



SUMMER 2012

BIM: A Collaborative Approach to Construction

IN THIS ISSUE

- **BIM: A Collaborative Approach to Construction**
- **The Importance of Unambiguous Contract Language**
- **Court Enforces Limitations on the Scope of an Arbitration Provision**
- **Expert Testimony Explaining How Engineer's Conduct Fell Below the Standard of Care is Necessary to Establish Negligence**

At the end of a construction project, owners are accustomed to receiving a final set of drawings and specifications from the architect or contractor along with volumes of operation manuals and warranty documents. But what if those drawings, specifications and manuals were fully interactive? What if your drawings could alert you as to when it was time to replace a valve, and then provide you with the model, part number and supplier of the valve?

In a world where iPhone apps, text messaging and tweets allow for instantaneous communication and collaboration, the same is now available in the construction industry. Welcome to Building Information Modeling (or BIM for short).

What is BIM?

BIM is not a software package. Although it is software driven, it is a dynamic standard whereby different trades and user groups generate and aggregate information for a facility. The National Institute of Building Sciences' *Journal of Building Information Modeling* defines BIM as:

[A] digital representation of the physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle from inception onward. A basic premise of the model is collaboration by different stakeholders at different phases of the life-cycle of a facility to insert, extract, update or modify information in the modeling process to support and reflect the roles of that stakeholder.

What is BIM Used For?

BIM can be used throughout the planning, design, construction and operation of a building. During the planning and design of a building, it is com-

mon for the project architect to subcontract certain aspects of the design. For example, an architect may hire separate firms to design the structural, mechanical, electrical and plumbing systems within a building. Those separate design firms then produce separate designs using separate software systems. BIM technologies now allow those separate designs (called "models") to be viewed together in a three-dimensional display. Contractors can then upload more detailed information into the models as the construction project progresses.

BIM During Design

Designers can use the three-dimensional displays to view the interplay between the designs for constructability reviews and also to perform what is known as clash detections. Clash detections are when designers look for places where two trades intersect in a building. For example, the three-dimensional model may reveal an electrical conduit intersecting a beam. The designers can then redesign and/or relocate the conduit and beam to avoid the "clash." Clash detections represent one of the great benefits of the BIM system. The discovery of a clash in the field during construction can oftentimes result in costly change orders and delays as the problem is investigated and resolved. Discovery of the same issue during design averts such costs and delays as the issue can be resolved before the contractors begin construction.

Depending on the level of detail included in the model, BIM models can also be used during the planning phases of the project to perform scheduling and estimating.

BIM During Construction

BIM can also be used during the construction phase of a project. Because the BIM model readily shows the interplay between the different trades (e.g. structural, electrical, plumbing work), contractors can use the BIM model to prefabricate certain

Bricker & Eckler LLP
100 South Third Street
Columbus, Ohio 43215-4291

614.227.2300 Main
614.227.2390 Fax
www.bricker.com
info@bricker.com

COLUMBUS
CLEVELAND
CINCINNATI-DAYTON



Scott W. Davis
Partner
Bricker & Eckler LLP

portions of the project offsite, which results in greater efficiency and quality control. For example, a contractor building a high-rise structure that has a repeating design on many floors can construct entire wall sections — complete with electrical wiring, HVAC duct penetrations and plumbing rough-ins — off-site in a warehouse location. Because a portion of the project is now being built indoors, it is not subject to adverse weather or interference from other trades and the quality can be more closely monitored. Once complete, those wall sections can then be brought on-site and installed by smaller construction crews. The end result is better quality and shorter construction durations.

Contractors can also load project-specific information into the BIM model for the benefit of the owner. During construction, contractors are typically required to give submittals to the architect that contain detailed information on the specific materials that are going to be incorporated into the project. This submittal information can then be uploaded into the BIM model. Likewise, contractor shop drawings and as-built drawings that show the exact location and size of materials as they were installed into the project can also be loaded into the BIM model. The end result is a three-dimensional model that contains detailed part information for all of the materials used on the job site.

