

# The New AISC Interoperability Strategy

BY CHRIS MOOR

Cumulative changes in the computing environment have made a mid-course adjustment appropriate and necessary.

**ENTER PROJECT INFORMATION ONCE** and it will be available to, and usable by, every stakeholder as needed, regardless of the software platform used, saving time and money and improving communication and collaboration.

That's the dream of interoperability. While that dream remains a utopian vision, the construction industry is edging ever closer to bringing it to reality as the migration to adopt and implement buildingSMART's Industry Foundation Classes (IFC) continues to gain traction.

AISC has been at the forefront of advancing interoperability through open standards since adopting the CIMSteel Integration Standard (CIS/2) in 1998 as an open standard for the structural steel industry, and remains at the center of the BIM revolution as it continues to grow. Over time, however, the landscape of software interoperability and integration within the steel industry has changed dramatically and even after a decade of progress, the issue is not solved. In addition, CIS/2's "steel-only" format has meant that other solutions were needed as other disciplines began demanding data exchange.

The IFC format is open and neutral and covers multiple disciplines across the construction industry. Although it has yet to address some details of a building's life cycle, and does not yet cover the depth of data that CIS/2 encompasses, the IFC schema aspires to cover every aspect of design, procurement, manufacture and assembly and, operations and maintenance.

The growing momentum and acceptance of IFC, coupled with feedback from software vendors and end users, has led AISC to reevaluate its overall interoperability strategy. Today IFC are a central part of the new direction.

"AISC has been a leading champion in industry efforts for data exchange and interoperability," said David Morris, chair of the National BIM Standard-United States Project Committee. "They have shown a consistent commitment to participation at all levels of development. When associations such as AISC are involved to this degree it adds a 'real world' commercial perspective to the process, speeds adoption and ensures practical usability of the finished products."

Acknowledging that getting IFC to the level required by the steel industry will take a long time, AISC has adopted a three-part strategy that maintains its leadership role. The strategy is outlined as follows:

- ▶ Short term: Ensure model data can be exchanged as needed by the structural steel industry, regardless of the nature of the exchange or format used.
- ▶ Medium term: Promote IFC and make the format more accessible and understood by working with buildingSMART, other trade organizations, academia and subject experts.
- ▶ Long term: Facilitate the development and implementation of IFC to satisfy the needs of the structural steel industry.

The new strategy maintains AISC and the structural steel industry's leadership in this area and ensures that data related to structural steel can be exchanged up and down the supply chain



*Chris Moor serves as the AISC director of industry initiatives.*

and with other disciplines and trades. AISC takes the view that open standards will never be able to transfer every piece of data a user or client may want, or indeed that two software programs could exchange. In fact, a combination of open standard and proprietary enhancement will always be state of the art, but the key is to always be raising the level of data exchange quality within the open format. To that end, this overall strategy feeds itself: The short-term strategy is an ongoing effort and takes advantage of the myriad exchanges available, now and in the future, documenting them and learning from them what data is exchanged and why. This information then forms the basis of the long-term goals to develop and implement IFC to a very high standard, once more raising the bar for open standards.

“I look at AISC as the gold standard for associations,” said Deke Smith, executive director of the buildingSMART alliance. “AISC is implementing the profound changes necessary to transform the industry as a service to the constituents they represent. If all the market sectors had organizations representing them with this level of understanding and dedication to getting the job of interoperability done we would see a far more effective construction industry in the United States, one that was more competitive internationally.”

### Where Does This Leave Structural Engineers?

As the fabricated structural steel industry moves toward wider use of IFC, structural engineers are left somewhere in the middle, wondering whether they actually benefit from BIM or not. Many have been using 3D models for a while, but now are being told they are building the model incorrectly, that their models are not as complete as they should be, or that their models are of no use for fabrication purposes. At the same time, concerns arise



▲ BuildingSMART International has long had a logo of four interlocking squares symbolizing the interoperability needed throughout the facilities industry.

over liability risks and ramifications of providing such an incomplete or unfinished model to a fabricator or detailer for use down the line.

No strategy for interoperability will solve any of those issues, but nothing exists in isolation. Models do need to be built correctly, and if models are to be shared, expectations must be set and communicated, especially so the model receiver knows the suitable uses to which the model, or model elements, can be put. For example, are the elements geometrically correct, and are they sized correctly? Can they be used to detail/fabricate from, or to estimate from?

“From our perspective as structural engineers, CIS/2 has worked well for us in the past,” said Sean Smith, S.E., P.E., of Gresham, Smith and Partners, Nashville, Tenn., and a member of the AISC Technical Integration Committee. “But, to be honest, it’s been a little more than a button built into some of our software. There has always been a certain level of uncertainty in what we’re sharing, the goals, needs, and

so on. The most successful engagements we’ve had were initiated with significant and meaningful communication by all parties on what was being shared, how it was to be shared, and what the goals and limitations were.”

Going forward with IFC, laying the groundwork for this communication will include a plan to outline how files will be exchanged, what format will be used, how often the exchange will occur, and other such parameters. And this is where current efforts will make a difference.

### Building a Reliable Exchange Process

Every model data exchange has two parties—sender and receiver—and the goal of the AISC strategy is to fully understand those roles, understand what data exchange is required (and why), understand what software is being used, and ensure that there is a solution that can pass the data, first time, every time. This approach will reduce concern over what will always be a black box, of sorts, with outcomes that can be known and relied upon. It will save time, save effort and save confusion, all of which equals saving money for the project. The ultimate goal is to have a robust IFC exchange as the solution for every exchange, and to have the whole of the construction industry using IFC. What this will provide the structural engineer is a single transfer protocol to understand, learn about, and manage, regardless of the material, discipline or entity with which they are exchanging data.

“The crawl-walk-run approach that AISC is taking is going to provide an easy transition from where we are today to a process and protocol that works for communicating with other disciplines as well as with other steel partners,” Smith said. “In other words, this will make my life easier and this is what I want, just like everyone does.”

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