ARKITEKTSKOLEN AARHUS

BIM-Manager Class Project February 23rd & 24th 2010

Dear lecturers

Here is some general background for the seminar.

I've included some info on each of you, to give a feel for the others fields of interest and possible overlap, but please feel free to submit an updated or more precise brief presentation of yourselves and your specific field of interest. For further discussions on trimming the presentations please contact me to my email address; tegnestuen@kalderen.dk . English and Danish are the languages of instruction.

New ways of work and organization caused by new technology is by many seen as a challenge to the AEC industry.

Lack of productivity and ability to incorporate technovation can result in loss of market shares and competitiveness. An undetermined integration of innovation can be expensive.

What are the dynamics especially related virtual building construction and the organizations surrounding them that leadership has to take in to account?

"The better a firm is organized, the more success can be achieved. Unless a firm has clearly defined standards and process, they are bound to get into trouble.
But for some firms, there seems to be a belief that BIM tools do not require as much dedicated management and that teams can rely on the software to self-manage the movement to and automation of the process. For projects of any size, this is not sound logic and will likely lead to trouble!"
AECbytes Viewpoint #34 (January 17, 2008), The New "Must Have"—The BIM Manager
Dominic Gallello, President & CEO, Graphisoft

The aim of the seminars is to discuss the development of the 3D model and collaboration amongst stakeholders in the AEC is to address the challenges in maintaining productivity goals in a changing market, incorporating strategies for innovation and change management and how to recruit, develop and maintain a company's human resources and creating sustainable values.

The seminar has three focus themes that interconnect the lectures. The first day emphasises the theoretical part and the second day is focused on a more practical oriented problem solving part. The two days overlap to a certain degree as well as split up between the developments abroad and on the local market.

By addressing challenges and opportunities for the project managemer in a "hands on" problem solving fashion based on cases and "storytelling", we hope to inspire the the participants to take active part in the discussion. Please reflect on what could be the key takeaways (lessons) from your lecture?

· Process implementation, Legal documents, Specifications
· Virtual Model
· Competence Lift and new Qualifications
· BIM management / BIM Manager role
· BIM management best cases
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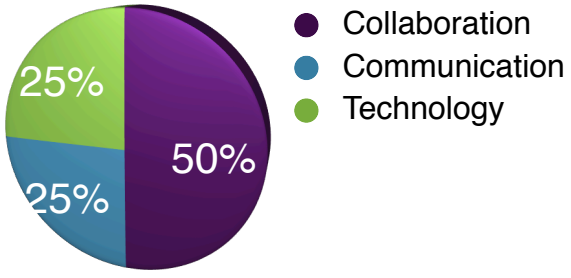
Day one

- *Challenges in BIM-collaboration*
- *BIM and Urbanism*
- *BIM in Sustainability*
- *From Design to Production*

Day two

- *New standards and methods of working with BIM*
- *ArchiCAD and Energy Estimate*
- *Revit, Quantity Take Off and Solibri*



BIM-Manager Class Project February 23rd & 24th 2010

The seminars are qualification courses aimed at architects in management with 5 years of experience from private and public sector.

In general terms, BIM is a technology with manifold aspects to it: coordination, collaboration, automated drawing production, intelligent objects, detailed performance simulations, interoperability, and so on. While all of these are important, there are some aspects that will be more critical than others at different points of time.

A survey conducted from late summer 2009 indicate that at the present time, the need for drawing production is still paramount, making this the top ranking criterion for BIM solutions across all categories of firms and respondents.

Other highly rated criteria include enhanced modelling capabilities with smart objects, the ready availability of object libraries so that effort is not wasted in re-creating standard building components, support for distributed work processes, and the ability to work efficiently on large projects.

In your opinion, based on your experiences and fields of interest,, which are the most critical requirements for BIM solutions at the present time, who could be identified as the problem owner or stake holder and what could be suggested to solve it in a practical manner?

Best regards Bengt Kalderén, architect, course leader

BIM-Manager Class Project February 23rd & 24th 2010

Program Draft Day One February 23rd

9.00-9.15 Welcome and short introduction by Bengt Kalderén

Session 1
9.15-11.00 Challenges in BIM-collaboration

STIG BRINCK

Chief Advisor, ICT and Proces development, Building Engineer and Master in ICT and Learning from the Univerity og Aalborg, Niras A/S

Stig is an firm BIM advocate. He has been involved in the Danish CAD community for the last two decades and has during the last couple of years been a driving force in some of bips (building, information,publication and collaboration) committees and involved in the development of the State Client Demands and as project manager for the new ICT-agreement from 2008. As project manager at Niras his tasks are managing both internal and external the company's consultancy in the ICT field.

