Korea & its Flooring

Subtitle:
Wood Flooring Explosion in Korea
2008.3.19

Namgon Kwag

EAGON

World Forest Institute
1. Introduction
   Eagon
   Korea

2. Housing & Building Industry

3. Floorings
1. Eagon Group (Incheon, Korea)

Corporate Vision

Creating a Beautiful Living Environment.

Mr. Young-Ju Park
Founder/Chairman of EAGON
Board director of the WFC representing Korea

World Forest Institute  http://wfi.worldforestry.org
Currently 2,500 employees worldwide
Sales 682 Mil. USD - 2007
( 515 Mil Local & 67 Mil. Overseas )

Domestically in Korea ( 5 )
- EAGON Industrial
- EAGON Living
- EAGON Interior
- EAGON Window & Door
- EAGON Environment

Overseas Companies ( 6 )
- EPL Solomon Islands
- ERC Solomon Islands
- ELA Lautaro Chile
- EUS Seattle USA
- YEL Tumen China
- ESH Shanghai China

Representative offices ( 3 )
- EAGON Malaysia
- EAGON Indonesia
- EAGON China

Since 1972

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Business Areas

Reforestation

Area - 25,000 ha. (Solomon Islands)
Plantation - 1,000 ha/yr.
Production - 100,000 m$^3$/yr.

Manufacturing

Plywood,
System Windows & Doors,
Flooring,
Architectural, Landscaping etc.

Trading

Import/Distribution:
Natural resources and timber,
Panels, Boards, Furniture,
Building materials, etc.
Reforestation (Solomon Islands)

Altitude: 2°S to 5°S

Eagon Eagon Pacific Plantation Ltd.
Eagon Resources Development Co., Ltd.

3 weeks E. deglupta (Germination House)
4 months E. deglupta (Standout Bed) Planting
9 years E. deglupta

Reforestation (Solomon Islands)

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Items – Products & Trading

- Plywood
- Windows & Doors
- Industrial Materials
- Flooring
- Building Materials
EAGON CSR initiatives

Solomon Islands
- Eagon Foundation (1989)
- Seung-Min Hospital (1991)
- National Art Gallery (1997)

Scholarship & Cultural Support
- Solomon Islands, China & Chile

EAGON Annual Music Concert in Korea

Mecenat Association from 1994
Break Time !!!

It’s time to jump ...
2. Korea – ‘Morning Calm’ Country in the Orient

Location

<table>
<thead>
<tr>
<th>Altitude &amp; Climate</th>
<th>S. Korea</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>32°N to 48°N</td>
<td>42°N</td>
</tr>
<tr>
<td>Climate</td>
<td>Temperate</td>
<td>Generally Mild</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area &amp; Population</th>
<th>S. Korea</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>99,538 km² (108th)</td>
<td>248,483 km² (3rd)</td>
</tr>
<tr>
<td>Population</td>
<td>48 Mil. (24th)</td>
<td>37 Mil. (22nd)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forestland</th>
<th>S. Korea</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>67%</td>
<td>45%</td>
</tr>
</tbody>
</table>

- **5,000 Years History**

* Ancestor: “Dangun Wanggeom – BC 2333”
  First Country – 고조선 (Ko-Chosun)
Motto: “Benefit all mankind – 弘益人間”

* Divided to 2 after the World War II (1945) – North/South Korea
  Republic Government: Aug 15, 1948
  Korean War (1950 ~ 1953)

* Industrialization from 1960’s
  Asian Financial Crisis in 1997

* Political Freedom and Human Right in June, 1987
  1988 Olympic Games / 2002 Worldcup in Seoul

- **Languages:** Korean ("Hangul" 한글)
  * King Sejong the Great (14C)

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“Miracle on the Han River”

* The fastest growing economy in the World from 60’s to 80’s

* GDP: 1.2 Tril. [12th], 25K+ USD Per Capita [33th] in 2007

* The most developed Country in the World in IT technology.

* Main Industry
  a. IT & Computers.
  b. Shipbuilding
  c. Steel (#3, POSCO); Automobile (#5 Hyundai)
  d. Robotics & Biotechnology

1960, Gang-Nam area
Demographics

Rapidly Increasing, but ... (25 Mil. 60's → 50 Mil. 2007)

Urbanization

39%(60) → 50%(70) → 83%(90) → 90%(07)

+ Industrialization

Aging of Population
- Life Expectancy: 62(71) → 71(90) → 79(07)
- Median Age: 19(71) → 27(90) → 35(07)
- Birth Rate: 4.5(71) → 1.6(90) → 1.1(07)

Increasing Immigration

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Climate

**Summer** - Hot & Rainy
Monsoon rain + Typhoon
from June to early Sep.

**Winter** - Cold & Dry
Snow
from Dec. to mid-March
- Rice & Soup, with the numbers of side dishes ("Banchan")

★ Fermentation
Kimchi,
Doenjang (Soybean Paste),
Gochujang (Red Chili Paste)
Jotkal (Salted Fish)

★ Boiled
Soup, Pot Stew, Rice

☺ Seasoned
Sesame Oil, Doenjang,
Soy Sauce, Salt, Garlic, Ginger
& Gochujang
Break Time !!!

copy...

