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Electronic Construction Documents

The Internet continues to have a greater and greater impact on the construction industry. With the advent of project extranets, design professionals are expressing greater concerns about their work product being too accessible and subject to misuse. This article will address some of these issues.

All of us are by now familiar with the Internet and its ability to permit rapid communication with virtually anyone else in the world. Most of us have access to email. Project specific Internet sites, sometimes called extranets, are simply extensions of the Internet for a singular purpose. The purpose of such sites is to give access to information to everyone involved with a specific construction project, from the owner, architect, engineers, general and subcontractors, to the lender, attorneys and others. This information might include all of the contract documents, including drawings, specifications, conditions, change orders, RFI's, project meeting minutes, and so on. The site might be password protected so that only those individuals with permission can access certain information.

Obviously, this can have advantages to the parties to a construction project. For instance, having all of this information readily available should result in time savings. To obtain a certain drawing, a subcontractor would merely have to dial up the site and download that drawing. A subcontractor would no longer be able to complain that he was never given the specifications by the general contractor. A prompt exchange of information should also cut down on claims, resulting in a cost saving to the owner. Another probable benefit of information availability is a reduction in litigation and arbitration, resulting in lowered insurance premiums and overall cost savings for all parties.

In the eyes of architects and engineers, however, all of this has a downside. Giving a contractor a blue line print might have some minimal risk that the drawing would be used in an inappropriate manner, but giving that same contractor an electronic version of

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the drawing makes it much easier for the contractor to alter the drawing or use it on another project. Contractors also want to use the architect's drawings for the preparation of shop drawings. If the architect's drawing has a mistake, it is far less likely to be picked up and timely corrected if the contractor does not independently create the entire shop drawing without relying on the architect's background drawing. Architects are also afraid that the owner could fire the architect and give the electronic information to a follow-on architect who would then easily pick up where the first architect left off. Use of electronic documents contributes to a general fear that the architect's intellectual property is now easy pickings for unscrupulous owners and contractors.

While there is some merit in these concerns, the reality is that owners now expect their architects to use CAD and to provide information electronically. Architects who refuse to do this will find themselves out of work, especially given a sophisticated client. Owners also see merit to the contractor's argument that a substantial amount of money will be saved if the contractor can use the architect's drawings directly for the preparation of shop drawings. The owner expects that the construction documents will be accurate, so why not also use them as background for a shop drawing?

Realizing that documents in electronic format are quickly becoming the standard, the American Institute of Architects has made certain provisions in the 1997 version of its documents. Paragraph 1.6.1 of AIA Document A201 states that the various documents, "including those in electronic form," remain the intellectual property of the architect and its consultants. This paragraph allows the contractor to use these documents for preparation of shop drawings:

" . . . The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants."

Thus, a contractor can use elements of the architect's work directly in the preparation of shop drawings. For instance, if the contractor has access to the architect's CAD drawings, he may use various layers of a floor plan as background for his own shop drawings. Of course, architects may want to revise these provisions of A201 to prohibit this practice. However, they run the risk of an irate owner

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who will question the architect's confidence in his own documents. This could make for bad client relations.

Likewise, architects may fear that an owner will take the electronic documents to a new architect who may offer to complete the project more cheaply, resulting in the dismissal of the first architect. This is easily prevented by using a good owner-architect contract, such as one of the AIA contract forms. All too many architects are still using letter forms of agreement or owner-drafted contracts. These will almost certainly not include the protections against improper use of the architect's documents that are contained in the AIA agreements. Using the right contract, perhaps with some additional language about use of the electronic contract documents, should alleviate any concerns about this issue that the design team may have.

The provisions quoted above provide some contractual assurance that the architect's copyright will not be violated. As a practical matter, however, the architect may want to take additional measures to protect the intellectual property. First, the copyright can be registered with the Copyright Office. Second, the documents themselves could include hidden text, watermarks or other means for later identifying the electronic version in case of an infringement. For example, the specifications could contain deliberately misspelled words, making infringement much easier to prove. Drawings can contain hidden components, such as comments or other elements that are not readily apparent. Contact your software vendor to determine how this can be implemented.

While altering of electronic documents by contractors on a project is likely a negligible concern, all parties to a construction project should save all the various revisions to drawings and other documents generated for a project that they receive, whether electronically or in hard copy form. Additionally, the architect, who is usually the one party that has access to all of these documents, should keep one paper copy of every revision to the drawings and specifications. If this is done, unauthorized changes during a project will be very difficult.

Design professionals would be well advised to recognize that sharing of CAD documents is quickly becoming a necessity in order to obtain work, keep costs down and maximize profits. Those who refuse to allow this will find themselves relegated to small projects for unsophisticated clients.

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