

CIS/2 workshop December 18th, 2009 Rosemont, IL

Attendees:

Chuck Eastman, Ga. Tech
Shiva Aram Tech
Bob Lipman, NIST
John Cross, AISC
Luke Faulkner, AISC
Frank Wang, Tekla
Mark Allphin, Tekla
Mark Holland, Paxton Vierling Steel
Barry Butler, Design Data
Peter Kocher, Strucim
Ivan Jivkov, Strucim
Erleen Hatfield, Buro Happold
Tom Faraone, Banker Steel
Munny Panesar, StruCAD
Vic O'Mara, StruCAD
Matthew Gomez, Gerdau Ameristeel
Jim Barr, Bentley
Ken Loomis, Cives Steel
John Corsin, Cives Steel

8:15

Work flow and process mapping:

Chuck Eastman began the workshop with an overview discussion that covered IFC, CIS/2 and the NBIMS process, as well as lessons learned from the precast concrete BIM project:

The purpose of this meeting/workshop is to take CIS/2 to next level via exchanges and interoperability. Large model schema like CIS/2 has many ways to send the same data. What ways should we agree on to send information? This needs to be defined so that data can be exchanged effectively.

Experiences from developing model views in IFC-recommend following model views practices. Chuck Eastman is currently funded by Pankow to work on developing exchanges for pre-cast concrete.

CIS/2 model schema can be highly redundant. The richness can actually cause issues.

Semantic issues in exchanging IFC information.

- Shape method: B-rep, CSG, solid, extrusion or other sweep (b-rep is default, but useless if you're doing any editing)
- Part structure; built up member or single piece.
- Relations: how are parts related?
- Assemblies and components

Chuck explained why exchange level specifications are really needed, which can get very complex when you get to the building modeling level.

A BIM object is defined according to:

Object class
Shape method
Part structure
Relations
Attributes
Metadata

National BIM Standard: First and foremost, what is it?

National BIM standard is a way of getting agreement on exchanges. Agree on model views and express them accurately.

BuildingSMART approach for developing Model views:

Scope of Process phases:

Program	What is the requirement?
Design	How to solve requirements
Construct	How to build it
Deployment	Use in industry

Two Major documents come out of this. Functional requirements (IDM) and MVD

Work flow diagram and explanation of phases and players involved;

This diagram uses Omniclass classifications. Green exchanges represent model exchanges. Yellow represents exchanges. Green w/purple boxes represent target model exchanges; see attached PowerPoint, slides 9 & 10

Process descriptions:

IDM exchange requirements; Information Groups, Information Groups, attribute sets, geometry, structural loads, material, relations.

Model View Implementation

IFC model view concept:

A logically defined IFC subset implementation of a well defined information item for use in model views; it needs to be continually reviewed and updated as better information becomes available, it is a continuing process and can be re-used in other use cases

Discussion

Bob Lipman: One issue to think about is that we already have software, and are defining exchanges. Precast doesn't have the software yet, so they can fit it to the definitions.-Still very important that these are defined so new software has something they can refer to. Also helps companies "playing" in the IFC community define their process to make sure steel exchanges are better with IFCs.

IFC is just getting to the point where IFC will handle cardinal points; it has to be back fit to make some aspects work.

Ivan: What is the minimum requirement to be able to deliver an acceptable product to the end user?

Who defines the minimum acceptable? Is it this group?

Erleen: asks about the practicality of model views vs. real world, because it's not always known what is wanted from either side.-No matter how well they're defined we'll never get it all 100% right.

Bob: what Erleen is proposing is not in conflict with the model view definition. We're not telling software vendors how to implement, and what the exchanges will be. MVD defines the information. How the software vendor presents it is up to them.

IFC solutions factory; used for collecting concepts.

Coordination view of IFC represents geometry view, less attributes than CIS/2.

IFC schema bindings still abstracted.

No data types or low level express.

Important notes:

Documenting existing use cases will clean up and make more robust current exchanges, only affecting ambiguities and limitations. It will also allow certification down the road.

Existing exchanges should go quickly and be easily specified and completed.

This more systematic approach will allow new use of CIS/2, eCommerce.

CIMSteel Timeline:

CIMsteel was actually started in 1987; CIS1 came out in '95

There are things in CIS/2 that will probably never be used. Custom thread patterns for example, but there are other things that are extremely important. There is much validity and function that IFC does not have and will not have for sometime. Some point down the road, there will be an easy switch, but for now CIS/2 has a very nice functional lead that should be maintained.

Level of coordination is still very important, what level of aggregation is very important-at what level do they occur.

Action Plan:

- Identify and document important workflow use cases in process map
- For each use case identify requirements in functional information terms
- IDM report
- Technical work transforming IDM into concepts with bindings
- Develop aggregation concepts and test cases
- Work with SW companies to test/debug
- Certification?

