Ελληνικό Πρότυπο Ψηφιακής Σχεδίασης — Μέρος 2:
Εκθεση Τεκμηρίωσης

Διεπιστημονική Ομάδα Εργασίας
Ελληνικού Προτύπου Ψηφιακής Σχεδίασης

Ιατρουδάκης, Παντελής, Α.Μ., Συντονιστής
Ιακωβίδης, Κωνσταντίνος, Η.Μ.
Τσιώνης, Ηλίας, Π.Μ.
## Matrix for drivers of change

<table>
<thead>
<tr>
<th></th>
<th>Environment</th>
<th>Globalization</th>
<th>Population</th>
<th>Technology</th>
<th>Citizen empowerment</th>
<th>Society of skills and culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Construction – ONE sector
- 15% of GDP and employment
- 70 % of National assets
- 55 % of Investments
- 10 % of Export income
- 25 B € Construction
- 5 B € Infra
- 20 B € Construction
- 5 B € Infra
- 10 % of Export income, strongly positive
- Of all houses 2050, 50% are built today
- New energy regulations 2010 (Passive house) and 2012
- The Government’s Foresight Report: Emissions down by 80% before 2050
- 40% of GHG
- 40% of Energy Consumption
- Urbanisation rate in Finland appr. 65% Europe 88%
DURING 2009
GDP down by 7,8 %
Export volume down by 24 %
Investments down by 13 %

Unemployment rate January 2010 9,5 %
Increase by 66 000 persons
Among 15-24 yrs increase by 7,1 % to 22,7 %
A Finnish Green Building Council to be Founded in April 2010
- LEED?
- BREEAM + Local extension?
- PROMISE?
- BREEAM + Local extension = PROMISE?
- EU’s SBA?
http://www.worldgbc.org/home

WORLD GREEN BUILDING COUNCIL

Home  About WorldGBC  Green Building Councils  Council Development  Influencing Change  Resources

Business Case  GBC Directory  Green Building Rating Tools  How to establish a GBC  Council News

ESTABLISHED GREEN BUILDING COUNCILS

SELECT A COUNCIL

OUR VISION
Through leadership collaboration, the global construction industry will transform traditional building practices and fully adopt sustainability as the means by which our environments thrive, economies prosper and societies grow to ensure the future health of our planet.

WorldGBC News

WorldGBC supports UNEP's "Call to Action"

The WorldGBC is a contributing member to the Sustainable Buildings Construction Initiative of the United Nations Environment Programme (UNEP SBCI). Over the past year, the WorldGBC Policy Task Force has worked closely with members of the UNEP SBCI Secretariat and membership to develop the "Buildings and Climate Change Industry Call to Action."

Read more...

WorldGBC declares September 23rd as World Green Building Day

The World Green Building Council is very pleased to announce that this coming September 23rd marks the inauguration of World Green Building Day -- an annual event established to unite the efforts of Green Building Councils from around the world as they strive for market transformation of the global property market and building industry.

Read more...

Launch of the WorldGBC Asia Pacific Network

What is the WorldGBC Asia Pacific Network?

With over half the world's urban population destined to live in the Asia Pacific region by 2030, sustainable development has a key role to play. The WorldGBC's Asia Pacific Network has been established to achieve a sustainable future for the region.

Read more...

Upcoming Events

September 09, 2009 - September 12, 2009
India's Green Building Congress...

September 23, 2009 - September 23, 2009
WorldGBC's Leaders Summit

Search Website

Search...

NEWSLETTER SUBSCRIPTION

COUNCIL GATEWAY LOGIN

Our Partners

PHILIPS

Global Platinum Partner
STEWARDS market transformation

PROVIDES tools and expertise

EDUCATES the industry and the public

BUILD community

FORUMS for industry dialog
The Strategic Centres for Science, Technology and Innovation (SHOK)

- The Strategic Centres for Science, Technology and Innovation (SHOK) offer top-level research units and enterprises making use of research results a new environment for close and sustained cooperation with each other. Bringing together a variety of competencies in diverse networks can help speed up innovation activity, pursue global breakthroughs and make Finland an attractive partner.

- The internationalisation of innovation activity is one of the key roles of the Strategic Centres. As well as national networks, the Strategic Centres have a growing network of European and global partners. By year-end 2009, six new Strategic Centres had been established in Finland: Forestcluster Ltd, TIVIT (ICT industry and services), FIMECC Ltd (metals and engineering), CLEEN Ltd (energy and the environment), RYM Ltd (built environment) and SalWe Ltd (health and wellbeing).