BIM After Construction

Some owners are now beginning to use BIM technologies in their facility management process. To the extent that the BIM model was loaded with product information during construction, owners can then use that information to track the locations of certain materials that were installed in the building and even determine when those parts and materials need to be serviced or replaced.

Not All BIM is Created Equal

Owners can request as much or as little detail in their BIM models as they see fit. For this reason, BIM has been categorized into five levels — called Levels of Development or “LOD” for short — with each LOD containing increasingly more detail. The five LOD’s are summarized as follows:

- LOD 100 – this is equivalent to a conceptual design and contains overall building massing information such as the height, area, volume, location and orientation of the building.
- LOD 200 – this is equivalent to a schematic design and contains generalized systems to be

used in the building along with approximate quantities, sizes, shapes and measurements of the building.

- LOD 300 – this is equivalent to construction drawings and contains specific assemblies, quantities, sizes and shapes; LOD 300 BIM models are used for clash detection.
- LOD 400 – this is equivalent to shop drawings, which means that specific assemblies are accurate in terms of size, shape, location, quantity and orientation, complete with detailed assembly and fabrication information loaded into the model.
- LOD 500 – this is the highest level of detail in a BIM model and includes “as-constructed” assemblies with actual and accurate information in terms of size, shape, location, quantity and orientation.

Legal Issues

With the use of BIM comes an additional set of risks and responsibilities that must be allocated between the parties. First, owners should communicate their intended use for the BIM models in their contracts with the architect, construction manager and contractors. In particular, the owner should state its expected Level of Development. Thus, for example, if an owner only wants to use BIM for clash detection, then it should specify a minimum LOD 300 in its contracts. Second, contracts should also designate which party has responsibility for collecting, managing and archiving BIM model data. Finally, because the contractor can now interface with the design and load information into design models, the line between contractors and design professionals is blurred. For this reason, contracts should specify who has access rights to the various BIM models and also define ownership rights of the intellectual property contained in each model.

Conclusion

In the past, parties have often used a silo approach to construction. The mechanical engineer worked separately from the electrical engineer who worked separately from the structural engineer. The contractor worked separately from all of these parties. BIM offers a collaborative approach, bringing the various trades and professions together. The results can be cost-savings and efficiency for the owner. While BIM offers many benefits, it also redefines traditional roles in the construction process. For this reason, contracts should clearly define expectations and the roles and responsibilities of each party.

SPECIAL PRICING

The Premier
Midwest
Construction
Claims Seminar

Thursday,
November 15, 2012

The Conference Center
at OCLC, Dublin, Ohio



Bricker & Eckler LLP presents the

2012 TOP GUN

Construction Claims Seminar

Credits

- AIA Learning Units
- Supreme Court Continuing Legal Education

Tuition

\$199

- Early bird registration through October 31, 2012
- Members of sponsoring organizations
- Two or three from same organization

\$239

- Regular registration

Special Rates

- Four or more from same organization—
Call for special pricing

Reservations

By Mail: Bricker & Eckler LLP
Attn: Amy Abbey
100 S. Third Street
Columbus, Ohio 43215
[For checks and purchase orders]

By email: aabbey@bricker.com

By phone: 800.750.1525 toll free
614.227.4989



Bricker & Eckler
ATTORNEYS AT LAW

www.bricker.com

Please check our website,
www.bricker.com/learning-events.aspx
for more detailed information as it
becomes available.

What the Courts Are Saying

The Importance of Unambiguous Contract Language



Ben Hyden
Associate
Bricker & Eckler LLP



Desmond Cullimore, P.E., BCEE
Associate
Bricker & Eckler LLP

A recent case from the Eleventh Appellate District provides an example of what can happen when parties enter into a contract that contains ambiguous language. In *Look v. H & M Custom Home Builders Co., Inc.*, 2012 Ohio App. LEXIS 2654, property owners hired a contractor to construct their home. The relationship ended in a dispute that could only be resolved by determining which plans were the subject of the contract.