Have to develop a statement that reflects the viability and dedication of CIS/2 as well as our commitment to it for the time being (if not longer). In addition, we must mention that if IFC comes to fruition, and is as effective as CIS/2 we will support that, as everyone is generally more supportive of a single standard.

Accelerate the closing of gaps and increments between IFCs and CIS/2; gap analysis of IFC and CIS/2.

IFC involvement: at what level can we participate? More representation is needed

Identify where IFC is with relation to CIS/2

Chuck: not sure there is a perfect integration. CIS/2 is very specific, and IFC is very abstract and hierarchical. On some levels the concepts behind CIS/2 and IFC are very different, at other levels they are near identical.

In IFC, cardinal point is just a label; in CIS/2 the cardinal point actually moves steel.

Who are the actors that are exchanging information?

Broken out in subcommittees that could express how information is important to them

-Work can be approved and signed off by committee:

Mapping discussion:

- Many to one vs. one to many
- Rich meanings are lost in IFC
- Do we want to go direction of ATC-75?
- Public statement on position next ten years for internal to steel industry
- Pankow funding may be tough to come by right now, but is still worth investigating as a source of funding.
- Track IFC with relation to CIS/2 and what the delta is...need some kind of benchmark.

Work Flow discussion:

Roles that the steel fabricator interacts with:

- Architecture
- Structural engineer
- Steel detailer
- Steel fabricator

- Plant management
- Steel mill
- Construction manager
- Steel erector

Basic project lifetime

- Preliminary Project conceptualization and feasibility phase
- Preliminary project description phase
- Design development phase
- Construction (bidding) documentation phase
- Product detailing
- Fabrication
- Erection

Conformance checking and test cases:

Bob Lipman started the afternoon session with a review of the conference call on test cases. Test files are usually not a sample project...it's a *test file*, that's meant to be tested. They are usually classified as unit, simple, or real models.

We need to characterize what we want to test before we can come up with the test files.

Must prioritize what we want to do. Scenarios in simple model where we want to test something like cardinal point within a context, but not by itself.

Testing tools: There are fewer tools available to test CIS/2 than there are to test IFC. SteelVis (just checks visualization) Express engine (conformance) doesn't find everything. STEP tool kits should have conformance checking within. EDM has a checker as well.

CIS/2 files have historically not conformed to specification. They aren't major violations, but aren't truly conforming. Criteria must be developed to evaluate conformance, which may be driven by unit test or others, exchanges we know we have to satisfy from process mapping. Possibly using a reference CIS/2 file. One generated by hand for example. Even if it doesn't lead to cert, we can still do testing.

After all work has been done, then it can be certified...this is a long way down the road, and shouldn't be discussed right now.

- Who does the work?

IFC world is working on online server for submission.

Webex about bigger picture for testing; Need single action item. Test files need to be integrated with specifications. Specs need to be tested more strictly. This has to be worked into the agenda for calls.

Layout testing program:.

What are the models that we come up with now?

Sloped members, separate model, maybe the next level model

How are these models driven, by users? Knowledge of what works and doesn't?

Two tools we have; check for conformance and check visually. SteelVis and Espresso

Next step will be writing up a short paragraph on each one of the exchanges listed this morning and then validating them and asking people what the contents of those exchanges are. The people that have already done that already know the answer and can help this.

Possibly a three week basis for work sessions/conference calls.

Defining minimum conformance in a finite way that is useful?

No there is not, but there is a set that we can come up with that is a good start. Need to define some use cases for a beam, column etc.

Contents of group website that may be useful:

It could take a Webex meeting or several to determine what stuff floating around gets posted to new website...thumbs up or thumbs down. Gather it from Georgia Tech, NIST and CIS2.org

- Documentation for CIS/2 LPM 6
- Some large scale real life models just to check that the whole thing doesn't go crazy
- Something similar to the old test file that can be posted. Curved beams
- Sloped columns, some connections, but not many

- Simple unit tests, beam column etc. These files can be checked with a conformance checker.
- Website to help engage the vendors that out there. Post summary of proceedings on website to help engage rest of CIS/2 world
- New matrix that lists everyone supporting CIS/2 and what they support

Action items:

- Statement from AISC reaffirming future support of CIS/2 with an eye to IFC
- CIS/2 conference call with Ivan Jivkov to discuss CIS/2 article/whitepaper
- Set up WebEx/GoToMeeting regarding website content
- CIS/2-IFC gap analysis discussion
- Develop work flows and IDMs-Ga Tech
- Contact SCI to obtain documentation rights
- Bring others into the fold. Revit for example; Scott Hammond is the contact.

Next meeting:

Tentatively scheduled for May 11, 2010; Gaylord Resort, Orlando (Tuesday prior to NASCC)

