coordination view
information exchange
(cvie)

E. William East, PE, PhD
buildingSMART Alliance Project Coordinator
state of practice

CAD(D) didn’t happen overnight...

- 1982 first version AutoCAD
- 1985 first version MicroStation
- 1990 Intergraph, Bentley, and Autodesk sales nearing $100m

(ref: Hooghsoe, Jeff (2008) SAME Joint Engineer Training Conference, Minneapolis, MN)
state of practice

Architects
“have gone from just exploring (BIM) to using it on a majority of their projects – a tipping point likely reached.”

Engineers
“½ of engineers using BIM are using it for interference detection.”

Contractors
“expected to reach a tipping point in 2009”

for civil structures as well
practical improvements?

**Initial use of BIM results in:**
“better coordination of documents, schedules, specs - less errors/change orders”

(Ref: Pete Moriarty, IAI TAP presentation Feb-2008)

**Project team:**
- “identified 590 conflicts
- issues resolved prior to installation
- additional cost avoided
- enabled owner scope revisions”

(Ref: Michael Kenig, IAI TAP presentation Feb-2008)
just like getting a new pair of glasses...

which is better?

A  or  B

(ref: http://www.cfa.ilstu.edu/normal_editions/bramson_drawing.jpg)  
(ref: http://www.cadpipe.com/hvac/hvacColchk.html)
measurable goals?

“to **eliminate all** construction-related change orders due to design-related coordination issues.

Responding to our client focus, the metric quickly grew into the **elimination of all** client-generated review comments related to design coordination issues.

It next progressed to the **elimination of all** internal quality control review comments related to design coordination issues.”

public owner goals...

The point of view of the public owner is determined by law...

Federal Acquisition Regulation, includes a special section for architect/engineer contracting services.

SubChapter F, Subpart 36.607. “Liability for Government costs resulting from design errors or deficiencies.”

This special responsibility is a primary reason that the government is able to have negotiated professional services contracts.

“Architect-engineer contractors shall be responsible for the professional quality, technical accuracy, and coordination of all services required under their contracts”

(ref: http://www.arnet.gov/far/current/html/Subpart%2036_6.html#wp1075548)
... a department's policy

“The DQC Manager has the responsibility for being cognizant of and assuring that all design documents on the project have been developed in accordance with the RFP, and have been properly coordinated.”

“design quality control” plans are requirements on a/e contracts for all federal government contracts.

QC Plans are unenforceable since there is no objective measure of designer quality management until now...
how does one verify quality?

demonstrate conformance with specified standard

“The Coordination View targets the coordination between the architectural, mechanical and structural engineering tasks during the design phase.

It has been the first view definition developed by the IAI and is currently the most implemented view of the IFC schema.”

(ref: www.iai-tech.org)
can it be used?

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http://www.ifcwiki.org/index.php/IFC_Certified_Software
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please help reduce collisions ...
... leading to unneeded changes
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