- Each Strategic Centre has launched several programmes, with a total of 13 underway at year-end 2009. The level of these programmes must be sufficiently high in terms of challenge and quality so that their outcomes have substantial significance. Tekes is developing the operational capacities of the Strategic Centres and encourages them to carry out operational development. In 2009 Tekes provided €10 million of funding for their research programmes and projects.
**Point of Departure, Content, and Benefits**

**Point of departure?**
- Fragmented supply chain, sub-optimization, lowest price as the main business model
- Investment costs are the main criterion in decision making – no sufficient consideration of life cycle costs and properties or environmental impacts
- BIM technologies are relatively advanced, but used in old processes; large business potential already in the existing technology

**What must be investigated and developed?**
- How to get clients actively participating in the processes in all stages of the life cycle?
- What must be changed in the work processes and business models, so that the branch can change?
- Which are the obstacles or drivers for the change?
- Which are the central problems in the use of BIM – what does not work and why?

**What benefits would the new BIM-based business models and processes bring in the use, maintenance and construction of the built environment?**
- Client from the object to subject – design of the whole must start from the real client needs
  - Improved communication based on virtual models and visualizations
  - Rapid and accessible comparisons of alternative solutions
- Efficient evaluation, verification and monitoring of the environmental impacts, costs and properties throughout the whole life cycle
- Cost effective mass customization
- Improved control and management of processes throughout the whole supply chain and life cycle
- Improved cost efficiency and delivery times in all stages of the process
- More efficient use and maintenance of the assets of built environment
**B³ – BIM-based Business Research Program**

**Point of Departure, Content, and Benefits**

**Point of departure?**
- Fragmented supply chain, sub-optimization, lowest price as the main business model
- Investment costs are the main criterion in decision making – no sufficient consideration of life cycle costs and properties or environmental impacts
- BIM technologies are relatively advanced, but used in old processes; large business potential already in the existing technology

**What must be investigated and developed?**
- How to get clients actively participating in the processes in all stages of the life cycle?
- What must be changed in the work processes and business models, so that the branch can change?
- Which are the obstacles or drivers for the change?
- Which are the central problems in the use of BIM – what does not work and why?

**What benefits would the new BIM-based business models and processes bring in the use, maintenance and construction of the built environment?**
- Client from the object to subject – design of the whole must start from the real client needs
  - Improved communication based on virtual models and visualizations
  - Rapid and accessible comparisons of alternative solutions
- Efficient evaluation, verification and monitoring of the environmental impacts, costs and properties throughout the whole life cycle
- Cost effective mass customization
- Improved control and management of processes throughout the whole supply chain and life cycle
- Improved cost efficiency and delivery times in all stages of the process
- More efficient use and maintenance of the assets of built environment
Building Information Group

• Building Information Foundation RTS
  – Private foundation, Founded 1972 (-42, -32)
  – Not-for-profit, 49 members
  – Owner and R&D unit
  – Advisory panels, approx. 400 persons/year

• Building Information Ltd
  – 100 persons, 10 M €
  – Company is 100% owned by the Foundation
  – Five Building Centres in Finland

• Subsidiaries abroad
  – Tallinn (Estonia), St. Petersburg (Russia)
    Independent local companies with local staff
The Building Information Foundation RTS

**Strategy Planning**
- R&D
  - Committees and task groups
  - Research projects
  - Development projects

**Classification**
- M1
- EPDs

**Ownership**
- IPRs
- Funds

**Social Relations**
- Memberships
- Support Groups
- Building Forums

**STIP., Prizes., Support, Recognitions**

**Concence Management**
- Delegation Board
  - Director General
  - Cont.
  - Committees and Task Groups

**Infrastructure**
- IPRs
  - Rakennustieto Oy / 100%
  - New organization: From 16 profit centres to 6 customer segments:
    - Building design, Construction, Infra, Building Products, HVAC, FM

**Strategic ownership**
- Estonian Building Centre / 54%
- ET-INFOkeskuse AS
- St. Petersburg Construction Centre Ltd / 80%
- PCC / Infstroy
- Yhtiö xx / xx %

**Non-active**
- Moscow Construction Centre Ltd / 31+10%
- MoCC
- Latvian Building Centre Ltd / 60%
- LBC
- Suomen Määrälaskenta Oy / 100%

