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The USC School of Cinematic Arts: The Arrival of Spring in the Facilities Industry

Nurturing BIM: Evolving Architectural Education

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ABSTRACT

This article examines needs and solutions for the implementation of BIM technologies and integrated processes within academic institutions of architecture. The goal of this article is to give insight to tangible solutions for academic institutions to employ and utilize. The topics covered here foster better members of future integrated teams and offer a more enriching educational experience.

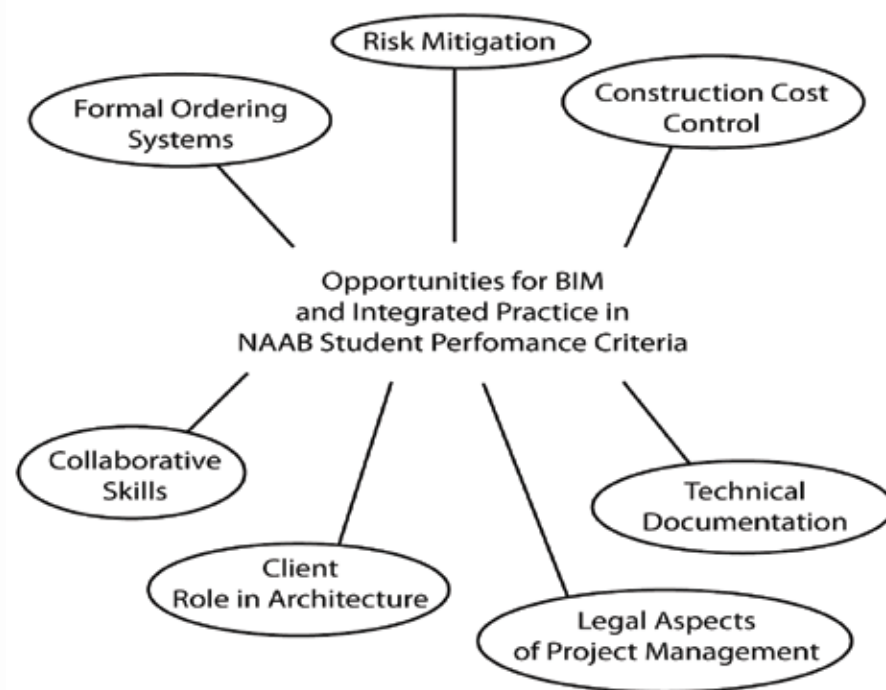
BIM EMERGING IN ACADEMIA

Some describe BIM as making a profound impact on the profession of architecture not just as a tool, but also because of the way it has assisted in developing new methods of practice in the AEC industry. This article looks at the requirements and concepts necessary to develop strategies using BIM and notions of integrated practice into the core curriculum of architecture programs.

Advancements in collaboration, workflow and standards for using BIM have grown reasonably fast when compared historically to academia. With the rate of licensed architects falling, it is crucial for academic institutions provide students with the knowledge that will give them the proper opportunity to participate with the new workflow and standards that are being developed. There are two aspects of education that affect academic curricula. The first being requirements set by external entities and the other is formed by the culture that the school, itself, decides to surround itself with.

DEVELOPING ACADEMIC STANDARDS

Although most schools may have various review boards that differ from each other in regards to policy, intent and level of influence, the most accepted is structured through the National Architectural Accrediting Board (NAAB) for academic institutions offering professional programs.¹ These programs are typically geared towards individuals who plan on getting licensed to practice architecture in a particular state since it is one of the several possible methods to obtain an architectural license. If a program is under the jurisdiction of NAAB accreditation, it must conform to



the following requirements in order to maintain status as having a professional program with NAAB accreditation:

1. NAAB perspectives
2. Program self-assessment procedures
3. Public information
4. Social equity
5. Studio culture
6. Resources
7. Human resource development
8. Physical resources
9. Information resources
10. Financial resources
11. Administrative resources

PROFESSIONAL DEGREES AND CURRICULUM STUDENT PERFORMANCE CRITERIA

The professional degrees and curriculum, and student performance criteria present the most opportunity for developing architectural curricula since they illustrate the requirements for students to show competency in specific areas in order to receive a professional degree. Under the NAAB Student Performance Criteria, students must express understanding of Formal Ordering Systems,

Construction Cost Control, Collaborative Skills, Technical Documentation, Client Role in Architecture, and legal aspects of Project Management and Risk Mitigation. All of these requirements benefit from the use of BIM and integrated practice methodologies.

There are two ways these standards can benefit the core curriculum in architecture school. First, NAAB standards can be extended to specifically include BIM and integrated practice or academic institutions can incorporate these elements into their curricula and define the benefits through the required Architecture Program Report (APR). These NAAB areas of desired performance can however be achieved without the use of BIM, which means that architecture schools can graduate students with a professional degree that may lack in knowledge concerning workflow processes, collaboration using BIM and new practice structures that are developing current and future AEC standards such as various forms of contract documents, software interoperability, cost estimating and project performance optimization.