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[Progress bar]

cancel
3. Housing & its Industry

Common Housing

Current

1900

- Overall view of a Commoner's House in the Northeast Part
- Storage Wing
- Inner Wing
Housing Supply

- **Big Bang - New Construction & Supplies since 80's**
- **Housing Supply Rate** 72% in 1990 → 96% in 2000 → 106% in 2005
Present of Korean Housing

- Total Housing: 13 M (48 M People) in 2005

- Recently half of Koreans live in high-rise concrete condos.

Housing Status 2005, Unit: Mil., %

- Detached Housing: 4.1, 32%
- High-Rise Condos: 6.6, 52%
- Row-Housing: 1.72, 14%
- Non-Residential: 0.2, 2%

✓ Total Housing: 13 M (48 M People) in 2005
✓ Recently half of Koreans live in high-rise concrete condos.
New Construction:
Big Condos by the Construction Company
Small Condos by the small Construction Company

Remodeling:
by the Builders & Construction Company
Industrial Characteristics

1. Supplying House is the main concern of Gov’t.

2. High-Rise Condos - Structure – Steel & Concrete
   100% of Units Must be Sold before building (Model House)
   Pre-interiored (furnished)

3. Ondol (Under heating by hot water)
   & Maru (Open Floor - Living Room)
   (Standing 立式 vs Sitting 坐式)
4. What’s “Ondol”???

= "Underfloor Heating System"

Under-floor Heating

= Radiant Heating?
What’s “Gudeul”? 

Prototype of Ondol

Korean Gudeul

Roman Hypocaust
Etymology

구들 (Gudeul, Smoked Stone : 火石)
→ 온돌 (Ondol, Warm Stone : 溫突)

Structure & Principle

[Diagram showing a fire place, kettle, floor, chimney, and other components related to ondol and gudeul.]
Modernization of Ondol

- Heating Floor by Hot Water (using water heater) or Electric Heat

"The indescribable comfort of being warmed from below"
- Frank Lloyd Wright (American Architect, Inventor)
What’s better???

1. Healthy
   a. Clean (No dust & draft) & More Humidity
      - No Dust Mites from duct
   b. Bottom Up Heating

   Easy to clean while helping to keep the air warm but less dry
   Furthermore, direct heat conduction through the skin helps with blood circulation,
   while conducive to the Oriental medicine idea of well-balanced health: “cold head and warm feet.”

   頭寒足熱
   Cold Head and Warm Feet

   Under-floor Heating

   VS.

   Hot-Air Ventilation

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What's better???

2. Comfortable
   a. Warm Feeling
   b. Quiet Operation

3. Efficiency
   a. Energy Efficient +15~20%
   b. Aesthetics (Spacious)

Practical and energy-efficient without polluting the air in a room
Water temperature: Under heating 100~140 °F vs Conventional 140~180°F
Expansion of Ondol worldwide

**Asia**

Japan – 床暖房 (Yukadanbou)

- **Japan gov’t aims to increase use of under-floor heating systems to 35% of new construction**
- **Should be used for the old & disabled people**

China - 4% of New Construction
**Most of new homes in Beijing**
Expansion of Ondol worldwide

Europe

Over 50% of the buildings in Central & Western Europe
Expansion of Ondol worldwide

North America

Radiant Sales In North America

- Tube: Millions of Lineal ft
- Housing Starts: 10,000 Units
- Electric: 100,000 ft²

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Break Time !!!
Traditional Korean Floor 마루 (Maru)

48평 (160㎡) Style of the 19th Century

1. Room
2. Kitchen
3. Wood Floor
4. Back Room
5. Storage
6. Cow shed
7. Main Entrance
8. Toilet

Inner wing
Outer wing
General Floor Plan

Maru (Flooring)

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Kinds of Floorings in Korea

1. Resilient (Vinyl) - PVC Sheet & Tile
2. Engineered Wood Flooring - Since ‘96
3. Laminate Flooring - Since ‘96
4. Tile & Marble Stone
5. Korean Paper - Overlay (Traditional, Broussonetia kazinoki)
Wooden & Laminate floor burst for a decade

1. GDP Capita - Almost 20K USD Before Asian Financial Crisis
2. House Supply Rate - Over 100%
3. Exact Time of New Item introduced
Korean Wood Flooring

Thin / Narrow / Short
Plywood Base
Pre-finished
Almost non-bevelled

Mainly installed in the new condos
adopted since 1997 by construction company

Maru(Flooring)
Installation – Glue Down

For the higher heat transfer
Feel Korea !!!

Enjoy the real warmth of Ondol & People
“Thank you!”

Deudorix eagon

Found by Dr. John Tennent
- 1997, Solomon Islands -