BIM and agreements, requirements for a digital flow.
BIM is about 70 % process and 30 % technology, standards and work methods. If the stakeholders don't share a common understanding and share durable agreements concerning BIM, there will, at the best, be lost a great deal of its potential. Worst case, there will be great costs for the project members. A messy stack of documents can be cleared out, but not explicit conditions can become disastrous with a digital collaboration model. This lecture will look in to the processes and methods that can make the collaboration and agreements to flow, from early stages to facility management

- How does BIM effect collaboration and legal papers
- Which are the challenges for the consultants
- How does BIM affect the consultants strategies and demand for skills
- Which are the challenges regarding collaboration as a result new technology platform

Break 11.00--11.15

Session 2
11.15-12.15 part II, Urban Planning in BIM

MIESZKO B. NIEDZWIECKI

Architect, Managing Director at ATP parametric design GmbH, AIA, SARP

Mr. Niedzwiecki is an award winning designer with over 30 years of extensive national and international expertise in a broad range of project types. His designs can be found across North America, Europe, Africa and the Middle East. Prior to joining ATP, Mr. Niedzwiecki for a number of years was working with the largest American developers and most recently served as Design Director and Vice President for leading national firms specializing in master planning, hospitality, mixed-use, retail, educational, healthcare and R&D projects.
From 1999 introduced and implemented Building Information Modeling (BIM) technology to leading USA and European architectural firms.

BIM and Urbanism

The keynote lecturers were given some questions that were to inspire and give an general idea to what could be discussed in the seminars. You are free to elaborate.

- *BIM is perceived as an overrated phenomena to a paradigm shifting innovative technology in the making as we speak. How does this affect our ways of managing building projects in the AEC*

BIM-Manager Class Project February 23rd & 24th 2010

- *How does BIM affect collaboration and how are new boundaries integrated in to organizations and work methods?*
- *Has BIM escaped standardization? What is at stake since AEC partners cannot be talked into operating according to the same sets of standards?*
- *Society's demand for BIM*
- *Strategic Management, Project Management and Decision mode*
- *Organization and Economy*
- *IT - strategy (choice of platform)*
- *Strategy (internally & externally)*
- *Communication and user dialogue*
- *Model coordination*

Lunch 12.15-13.00

13.00-13.45 part II, Urban Planning in BIM

Urban Planning in BIM/by Mieszko B. Niedzwieck, Architect, Managing Director at ATP parametric design GmbH, AIA, SARP

Break 13.45-14.00

Session 3
14.00-15.45 BIM in Sustainability and from Design to Production

ODILO SCHOCH

Dr.-Ing., Dipl. Arch. ETH, MAS ETH, Adjunkt/Assistant Professor, CITA - Institute 4 Design and communication, Royal Danish Academy of Fine Arts.

Odilo Schoch has been employed as assistant professor since 2008 at CITA (Center for IT and Architecture) at the Royal Academy of Fine Arts in Copenhagen. He field of research and teaching is in BIM (Building Information Modelling). In his PhD thesis he developed a quality management system for the design of smart buildings based on a Japanese management methods "Kaizen". Before that he worked as an consultant for the Baumschlager-Eberle office in Beijing and St. Gallen and taught and researched in CAAD at ETH Zürich. He took his exam as an architect at ETH Zürich and Bartlett in London. By working in his parents studio he became in his early years aware of the requirements that are at stake when construction buildings. He lives in Copenhagen and Zürich.

Odilo will give a short introduction to the freedom of choosing software tools as a strategic choice and continue one discussing how BIM and sustainability is connected, drawing from his earlier experiences and how software tools and production is brought together and maturing

- *Which are the core values to modelling with BIM.*
- *Which strategies should mark the implementation process?*
- *How does BIM enhance sustainability and the design process?*

Plenary Session 15.45-16.00 Summarizing and evaluation Bengt Kalderén

Program Draft Day Two February 24th

9.00-9.15 Welcome and short introduction by Bengt Kalderén

Session 1

BIM-Manager Class Project February 23rd & 24th 2010

9.15-11.00 New standards and protocols, IFC exchange format, Quality Control and Simulations with the BIM model

JAN KARLSHØJ

Associate Professor, DTU Civil Engineering Department of Civil Engineering, Copenhagen

Jan has 20 years of experience with CAD and interoperability and has been a consistent contributor to the buildingSMART organisation on technical matters. He is now playing a central role in the organizations transition from technical matters to a more usergroup orientation.