The NAAB Trends in The Profession Task

Group reported in their 2008 Winter Board Meeting that design efficiencies are realized through BIM as well as reported that BIM has an opportunity to evolve into the NAAB required curriculum both as a subject matter and as a tool. Among other trends discussed were building collaborative leadership skills with both vertical and horizontal team structures, building respect between professions and the need to encompass and entire project through digital information systems.²

PEDAGOGY OF BIM

The second method for implementing BIM and integrate practice into academic curricula is through a more versatile, yet very tangible culture of each institution. The culture of an architecture program is measured through the schools mission statement, program description, trends in faculty resources, core curriculum, and elective courses. A solid set of courses can be set up around BIM if it is understood as a tool that can help facilitate the learning of a lot of complex issues; such as complex façade systems, program analysis, environmental systems, team management, software training, project visualization, design optimization, and information sharing.

A common missed opportunity is to assume that software training covers all characteristics of BIM that students will need to know. In reality, aspects of BIM can help facilitate learning in many areas of a typical architecture curriculum. A model is not required to adequately educate students as to what they may face when they join the workforce. For instance, professional practice courses should include legal aspects of information management, design studios may benefit from utilizing versioning aspects of BIM, shop classes can teach how to produce a technical set of shop drawings from a model, etc.

IMPLEMENTATION

In an era where individuals may consider leaving the profession of architecture due to a bad economy, strict architectural licensing standards and attractive opportunities elsewhere, architecture programs should review their strategic plan in regards to their current curriculum and skills offered to prospective students. Architects have an opportunity for a bright, successful and collaborative future if they foster a culture and set forth requirements that will train and guide the next

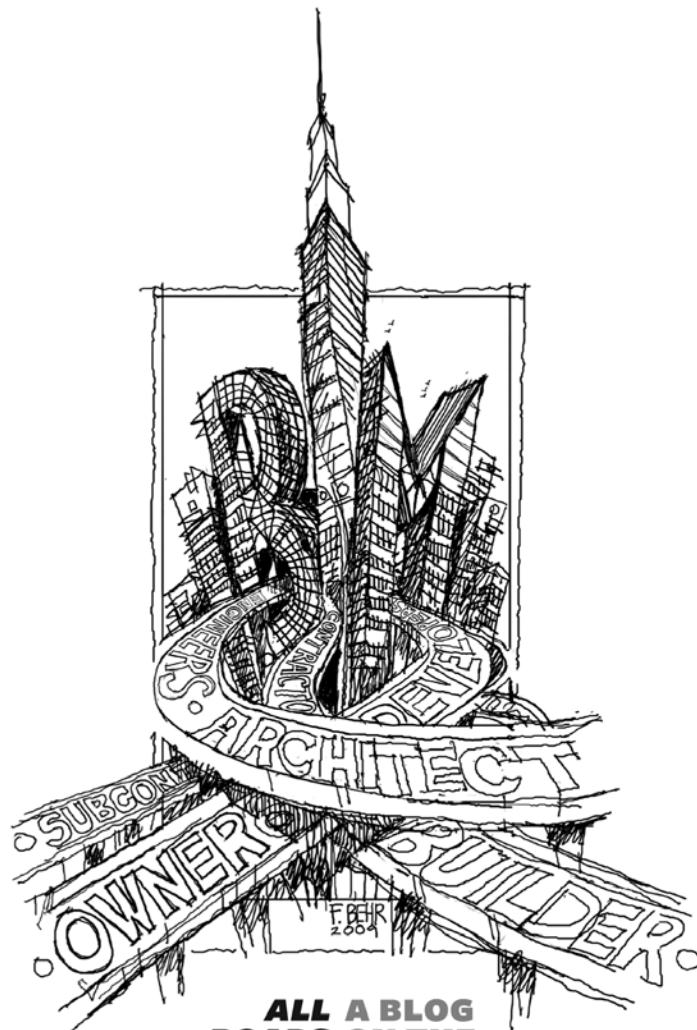
generation of employees and firm owners to be competent in the practices and methodologies that will give them a competitive edge in the AEC industry.

The NAAB process to revise the requirements for Condition for Accreditation will have a mid-term to long-term effect on academia, and therefore should be pursued immediately. For students to stay engaged in an architectural education, they need to see proof that all stakeholders in the architectural education are making a rigorous effort to provide a relevant education to a new generation of architects. ■

REFERENCES

1. Documents referring to the National Architectural Accrediting Board can be found at www.naab.org.
2. The report of the Trends in The Profession Task Group presented to the National Architectural Accrediting Board Winter of 2008 can be found at www.naab.org/documents.

Lucas Reames is from Gehry Technologies, a company which provides technology and services to leading owners, developers, architects, engineers, general contractors, fabricators, and other building industry professionals worldwide.



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