – Responsive to cultural needs

Two house designs were chosen that meet the specific design challenges.

Blended into local cultures

Designed for typhoons/floods

Source – BlueScope Steel International Ltd
Case Study 1 – Flexible Design

Indonesian - Tsunami

Haiti - Earthquake

Source – BlueScope Steel International Ltd
Case Study 3 – Sustainable Earthquake resistant housing -

Hongkou, Sichuan Province China

Source – 2010, World Steel Association – Living Steel II Draft Ver 3, pg8
Case Study 4 – Temporary structures

Bondi Beach, Sydney – Beach Volleyball stadium

Source – 2010, Populous – Sustainable Stadia – Reduce, Reuse, Recycle
Case Study 5 - Reusing Buildings

The Sydney Olympic Stadium wings
Case Study 6 – Sustainability in use

Water Recycling at the Sydney Olympic Stadium

Source – 2010, Populous – Sustainable Stadia – Reduce, Reuse, Recycle
Case Study 7 – Pre Engineered and Durability

Designed and made in the UK, exported and erected in Melbourne in 1840 & still being used today
Impact on steel Technologies

- Thinner High strength steels
- More durable coatings and products
- New connection technologies
- Higher ductile and flexible steels
- New profiles and shapes
- Increased demands for flexibility ion products and designs
- Rapid changes in steel logistics and design technologies
- Lighter more sustainable products
Impact on construction Technologies/Industries

- Increased use of off site construction.
- Increased demand for safety and sustainable solutions.
- Increased use of steel composites.
- More durable products/solutions
- Faster construction solutions
- Longer spans, open plan designs
- Increased flexibility & adaptability in materials and buildings
- Future proofing buildings
Challenges for success

- Opportunities for designs for hot climates
- Affordable housing
- Training of professions and trades in steel technologies
- Credit & new micro credit facilities
- Utilise best solutions from other parts of the world that meet your environmental, cultural, geographic and affordability needs.
- Performance driven specifications and codes rather than prescriptive
- Simplify the approval of new technologies and products.
- Reduce corruption and speed up approval processes
- Create new steel logistics and supply chains
- Fast adoption of emerging technologies
- Need policies that support education new construction technologies
CONCLUSION

• Steel is a widely used building & construction material
• It has not yet reached its potential & has lots of room for growth
• When considering projects, policies & codes please consider steel as a material
  • It offers unique material advantages in strength & weight.
  • Is sustainable
  • Is a material of yesterday, today age & tomorrow
  • Has tremendous opportunities
THANK YOU

Thinking Globally

Acting Locally

BLUESCOPE STEEL
Case Study 4 – Emergency Relief projects - Foundations

Simple Steel screw in foundations for the frame to be bolted onto

Screw Pier Foundation

Source – BlueScope Steel International Ltd
Case Study 4 – Emergency Relief projects – Examples

150 houses being supplied within 4 weeks of flooding disaster in Thailand.

Low cost hospital supplied to north eastern Thailand within weeks of flooding.

Source – BlueScope Steel International Ltd