**Money Fund**
- Hahtela Kehitys Oy / 7%
  - Rakentamisen ohjelmistotalo
- Liikekiinteistö / 100%
  - lainavakuus
- Art
  - Pickala Golf

**Influence**
- Fise Oy / 7,4%
  - Pätevyysen myöntäminen
- Finedu / 4%
  - Venäjän koulutussäätiö

**Contact**
- matti.rautiola@rakennustieto.fi
- 091230
RTS’S COMMITTEES AND TASK GROUPS

STANDING COMMITTEES

BUILDING DESIGN

CONSTRUCTION

HVAV (+ EA)

FM

INFRA

THE BUILDING PRODUCT INDUSTRY

SPECIAL COMMITTEES

-TALO
-buildingSMART
-RTS infra
-INFRA BIM
-EPDs
-M1

PRIZE COMMITTEES

-LOCAL
-PIETILÄ
-RAKEVA
-ga
-UICB

CUSTOMER SEGMENTS

BUILDING DESIGN

CONSTRUCTION

HVAV (+ EA)

FM

INFRA

THE BUILDING PRODUCT INDUSTRY

TOIMITUSKUNNAT

-LOMAKKEET
-KIRJAT
-RAKENNUSTAITO
-RAKENNETTU YMPÄRISTÖ
-RATU
-KH-KORTISTO

RTS

JOINT COMMITTEE

RTS/R&D DIRECTOR

SEGMENT COMMITTEE CHAIRMEN

CIO

SEGMENT DIRECTORS

Customer segments

STANDING COMMITTEES

CUSTOMERS

LIKE

13
General conditions for building contracts. YSE 1998 document
TALO Classification
General Quality Guidelines + Model Specification
Guidelines for Quantity Takeoff
The Building 2000 Project Classification covers construction elements, building services, structural elements of the former two, as well as project-related, property management and user tasks. In project accounting related to new construction or renovation, as well as in price determination, the classification also covers project provisions.

Construction elements are designed according to the Construction Works Classification. For that purpose, construction elements are divided into structural elements whenever several types of construction work are required to produce a single construction element. A structural element comprises one or more construction products as well as their installation and installation products. The classification is suggestive and should be applied after due deliberation on a case-by-case basis.

The principles of quantifying construction elements have been made independent of design and production solutions, and the measured quantities usually differ from output. Thus, for instance, an external wall assembly is always measured the same way and on the same bases. The different outputs required to build a construction element are determined as required by the design solution. For instance, if the external wall assembly includes masonry, the masonry can be considered part of the quantity of the external-wall construction element which is notified as an output.

<table>
<thead>
<tr>
<th></th>
<th>1 Building elements</th>
<th>2 Services elements</th>
<th>3 Project-related tasks</th>
<th>4 Property management tasks</th>
<th>5 User tasks</th>
<th>6 Project provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Site elements</td>
<td>21 Plumbing elements</td>
<td>31 Project management tasks</td>
<td>41 Site tasks</td>
<td>51 Space equipment</td>
<td>61 Document and price level changes</td>
</tr>
<tr>
<td>12</td>
<td>Building elements</td>
<td>22 Air conditioning elements</td>
<td>32 Design tasks</td>
<td>42 Financing and marketing</td>
<td>52 Maintenance of operation</td>
<td>62 Other provisions</td>
</tr>
<tr>
<td>13</td>
<td>Internal space elements (infills)</td>
<td>23 Electrical elements</td>
<td>33 Construction management tasks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>26</th>
<th>28</th>
<th>37</th>
<th>39</th>
<th>41</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Building elements</td>
<td>Services elements</td>
<td>Project-related tasks</td>
<td>Property management tasks</td>
<td>User tasks</td>
<td>Project provisions</td>
</tr>
</tbody>
</table>
InfraRYL 2006 Code of Building Practice (general quality requirements) for Infrastructure.

- INFRA 2006 Classification. (2009)
- Infra 2006 Määrälaskentaohje, (Guidelines for Infra Quantity take off) v. 2.1 (2010)
- Part 4: Exercise and outdoor recreational areas (2009) 120 €
- InfraRYL Net 854 € + 111,02 € /4 months
Construction

Building Services, FM + O&M

- TalotekniikkaRYL 2002
- KiinteistöRYL 2009
IFC compliant BIM is a mandatory requirement for architects after October 1st, 2007. Structural and MEP models are preferred but not mandatory in all projects.
BIM Guidelines, 9 volumes

OPEN SOURCE