Problems of Construction R & D in Japan

April 19-21, 2010

Sydney, Australia

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TOPICS

♦ Construction Robots
♦ IMS (Intelligent Manufacturing Systems)
♦ CALS/EC
♦ BIM (Building Information Modeling)
Construction Robots / Construction Automation

Objectives

♦ Reduce Construction Manpower
♦ Improve Construction Quality
♦ Shorten Construction Period
Problem of Construction Robot / Automation

♦ Developed mainly by General Contractors
♦ Priority on Productivity
♦ Design Restriction, NOT Flexible
♦ Increase Construction Cost
♦ Building Owners and Architects are NOT Interesting
IMS (Intelligent Manufacturing System)

- Japan, EU, USA, and Other Countries Join as a matter of form
- About 70 Large Manufacturing Companies Join in Japan
- Large General Contractors Participated in the Program, Watching Future Construction Systems
Fruits of IMS

- Experience about International Joint Research for Future Production Systems
- Many kinds of Production Concepts Applicable to Production Lines
- Post Mass Production Paradigm
- Decentralized Network Systems
- For Construction Systems, Some Interesting Ideas about Production Systems
Problems of IMS from the View Point of Construction

♦ Construction Technologies Developed in IMS are NOT so Realistic, Too Futuristic
♦ General Contractors Carried Out the Research, but Sub-contractors do NOT Enjoyed so much
What is CALS? (Definition)

- Computer Aided Logistics Support
- Computer aided Acquisition and Logistic Support
- Continuous Acquisition and Life-cycle Support
- Commerce At Light Speed
Construction CALS/EC in Japan

♦ Original Idea of CALS Came from Logistic Strategy in US Defence
♦ Private Sectors Applied the CALS in the World
♦ National R & D Project Organized by MLIT from 1990 in Japan
Fruits of CALS

- Electronic Delivery (Electronic Documentaion)
- Electronic Bidding System
- CAD Data Exchange System
- Many Good Applications in Civil Engineering Works
- Applications in Building Works are Limited
Problems in Construction CALS/ES

- Government and General Contractors are very much interesting
- But, Architects do NOT enjoy
- Design Works are Costly Comparing with Fee
What is going on about BIM?

♦ IAI-Japan is Eager to Promote
♦ 3D-CAD & Simulation Soft Vendors are Enthusiastic to Sell their Products
♦ Few Architects are Interesting
♦ Some General Contractors are Interesting
♦ Government is Hesitate to Apply Entirely
♦ Government has to change their Administration Systems
Problems of BIM in Japan

♦ Players (Government, Architects, Contractors, etc.) are NOT Harmonized very much
♦ Information about Good Examples are NOT Open
♦ Owners and Contractors don’t Like to Disclose Project Information
♦ They Tend to Enjoy Exclusive Situation
Conclusion for Future R & D

♦ Cooperation between All Players
♦ Competition is Essential for Active R & D
♦ Balance between Cooperation & Competition
♦ It is very Difficult to Get Balance Inside of the Country
♦ Foreign Countries Movements are Important
♦ It is the Significance of ICIS
Thank you for your attention

♦ Questions

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