The Opportunities

— Moving Beyond Single Building Construction: Urbanism, Energy Reduction and Creating Green Communities

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13th September, 2007,
Hangzhou, People’s Republic of China
Hangzhou – Heaven On Earth
At current growth rates, the built area of China will double within 25 years.
...But this rate of growth and construction creates other problems
There is a massive demand for new infrastructure
...and the natural environment has become significantly degraded
• Green Policies in China
• Green Communities – Urban and Rural
• Green Challenges
• Green Opportunities
• **Green Policies in China**
  
  • **Green Communities – Urban and Rural**
  
  • **Green Challenges**
  
  • **Green Opportunities**
Macro Policies

Evaluation Standard for Green Building (GB/T 50378-2006)

Comparison of World Standards
Macro Policy

- **2004** - President Hu Jingtao. (at the National Economic Meeting 中央经济工作会议) : To develop energy-saving residential and public construction.

- **2005** - Ministry of Construction. announced the need for “Four Savings”, ie Energy-Saving; Land-Saving; Water-Saving and Material-Saving to protect the Environment.

- **2005** - The 11th Five-Year Plan. The goal to achieve 20% energy savings for Buildings.


- **2007** - Premier Wen Jiabao. (at the Fifth Session of the 10th NPC 2007) : To develop energy, land use and environmental efficient constructions.
Evaluation Standards for Green Building

The Concept of Green Building
- Maximize resource savings, environmental protection and pollution reduction throughout the full building life cycle. Provide people with a healthy, comfortable and efficient environment, coexisting with the nature.

Evaluation Standard for Green Building
- Residential Building: Focus on design and design process.
- Public Building: Focus on both design and operations. Hence, the evaluation standards will cover both design and operations.

(GB/T 50378-2006)
### Comparison of World Standards

<table>
<thead>
<tr>
<th>Nation</th>
<th>Standard</th>
<th>Content</th>
<th>Specialty</th>
<th>Development</th>
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<tbody>
<tr>
<td>China</td>
<td>GB/T 50378-2006</td>
<td>Indoor and outdoor environment</td>
<td>Three Grades:</td>
<td>1st National Standard in the world</td>
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<td>Operation</td>
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<td>International</td>
<td>iSBE GBTool</td>
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<td>Developed form dis-grading evaluation to grading evaluation;</td>
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<td>Standard</td>
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<td>Environment</td>
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<td>Including the content of the Whole Life Cycle of Building</td>
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<td>Pollution</td>
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<td>New Construction – Home – Neighborhood Development</td>
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• Green Policies in China

• Green Communities – Urban and Rural

• Green Challenges

• Green Opportunities
Green Communities - Urban

- Low Energy Consumption
- Natural Ventilation
- Natural Lighting
- Renewable Resources
- Intelligent Control
- Resource Recycling
- Comfortable Environment
- Ecological Green
- Green Material
- Healthy AC

Natural Lighting

Renewable Resources

Intelligent Control

Resource Recycling

Comfortable Environment

Ecological Green

Green Material

Healthy AC

Natural Ventilation

Low Energy Consumption
Green Communities – Rural “New Village Community”

- Clean Water
- Clean Homestead
- New Village Community
- Clean Cropland
- Clean Energy
Green Communities – Rural “New Village Community”

- Production Development
- Comfortable Earning and Living
- Civilized Rural Culture
- Organized Village Planning
- Democratic Management

The fifth session of 16th Central Committee of the Party, Year 2005

- Energy-Saving
- Land-Saving
- Water-Saving
- Material-Saving

20 Words
- 生产发展
- 生活富裕
- 乡风文明
- 村容整洁
- 管理民主

Organized Village Planning
• Green Policies in China
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Green Challenges

- Skill Set
  - Material, Technology, Consulting

- Mind Set
  - Application, Legal Enforcement, Community Education
Can do better.....

- Renewable energy usage
- Efficient building materials
- Easily attained building energy-saving effects
- Mass produced, certified materials
- Professional management and operations
- Advanced or specialty design consulting
Mind Set

Needs to educate and promote...

- Recognition of the high energy-costs of building
- Consumer awareness about energy conservation due to the low price of energy
- Effective incentives policy system
- Efficient construction supervision and procurement systems
- Powerful penalty system, including fines
- Consumer awareness of energy conservation and environmental protection
- Initiatives to create green communities
- Market demand for green communities
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The Green Building Market Size

The World Bank: "A Tale of 2 Halves by 2030"

- Half of the new construction in the world will be in China
- Half of the new construction of China would have been completed after 2000

The Potential of Green Building in China

If the Green Building Standard for new construction is enforced by 2020, China will:

- save electricity: 420 billion KWH per year
- save coal: 260 million tons per year
- reduce pollution: greenhouse gases by 846 million tons per year
Institutional Green Leadership

UC Berkeley / Tongji Univ / Huahui / Arup

Qingdao Demonstration Project:
Renewable Energy Generation

Wind Turbines

Photo-voltaics

Digesters
Corporate Green Leadership

Beijing Olympics—“Ecomagination”

- Rainwater Recycling System
- Wind Turbines
- Solar-powered high efficiency lighting
- Advanced Membrane-filtered Wastewater Treatment System
- Light-Emitting Diode System

335 Projects
Corporate Green Leadership

Wuhan Tiandi:
A Sustainable Community Framework

SUSTAINABLE SITE DESIGN
LANDSCAPE DESIGN
TRANSPORT & CIRCULATION
ENERGY STRATEGIES
WATER & WASTEWATER MANAGEMENT
SOLID WASTE MANAGEMENT
AIR QUALITY
SOCIAL & COMMUNITY DEVELOPMENT
THIRD PARTY CERTIFICATION
Year 2008 “Olympic”
Year 2009 “60 Anniversary of PRC”
Year 2010 “EXPO Shanghai”
"We will endeavor to develop a circular economy, lower energy and resources consumption and build a resource-conserving and environment-friendly society and ensure sound balance between economic development, population, resources and environment."

Chinese President Hu Jintao, CEO summit of the Asia-Pacific Economic Cooperation (APEC), Nov. 17 2006