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The NBIMS Development Committee
website: <http://www.facilityinformationcouncil.org/bim>

National Building Information Model Standards Committee Awarded Grant to Develop BIM Standard for Precast Concrete

WASHINGTON, DC The National Institute of Building Sciences (NIBS) through its Facility Information Council (FIC) has been awarded a grant of approximately \$160,000 from the Charles Pankow Foundation to further development of the functional requirements for a National Building Information Model Standard (NBIMS) for precast concrete. Planned for completion in August 2007, the project focuses on the multiple exchanges of data between architect and precast contractor and is expected to speed the process while also improving accuracy and reducing costs.

The project team includes NIBS, the architectural firm of HKS Inc., a 3D precaster (yet to be selected), and the academic team of Georgia Tech, Technion and FIATECH.

NIBS will administer the project and provide overall project management. HKS Inc. will provide the architectural project and will generate the design and construction documents for a significant project involving architectural precast concrete panels and structural precast concrete members. HKS will generate both the 3D BIM model and a traditional set of 2D contract drawings. The 3D precaster will receive both sets of architectural information; prepare detail and production materials, and report results using both traditional and 3D BIM-based processes. Charles Eastman at Georgia Tech and Rafael Sacks at the Technion – Israel Institute of Technology will monitor the work along with Ric Jackson at FIATECH who will provide analysis and documentation and will prepare the final report.

NIBS expects that results of the project will become the first comprehensive module to use the new National BIM Standard and will be used by designers, fabricators, contractors, owners and software developers.

Benefit to the Industry

FIC recognizes BIM as utilizing cutting edge open standard digital technology to establish a computable representation of the physical and functional characteristics of a facility and its related project/life-cycle information, and is intended to be a repository of shared information for the facility owner/operator to use and maintain throughout the life-cycle of a facility. NBIM Standards create value by enabling data to be organized and used/reused through computer applications during the facility lifecycle to document transactions, identify data requirements specific to disciplines and inform business decisions. This project will define the functional requirements for a NBIM Standard for precast concrete, focusing on the multiple exchanges between architect and precast contractor. It will document the process and workflows, and monitor the costs and benefits associated with the new data representation. [more]

The outcome of this study will include a better understanding of and clear documentation showing:

- The data exchange requirements and workflow scenarios for exchanges between architect and precast contractor, for architectural and structural precast concrete.
- Costs and benefits of using 3D modeling to pass information between architect, precast contractor and other process participants for complex precast concrete products, in comparison with 2D drawing exchanges.
- Parallel and comparable development of two substantial precast concrete buildings using both conventional and integrated three-dimensional processes clear and unequivocal data
- An economic analysis indicating comparative number of hours and employees required
- Impact on the project schedule of the alternative approaches
- Relative costs using the alternative approaches.

In addition, subjective data will be collected to indicate the ease and fidelity of communicating architectural intent to the precast company and the relative satisfaction of the client with alternative processes.

The Charles Pankow Foundation

The Charles Pankow Foundation exists to provide the public with improved quality, efficiency, and value of buildings by advancing innovation in design and construction. The Charles Pankow Foundation will support and advance the professional ideals and beliefs espoused by Mr. Charles Pankow during his lifetime. These beliefs were centered on advancing the speed and efficiency of the commercial building industry through innovations in engineering and construction technology. Of particular interest were advances in delivery methods (primarily design-build) and structural frame design, especially pre-cast and cast in place concrete. The foundation will seek to identify and assist those qualified research and education institutions that work toward similar advances. Grants will be made directly to such institutions and, where advantageous, join with other foundations with compatible goals. In addition to his primary cause of advancing the art of the building process, Mr. Pankow was a generous benefactor to a wide range of charitable institutions, including healthcare and medical research.

The National Institute of Building Sciences

The National Institute of Building Sciences (NIBS), headquartered in Washington, DC, is the building community's authoritative national source of knowledge and advice on matters of building regulation, science and technology. The Facility Information Council (FIC), one of six active NIBS councils, is host to both the US National CAD Standard and the US National BIM Standard Committees. FIC provides industry-wide support for the development, standardization, and integration of computer technologies and software to ensure the improved performance of the entire life cycle of facilities from design, engineering and construction through operation, maintenance and retirement phases.

Georgia Tech

Charles Eastman is a Professor in both Architecture and Computing and is Director of the College of Architecture Ph.D. program at Georgia Tech. Professor Eastman currently is the IT Advisor for the CIMsteel building modeling project sponsored by the American Institute of Steel Construction. He also recently completed leading the technical advising team for the Precast Concrete Software Consortium that has developed an industry-wide specification for a parametric building modeling system for precast concrete, and has coordinated its development and final review. His group is developing Industry Foundation Class (IFC) interfaces for software companies and he is a member of the IFC Technical Advisory Committee. He currently has projects with the Construction Specifications Institute and GSA and he is advising a consortium for development of a BIM tool for reinforced concrete design. [more]

Technion

Rafael Sacks is with the Structural Engineering and Construction Management Faculty of Civil and Environmental Engineering at Technion – Israel Institute of Technology. He has researched information technologies for structural engineering and construction since graduating from MIT in 1985. He has developed detailing and other software plug-ins for CAD systems. He founded and heads the Building Information Modeling lab at Technion and is co-leading a new industry consortium for developing the next generation BIM software for reinforced concrete design, engineering and construction.

FIATECH

Richard Jackson, PhD. is the first Director of FIATECH. Prior to becoming Director, Dr. Jackson was the Director of the Manufacturing Engineering Laboratory at the US Department of Commerce National Institute of Standards and Technology where one of his program efforts centered on information technology in manufacturing including design, process planning, control, and product data exchange .FIATECH is a consortium of fifty-five companies and organizations spanning contractors, product developers, and engineers, has developed a “Roadmap for Capital Projects” to ensure right technologies are developed and in the order that delivers the highest business value across all phases and processes of the capital project life cycle. FIATECH provides global leadership in identifying and accelerating the development, demonstration and deployment of fully integrated and automated technologies to deliver the highest business value throughout the life cycle of all types of capital projects.

BIM Working Definition

Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.

A basic premise of BIM is collaboration by different stakeholders at different phases of the life cycle of a facility to insert, extract, update or modify information in the BIM to support and reflect the roles of that stakeholder. The U.S. National BIM Standard will promote the business requirements that BIM and BIM interchanges are based on:

- a shared digital representation,
- the information contained in the model shall be interoperable (i.e.: allow computer to computer exchanges),
- the exchange be based on open standards, and
- the requirements for exchange must be capable of being defined in contractual language.

NIBS National Building Information Model Standard (NBIMS) Committee Mission Statement

The mission of the National BIM Standard Project Committee is to improve the performance of facilities over their full life-cycle by fostering a common, standard and integrated life-cycle information model for the A/E/C and Facilities Management industry. This information model will allow for the free flow of graphic and non-graphic information among all parties to the process of creating and sustaining the built environment, and will work to coordinate U.S. efforts with related activities taking place internationally.

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