

THE CHALLENGE TO
PROVIDE EDUCATION TO
THE CONSTRUCTION
INDUSTRY IN A RAPIDLY
CHANGING
ENVIRONMENT



Introduction

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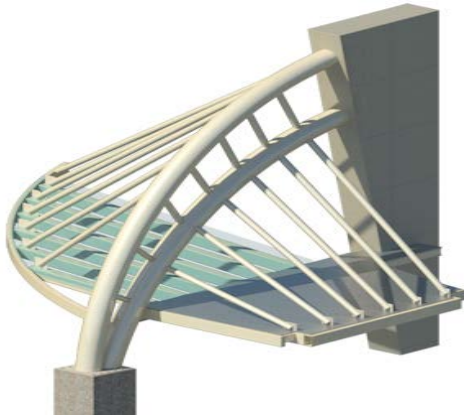
- Pace of change in technology is impacting on our industry.
- In the past 20 years we have gone from production of drawings by hand, through AutoCad to BIM Technology.
- No longer do projects have to be designed and construction documentation prepared by local offices.
- Changes in technology in the past five years have accelerated to the point where BIM (Building Information Modeling) Technology is quickly taking hold in many design offices.

BIM Technology

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Growing Pain (short-term)

- ❑ The cost – new software, new hardware, training
- ❑ The inefficiency in the design of initial projects using this software
- ❑ Reluctance to adopt by those with experience
- ❑ Lack of experience by those who are using the software



Benefit (long-term)

- ❑ Flexibility of design to review different options.
- ❑ Efficient design resulting in lower construction costs.
- ❑ Ease in which to handle the increased complexity of new building standards in the design of structures. i.e. Seismic design
- ❑ The benefit of three dimensional design in coordination, presentation of design to users/owners, interference between disciplines.
- ❑ The ease of cutting sections at any portion of the building

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BIM Technology

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Current Issues

- Information about a building was always generated during the design process. One of BIM's greatest impacts is in the organization of that information.
 - ▣ Interoperability and transfer of that information is crucial to obtaining the full benefit and flexibility that BIM offers.
 - ▣ Interoperability between software programmes still has glitches and is often a proprietary one-way link (e.g. through the Revit API).
 - ▣ The use of a standardized, functional, non-proprietary file format, like IFC is important to:
 - avoid having groups of software packages that work together, limiting flexibility
 - reduce the burden on software manufacturers

BIM Technology(Continued)

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Current Issues

- While firms have the technology to build models, they still lack the ability to populate the models.
- Office libraries are in their infancy.
- As models are populated, current software struggles to handle the size of the models. This is a condition that will change quickly as software is developed.
- As the models become populated, the need to tie an identifier to each element becomes critical. This is where specifications and language become critical. This is where ICIS, and all of its members must step up to provide this essential information. Without this information, the model is only a series of three dimensional lines – a picture without substance.

The Future

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- Already, Contractors are requesting Bid Documents by electronic means rather than paper copy.
- The software expert in any office is the most junior member of the firm.
- The implications for the future is these individuals use software, as their employers use pencils.
- Progressive firms and organizations are leading the way. Unlike, the arrival of AutoCad, this time if we do not embrace change, change will leave us behind.

The Demand

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- The great need in all of this technological change is the methodology for delivering the information to the Contractor and the end user.
- BIM is still a means of delivering information.
- The information still has to be provided in a manner in which it can be understood.
- BIM Technology provides a simpler means for global transfer of information, which requires standardization of information through IFD's.

Where do Canada and CSC fit into this picture?

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CSC



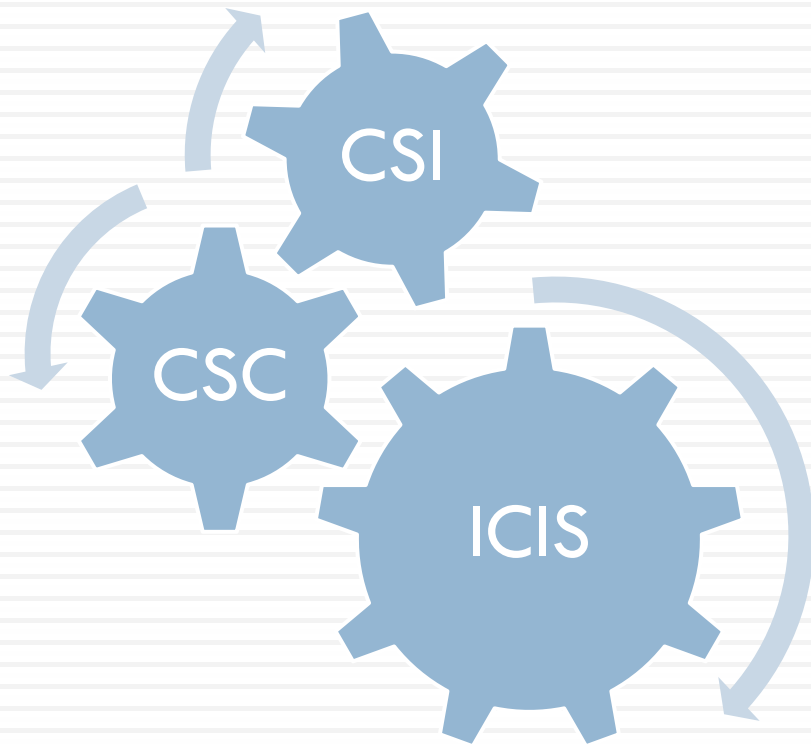
CSI

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North America

CSC has worked with CSI to update our format documents – *MasterFormat*, *SectionFormat/PageFormat*, *UniFormat* and the *OmniClass Classification* systems to better address the new and changing technologies and method of delivery.

The Global Picture



CSC and CSI are working together with our ICIS partners to create a new dictionary of definitions – IFD (International Framework for Dictionaries)

CSC (Construction Specifications Canada)

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- CSC has found that there is a growing demand for education of people in industry in how to assemble information.
 - Over the past number of years, CSC has revamped its entire education program, and repositioned our program to meet the demands of changing technology.
 - Education streams have been developed for Specification Writers, Contract Administration and Technical Representatives, providing training for these individuals on how to standardize the way information is presented, and to improve the quality and efficiency of the construction industry.
- CSC has prepared a new Manual of Practice to provide an information source and guidelines for practitioners.

CSC Education Programs

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- Primarily in dealing with our vast country, and the inability to reach all the individuals requiring education.

- More recently in meeting the demand for on-line, rather than classroom delivery, of our education courses, by a new generation of Construction Professionals, who work with BIM rather than with a pencil.

- CSC has begun to deliver its education courses online:
 - The demand for the basic PCD On-line Course, which has been delivered for two years, continues to grow.
 - The three streams of courses are all now being prepared for on-line delivery.

CSC Education Programs (Continued)

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- The online courses draw people from all parts of the industry, even lawyers are taking the PCD courses.
- People from places other than Canada are drawn to the program. We had students from as far away as Dubai.

Why is online program in demand?

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- People in regions with no local CSC chapter
- Schedule
- Vastness and remoteness of Canada

Canada – Australia – England



England

Future CSC Education Content

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- CSC recognizes that in order to keep pace with the industry changes brought about by BIM, the education services provided must adapt.
- CSC does not have a role in the technical aspects of learning BIM software.
- BIM affects much more than just documentation and design.
 - ▣ New project delivery methods (such as Integrated Project Delivery)
 - ▣ Liability issues
 - ▣ Insurance issues
 - ▣ Specifications
- CSC already provides education on the above topics. It must strive to stay current with how BIM is affecting the industry.