The home owners provided the contractor blueprints of the home they were planning to construct. The parties' relationship turned sour and, before the home was complete, the owners ceased payment, claiming the contractor failed to construct the home in accordance with the original plans and specifications and omitted work from the project. In an effort to establish their damages and recover the entire cost of two rooms that were not constructed by the contractor, the owners offered the design plans to the court.

The problem with the contract was that it did not expressly detail the specifications for construction of the home. Instead, the contract incorporated the finalized, owner-approved site plans where it provided that "[u]pon final review and approval by the Owner and the Builder... the work drawings, site plan, and specifications shall become a part of this Contract as if they were fully rewritten" in the contract.

This language failed to clearly identify the plans that were to be the subject of the contract — the original plans included the additional rooms and the plans submitted to the county for approval had the rooms

crossed out with the notation "not building." The owners maintained that the original plans containing the rooms were the subject of the contract and they had not approved the plans omitting the rooms. The contractor maintained that the plans submitted to the county for approval were the subject of the contract and it could not be held responsible for rooms that were omitted from the project.

The Court relied on some fundamental laws of contracting. Namely, the Court stated that: (1) it must examine a contract "to interpret and give effect to the intentions of the contracting parties;" (2) "if contract terms are unambiguous, a court may not interpret the contract in a manner inconsistent with the clear language of the instrument;" and (3) if the terms of the contract are ambiguous, the court is permitted to consider extrinsic evidence to determine the intentions of the parties.

As a result of the ambiguous contract language regarding which plans were the subject of the contract, the trial court was permitted to go beyond the contract and into the post-agreement verbal negotiations and circumstances. The trial court determined that the two rooms were omitted from the contract. Furthermore, because an appellate court may not substitute its judgment for that of the trial court where there is some competent, credible evidence to support the trial court's findings, the appellate court affirmed the trial court's decision. The owners were unable to recover damages from the contractor for the omitted rooms because of ambiguous contract language.

Court Enforces Limitations on the Scope of an Arbitration Provision

When parties to a contract agree to resolve their disputes through arbitration, Ohio courts will generally force the parties to arbitrate. Ohio's arbitration statute, R.C. 2711.01, offers little discretion

to courts when determining the enforceability of an arbitration clause. This statute states that "a provision in any written contract...to settle by arbitration a controversy that subsequently arises

out of the contract...shall be valid, irrevocable, and enforceable..."

However, a court cannot force parties to arbitrate when the parties have not agreed to do so. A recent case from Ohio's Ninth Appellate District provides an example of how courts will not expand an arbitration clause that limits itself to certain aspects of the underlying contract.

The dispute in *Avenbury Lakes Homeowners Assn., Inc. v. Avenbury Lakes, Inc.*, 2012 Ohio App. LEXIS 2253, arose from the construction of a community clubhouse within a residential development. The homeowners' association filed a lawsuit against the developer alleging poor workmanship and severe deficiencies in the construction of the clubhouse, which resulted in damages in the amount of \$698,118.

In response to the lawsuit, the developer asserted similar claims against the architect and HVAC engineer who designed the clubhouse. The architect also asserted claims against the HVAC engineer. Since the contract between the architect and the HVAC engineer contained an arbitration provision, the HVAC engineer asked the trial court to stay the underlying lawsuit so that the architect and the HVAC engineer could arbitrate the claims between them. When the trial court agreed to stay the entire lawsuit pending the results of the arbitration, the architect appealed arguing that the dispute was not within the scope of the arbitration clause.

In reviewing the matter, the Court acknowledged that there were two basic types of arbitration provisions. First, there is an "unlimited clause," which requires arbitration of all disputes between the parties arising out of the contract. Second, there is a "limited clause," which limits arbitration to specific types of disputes that arise out of a contract.

The Court looked to the arbitration provision to determine whether the parties agreed to arbitrate the dispute at issue. The Court found that the arbitration agreement at issue was a limited clause as follows:

The arbitrators will not have jurisdiction, power or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any claim, counterclaim, dispute or other matter in question where the amount in controversy of any such claim, counterclaim, dispute or matter is more than \$100,000 (exclusive of interest and costs).

