

Better Quantity Takeoffs Better Estimates

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Successful contractors know that few chores are as necessary—or as tedious—as calculating quantity takeoffs. Especially when this is done by hand, working from paper plans, the job can take many hours, or even days for large projects. Yet it must be done; without accurate measurements, quantities and the resulting estimates are much less useful.

In recent years, digital project drawings—created with software like Autodesk's AutoCAD or Bentley System's MicroStation—have made it easier to calculate quantity takeoffs. With digital drawings, it is much easier to measure exactly and to precisely derive areas and volumes. But there is still plenty of tedious repetition and calculating. In large files, just keeping track of areas processed can be difficult, and entering information into spreadsheets can be a complicated and error-prone task.

So a separate class of software, solutions that automate the extraction of quantity takeoffs from digital plan sets, has emerged. They are typically add-on programs that integrate with one or more of the major design software packages. Ideally, they also integrate with estimating software solutions, and with enterprise level solutions like capital project management software (CPMS), and with enterprise project management software (EPM) and enterprise resource planning (ERP)

software such as Microsoft's Dynamics AX.

Because this is a new field for software developers, current offerings are uneven in quality and performance. At minimum, users should look for the following key features in automated quantity takeoff solutions:

- **End-to-End Integration:** The data that is ultimately generated by quantity takeoffs is extremely valuable—it becomes part of project estimates and budgets, which are the very lifeblood of profitable contracting firms. But realizing the full value of this data is difficult and requires more than simply exporting the data to other programs. Ideally, the data generated by automated quantity takeoff solutions will be tracked throughout a project's lifecycle so that projected quantities and estimates are compared, at close of project, to actual figures generated during the construction phase. This comparison should be an easily generated report. By using one solution consistently over several projects, and comparing projections to actual figures, contractors should be able to continually refine their quantity takeoff extraction methods for greater accuracy.

When executed correctly, quantity takeoff solutions are far more than simple utilities; rather, they are an effective way for contractors to learn as they work and become more efficient and profitable.

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- **Easy to Learn:** Since end users of automated quantity takeoff solutions are presumably CAD users, they should be able to use their CAD knowledge when extracting quantities. The software interface should be graphic, and based on familiar CAD tools like snapping to endpoints and lines, clicking within existing areas and volumes, and automatic measurement of lengths and areas. Users should not have to reenter information, and the learning curve should be short and not require special training.
- **Fast:** The whole process of extracting quantities and using quantities to calculate estimates should be many times faster than previously used methods. Software interfaces that 'get in the user's way' are unacceptable.
- **Precise and Accurate:** Digital plans are precise, so automated quantity takeoff based on digital plans should also be precise and accurate. By starting with the best figures possible, less error is propagated and resulting estimates will be more accurate.
- **Audit Trails:** Since keeping track of quantities extracted in large plan sets is complex, quantity takeoff solutions should offer easy methods, and automated reports, that allow users to easily check which areas have been calculated and which remain. Ideally, the solution will also allow users to revise quantities in response to plan revisions and change orders.
- **Customizable:** All contractors have to extract quantities, but they all have different methods for doing so and expect different reports and figures. The contractor should not have to adjust his procedures to suit a software solution; rather, solutions should be easy to customize so that a contracting firm's in-house experience is easily applied. Therefore, automated quantity takeoff software should offer easy ways to customize procedures and reports to suit individual users.
- **Interoperable:** Quantity takeoffs are not particularly useful in isolation. They need to be integrated into estimating solutions and CPMS to offer real benefits to contractors. So, any

particular quantity takeoff software should be able to export data in standard formats for use by other solutions. Ideally, the solution should be tightly integrated with one or more existing estimating or contract management packages.

Quantity takeoff solutions are a relatively small, but very important part of any contractor's overall IT strategy. By choosing good software that ties in well with other solutions, firms can drastically reduce time spent and errors produced, compared to existing quantity takeoff methods.

To fully benefit from an investment in automated quantity takeoff, firms need to know that their solution will tie in with existing software, particularly their CPMS. At Aurigo, we've built our capital project management software, from the ground up with that in mind.

To complement Aurigo CPMS, we've partnered with Planswift to tightly integrate their auto-mated quantity takeoff software so that we can offer a world class integrated solution. We're confident that the combination is unbeatable, and we'd be happy to prove it to you—call us today for your free demonstration.