Jan has in depth knowledge with interoperability as IFC. smart objects, object libraries IFD and classification, IDM and Model View definitions (MVD)

The next step after a widespread usage of software tools to support isolated tasks carried out by many different disciplines in the construction and facility management industry, is an integrated ICT process where is becomes increasingly more important that software tools automatically can interpret data from other programmers without human interaction. This goal can mainly be achieved by the use of different methods like direct interfaces between programs, neutral interfaces and web-services. This will replace the need for reentering the same data into different systems.

- *How the virtual building model is to be communicative.*
- *What information should it offer?*
- *How? With what kind of tools and standardization methods*
- *The timeline and for whom?*

Break 11.00-11.15

Session 2
11.15-12.15 New work methods with BIM base on ArchiCAD part I

SARA ASMUSSEN

BIM, CAD & Architectural Consultant, Owner Tværsnit Arkitekter, Copenhagen
Sara is a principal of Tværsnit Arkitekter / Cross-section Architects and has been working with architecture, web, CAD, 3D and Building Information Modelling (BIM) for the past 10 years - only back then they called it something else.
She has work with both architecture and BIM plus the spin offs, sustainability software and teaching. Her architectural firm is a multi-disciplinary one, which is reflected in the name: in english Cross Section Architects.

Introduction to the Presentation: What am I doing here?

- Learning by doing - about learning with BIM
- From Ignorant to Smart - developing work methods
- What are you doing? comments about the Danish Building Industry
- Why does it have to be so grey and dull? about usability by design
- A hot date - about general agreements
- Live: Energi-simulation with Eco-design

Lunch 12.15-13.00

13.00-13.45 part II, New work methods with BIM base on ArchiCAD - continued

Sara Asmussen, BIM, CAD & Architectural Consultant, Owner Tværsnit Arkitekter, Copenhagen

BIM-Manager Class Project February 23rd & 24th 2010

Break 13.45-14.00

Session 3
14.00-15.45 BIM with Revit and Quantity Take Off

JØRN SKAUGE

Lektor/Associate Professor, architect, MA (Nottm), ph.d. Aarhus School of Architecture

Jørn is a much appreciated teacher and researcher at the Aarhus school of Architecture in the field and CAAD and digital practice. For last three decades he has some extensive publishing and been writing manuals for the most common CAD tools.

Before entering the academia he pursued an career as a urban planner architect.

- Introduction to Revit as a CAD parametric design tool
- Revit families
- BIM model and Quality management with Solibri
- BIM model and Quantity take Off with Sigma

Plenary Session 15.45-16.00 Summarizing and evaluation Bengt Kalderén

BENGT KALDERÉN, *Course leader*

Architect & BIM Consultant, Copenhagen

Bengt is a principle of a Copenhagen-based architecture firm, established in 1996, working with a wide range of mid-sized commercial, residential and institutional experience. The office has been implementing BIM for almost a decade.
During the last the last four years, Bengt has been focusing on innovation and change strategies and their general implications related to BIM, involving cross-disciplinary fields as science, technology and art.

As chief advisor for the Danish Association of Architectural Firms from 2006 to 2009, the services was to support architects in implementing the requirements of the national standards stipulated in the public client demands from the national "The Digital Construction" project and to help improve the use of ICT tools, creating awareness and interest for BIM and ICT governance and best practice in accordance to the buildingSMART® alliance.

This involved promoting open standards and the common interoperability code, IFC, for the AEC industry, as well as participation in the ongoing policy making, commenting on legislation proposals. He has been lecturing, arranging and attending conferences and seminars within the AEC industry domestically and abroad, seeking strategic partners amongst related industries for the members of the association.

Bengt has been elected board member of the Danish buildingSMART® and representative to the Nordic board since 2007.

He has been heading this project for developing BIM-manager qualification courses for architects for the Aarhus School of Architecture. The project is aiming at establishing a Master in Management Technology degree.