In applying the arbitration provision to the dispute, the Court held that the dispute in question fell outside the scope of the provision because the amount in controversy was \$698,118, which exceeded the \$100,000 limit. As a result, the Court found that the trial court erred in staying the proceedings pending the outcome of arbitration between the architect and the HVAC engineer.

Expert Testimony Explaining How Engineer's Conduct Fell Below the Standard of Care is Necessary to Establish Negligence

A technical breach by an engineer of its design professional agreement may not be enough to establish that the engineer is negligent. As the City of Huntington Woods learned in *Huntington Woods v. Orchard, Hiltz & McCliment*, 2012 Mich App. LEXIS 879, expert testimony may be required to establish that an engineer's contract breach amounts to negligence by the engineer.

In *Huntington Woods v. Orchard, Hiltz & McCliment*, the City of Huntington Woods executed a design engineering services contract with Or-

chard, Hiltz & McCliment, Inc. (OHM). As part of the design services, OHM was to design and observe the reconstruction and rehabilitation of portions of Coolidge Highway in Oakland County, Michigan.

The final plans and specifications prepared by OHM specified that a 70/22 binder was to be used in the asphalt and that seasonal suspension of paving was to occur from November 14 to April 16. The plans and specifications required a change order for any change in the plans.

During the construction of the project, OHM allowed the project to be constructed with 64/28 binder and allowed paving on the project to occur on November 16, after the November 14 deadline. After the completion of the project, when the asphalt began to deteriorate, Huntington Woods filed a lawsuit against OHM alleging that OHM provided negligent design, inspection and supervision services resulting in defective pavement on the project.

The experts testifying on behalf of Huntington Woods at trial testified that in order for OHM to meet the standard of care, OHM had to ensure that the general contractor built the road in accordance with the plans and specifications for the project. After Huntington Woods obtained a judgment in its favor, OHM appealed.

On appeal, OHM argued that Huntington Woods failed to establish the prima facie case of negli-

gence and contended that Huntington Woods must establish that OHM's actual conduct on the project breached the standard of care. In other words, OHM argued that Huntington Woods must establish that by allowing the contractor to pave on November 16 and allowing the contractor to install 64/28 binder, OHM's conduct fell below the conduct required of an engineer of ordinary skill and judgment.

The Court agreed with OHM, finding that in order to establish negligence, Huntington Woods must offer expert testimony that OHM's actual conduct fell below the standard of care. Since there was no expert testimony that a professional engineer of ordinary skill and judgment would not have allowed paving on November 16 or allowed the contractor to install 64/28 binder, Huntington Woods did not present a prima facie case of professional malpractice against OHM.

CONSTRUCTION LAW GROUP

Attorneys—

Jack Rosati, Jr.
Department Chair
614.227.2321
jrosati@bricker.com

Kimberly J. Brown
614.227.8894
kbrown@bricker.com

Desmond J. Cullimore,
P.E., BCEE
614.227.4837
dcullimore@bricker.com

Scott W. Davis
614.227.4879
sdavis@bricker.com

Mark Evans, P.E.
513.870.6680
mevans@bricker.com

Sylvia Gillis
614.227.2353
sgillis@bricker.com

Benjamin B. Hyden
513.870.6575
bhyden@bricker.com

Christopher L. McCloskey
614.227.2385
cmccloskey@bricker.com

Doug Shevelow, P.E.
614.227.4803
dshevelow@bricker.com

Sam Wampler
614.227.4889
swampler@bricker.com

Paralegals—

Lynn Hardesty
OSBA Certified Paralegal
614.227.8856
lhardesty@bricker.com

Construction Assistants—

Eileen Ryan
614.227.4974
eryan@bricker.com

Thomas Quinlan
614.227.4836
tquinlan@bricker.com

This document has been prepared as a general reference document for informational purposes. The information contained herein is not intended to be and should not be construed as legal advice. Each circumstance should be considered and evaluated separately, and possibly with involvement of legal counsel.

Please contact Bricker & Eckler LLP for permission to reprint this newsletter in part, or in its entirety.