

BIM论坛

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Total Service for PPS' Construction Projects

➤ When is Total Service for construction projects useful?

- In lack of experienced professionals and experts
- In need of project management expertise
- When seeking help in ensuring successful projects

➡ Total Service: customized one-stop services in all stages for the ordering agency: planning, design, construction and maintenance)

- BIM has been used in all Total Service construction projects since 2016

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BIM Trends in Korea



> BIM Policies of Ministry of Land, Infrastructure and Transport

- In 2010, BIM implementation guidelines for architecture
- BIM R&D projects (2013~2016)

| Project | Detail |
|--|---|
| Building technological environment for open BIM technology to improve building quality | . Verification and certification technology for BIM design quality . Criteria and technology for optimizing BIM design drawings . Integrated approval and licensing system for design and engineering |
| Establishing design criteria and infrastructure for open BIM-based buildings | . Standardized data for integration of BIM in buildings . BIM libraries . Laws & institutions and long-term strategy for promoting BIM |
| Developing new design tools for future design environments | . Cloud computing technology for BIM services . Assistance to small architectural firms for enhanced BIM environment |

- R&D projects & establishment of BIM infrastructure to apply IT to construction

- By 2020, more than 20% of infrastructure construction based on BIM

BIM Trends in Korea

> Architectural firms

- BIM used more widely among large firms than smaller ones
- In lack of competency, outsourcing BIM to submit required data to the ordering agency

< BIM & GIS by size of architectural, landscaping, urban designing firms (source: MLIT)

| Firm size (number of employees) | Number of sample firms | Rate of introduction |
|---------------------------------|------------------------|----------------------|
| 1~4 persons | 7,052 | 8.4% |
| 5~9 persons | 1,706 | 11.3% |
| 10~19 persons | 552 | 12.8% |
| 20~49 persons | 233 | 13.8% |
| 50~99 persons | 67 | 36.4% |
| 100~299 persons | 50 | 30.6% |

Construction companies

- Large constructors using BIM to facilitate participation in bids & work at construction sites.
 - Nurturing internal experts by utilizing dedicated divisions and training programs
- 12 out of top 30 Korean constructors adopting BIM (2012)

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Achievements for BIM Implementation



> Total Service for BIM-assisted construction orders

- BIM guidelines for Total Service construction projects (2010)
- Korea's first BIM implementation plan set and released by PPS as ordering agency - 49 BIM-assisted projects with USD 5.4 bn (2009~2016)
- Projects subject to BIM implementation

| year | Subject |
|------------|---|
| Since 2011 | Open completion and turn-key projects exceeding KRW 50 bn |
| Since 2013 | Projects exceeding KRW 50 bn |
| Since 2016 | All projects |

> Public relations

- Announcements on BIM implementation plans to promote BIM
 - (Apr. 2010) Promoting a wider use of BIM, 3D technology in construction
 - (Dec. 2010) BIM guidelines soon to be set
 - (Nov. 2015) BIM required for PPS' Total Service starting from next year

Achievements for BIM Implementation

Policy Research

- 4 research projects (2010~2014)

- Approximate estimation program & guidelines for BIM implementation

| year | project | achievement |
|------|---|--|
| 2010 | Development of roadmap and guidelines for BIM implementation on construction projects | Roadmap and guidelines for BIM implementation |
| 2011 | Cost reduction in BIM projects through developing pilot approximate estimation program and clarifying division system | Pilot approximate estimation program |
| 2012 | Setting directions based on analysis of achievements in BIM & detailed management guidelines | Criteria for inspecting quality in BIM and manual for management and supervision |
| 2014 | Research on ways to improve PPS' BIM order system for further promotion of BIM | Guidelines for BIM implementation in construction stage |

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Plans for BIM Implementation



> Mandatory implementation of BIM

- All Total Service projects adopting BIM

> Differentiation in BIM requirements by scale of construction

- Minimizing requirements for small-scale projects considering small firms' difficulty and current status of infrastructure for BIM in Korea

| Scale of construction | Level of BIM requirements |
|-----------------------|---|
| Less than USD 27 M | Minimized requirements by stage of schematic design or design development |
| More than USD 27 | BIM implementation by stage of construction documentation |
| More than USD 45 M | Additional information requested due to properties of project, along with requirements by stage of construction documentation |

Plans for BIM Implementation

➤ Effectiveness of full implementation of BIM

- Improvements in work processes for BIM
 - Task force to improve expertise and accountability in BIM management
- BIM cost included in bid price
 - BIM-assisted projects meeting requirements to level of design development and providing precise construction information for the ordering agency
- Support for enhanced collaboration and cooperation
 - Basic guidelines for BIM implementation to deal with architectural design, structural and mechanical engineering, electric work, processes, cost estimation, and maintenance (scheduled in 2017)