Beyond Blocks and Bricks
Number Five

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Having the drawings at your fingertips

What happens after a carpenter foreman laying out new interior partitioning for an upper floor of a research center for a drug manufacturer finds a condition not covered by the drawings at hand? Or a maintenance technician, having replaced part of the HVAC control system, wonders how to set that control to its design state? Where does a window washer find the nearest hose bib? The answers are in the trailer, in the maintenance shop, or at the end of a shorter or longer search.

Unless they have an iPhone. Then, with a program from AutoCad, they simply call up the specifications, drawings and details, or as-builts and find the correct detail, the original set points, or the nearest water hydrant and proceed with their work.

During construction, an inspector, up on the scaffolding, can show a mechanic that what the mechanic is building is not what the drawings require. Maybe the next step is to give each construction worker an iPhone so that each worker can see all the drawings and details all-the-time. Then the laborer can argue with the project foreman about exactly what the designer intended when a particular detail was drawn!

A blueprint for sustainability: Put AutoCAD models on the iPhone

- By: Eric Corey Freed
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Using architectural drawings after a building's completion can promote efficiency.

I was talking with a senior person from Autodesk, the makers of the ubiquitous AutoCAD program, about the future of the design profession. Most of today's buildings,

structures, bridges, and products are drawn with their software, so imagine the potential influence their interface has on us in our design decisions. Our conversation began by talking about using mobile devices, but quickly moving into what happens to the CAD files after the building is built.

In reality, nothing happens. The files are archived and saved for legal and liability reasons.

Hundreds of man-hours are spent to create a model of the buildings for the construction, mapping out the circulatory, respiration and skeletal systems of the finished structure. With a little foresight, these drawings could be used for the time after construction is complete, known as "Post-Occupancy."

The real impact of a building occurs in this post-occupancy period. Operating the lights, heating, computers, outlets and faucets result in the true environmental impact. Over 85 percent of the environmental impact of a building occurs post-occupancy. The more information and measurements we have, the better we can operate our buildings.

For decades, architects and developers have used surveys, called "Post-Occupancy" evaluations, to determine how the finished building is used and enjoyed. With green buildings, such evaluations have helped determine the success of sustainability features, such as daylighting, energy management, and thermal comfort. Post-occupancy evaluations are vital to developing a high-performance building and may soon be required as part of certain building codes. Just read through California's new CalGreen code to get a glimpse of the energy efficient future of every building. Despite these advances, our detailed CAD drawings sit unused in a drawer.

Imagine the possibilities of taking all of that data and making it available to the public.

Ubiquitous and powerful mobile devices, all armed with cameras, GPS and Internet connectivity, could overlay our CAD data onto the real world. Your iPhone could "see" through walls and show you where the studs are, where the plumbing is running and more. Repairs and additions could be simplified and opportunities to improve efficiency would emerge. In addition, a smart app could fetch the local planning code information and show you the virtual boundaries of a future addition.
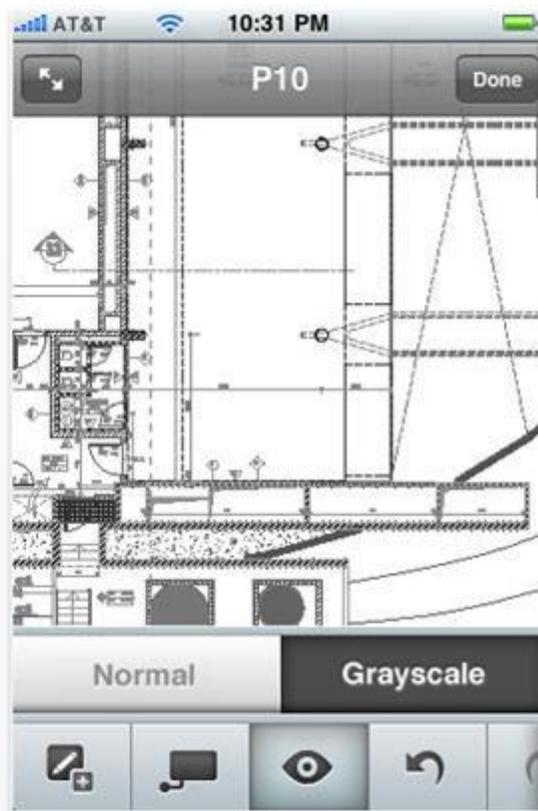
Part of the step towards this future can be seen in Autodesk's new AutoCad WS software for the iPad allowing you to open, markup and make minor edits to your CAD drawings onsite. I expect it won't take long for a clever facilities manager to carry around a copy of the CAD drawings on his iPad or iPhone while inspecting the finished building.