Avontus®
SOFTWARE

# 3 KEY PILLARS FOR SUCCESSFUL INDUSTRIAL SCAFFOLDING CONTRACTS

Real-time Connectivity • Operational Excellence • Safety Culture

# Contents

# Introduction

In a world of volatile commodity prices, downstream businesses are paying greater attention to the things they can control. At the top of most lists, is operational efficiency. At the bottom is scaffolding.

Scaffolding is typically the last thing thought of and the first thing needed for maintenance and construction projects. Yet, it's also a consistent source of cost overruns and, if not properly planned and managed, a risk to overall site safety.

That's why downstream operators everywhere have begun to revisit how they contract and work with scaffolding firms.

Over the last few years, the trend in the industry has been away from turnkey projects towards more holistic engineering, procurement, and construction management (EPCM). EPCM prioritizes collaboration and transparency from all parties, so everyone is aligned around common objectives.

Because of that, the value of scaffolding simply cannot be measured by direct project costs. Contractors must deliver high levels of transparency and accountability to drive better outcomes for their clients.

We've identified the **3 success pillars for high-value scaffolding contracts** below:

## Real-time Connectivity

Facilitate data transfer and accessibility across job sites and between stakeholders for decision making.

## Operational Excellence

Streamline field operations and create well-defined processes to make sure everything is properly planned.

## Safety Culture

Ensure regulatory compliance with real-time monitoring to catch problems before they surface.

These core competencies are also the building blocks of modern construction technologies like CAD software and ERP solutions.

At ground level, these technologies allow you to operate more efficiently, minimize rework, and identify risks before they creep up. Less wasted time and fewer surprises mean faster, more successful projects.

This whitepaper will dive deeper into the new age of industrial scaffolding management and how you can leverage technologies to strengthen your pillars for success.

# Real-time Connectivity for Information Discovery and Decision Making

With computer-aided design (CAD) software and enterprise resource planning (ERP) solutions becoming commonplace in scaffolding businesses, you have a vast amount of information--from design specs to resource allocation and inventory tracking--at your disposal.

Making these data portable allows timely and accurate communication across trades. Alignment on project scope helps all stakeholders to coordinate work with ease, whether in the office or off-shore. As a result, teams are empowered to work smarter and faster, rather than searching for project information or dealing with uncertainties.

By enabling the seamless flow of construction information, you can switch from reactive to proactive decision-making in the following areas:

### Cost Control

Without accurate planning, tracking, and accountability, scaffolding costs can quickly skyrocket and negatively impact other projects and overall profitability. In fact, a delay or lack of access can inflate the costs of work depending on the scaffold. A digital record of materials needs and scaffolding activities can facilitate timely response to requests and efficient utilization of equipment, which can be accessed anytime, anywhere.

### Scaffold Planning

From the initial request to labor and man-hour estimates, work approvals, scheduling, and execution, teams can log in their work, and site managers can easily track the project progress. Instant access to the scaffolding plan also allows inspectors to quickly review and update the job status, such as scaffolds ready for use or in need of inspection, and crews can be deployed accordingly.

# Achieving Operational Excellence Through Data Analytics

Many scaffolding businesses are losing money due to inefficient workflows. The disconnected deployment of systems across multiple functions, for instance, design, accounting, and field operations, can sink your project:

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Siloed data between designed scaffold needs and actual materials availability can cause unexpected inventory shortages.

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Inaccurate bills of materials and changing project scopes can lead to more rework and even invoice errors.

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Miscommunication between erectors and scaffold users can compromise scaffold safety.

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Conventional equipment or material approval processes can delay project timelines.

The key to operational efficiency is having a centralized construction data platform. This gives everyone from crews to facility owners complete visibility into the project plan and expected outcomes.

For example, with immediate access to back-office data, foremen and other team members can track and locate materials, and initiate requests directly through the software. Once approved, the updated materials list will be reflected in the inventory management system. There's no need for manual transcription of paper forms.

For procurement, connecting on-site and back-office data also makes it easier to track all the equipment moving in and out of the field. If you manage rental equipment, having real-time records of stock levels is crucial to optimize utilization and avoid downtime.

# Building a Safety Culture with Enhanced Visualization Capabilities

To communicate the value and accuracy of your proposed scaffold or access solution, you need supporting data that customers can understand: how the scaffolding installation can better accommodate construction requirements, how the configuration will determine the selection and arrangement of materials, and how everything will look and function in real life. This information is also critical to ensure the safe, accurate execution for the plan, from hazard mitigation and awareness to ensuring availability of large quantities of materials.

Presenting complex scaffold designs on paper is not easy. Thanks to modern technologies like CAD software, 3D modeling, and virtual reality (VR) and augmented reality (AR), you can visualize scaffold models in a powerful new way. You can virtually walk through the scaffold model with project owners and crews before it's built. Such visualization capabilities allow for early identification of potential obstructions and unexpected constraints, so that designers can update blueprints instantly.

Information accuracy is imperative not just for design planning, but also for the safety of crews carrying out work. Changes to the design can affect the safety of scaffold users, especially when you need to modify drawings, materials specifications, and other critical construction documents. So, make sure that everyone has access to—and clearly understands—the most updated file.

With clear visualization tools, a scaffolding provider can verify project requirements are met and that all parties understand the safest method of scaffold erection and use through a "virtual handover." As a means of identifying hazards and suitability before build, this approach carries far less risk of rework and cost overrun than the traditional method of building first and discovering modification needs after the fact.

# Reaching New Heights with an Industrial Scaffold Management Suite

While construction technology is gaining momentum, few solutions focus on the scaffolding market. To help you achieve all three pillars of successful scaffold projects, Avontus Software has built a complete suite of industrial scaffold management solutions.

The Avontus industrial scaffold management suite includes three core software programs:

SCAFFOLD DESIGNER

SCAFFOLD VIEWER

QUANTIFY

The functionality of each solution is the result of more than a decade of ongoing development and active use by owners and operators, EPCMs, and scaffolding contractors around the world. It is designed from the ground up for industrial scaffolding operations and is a fully-tested software product ready for immediate deployment site-by-site or enterprise-wide.

# QUANTIFY

A Centralized Data Platform for Scaffold Management

Quantify provides comprehensive asset tracking, invoicing, and industrial scaffold management, with web-based tools making information and site operations available on-the-go. The system is a one-stop location for tracking equipment, requests, safety inspections, activities, scaffold maps, and more.

Let's go through the key functions below.

## Individual Scaffold Tracking

Given the complex nature of industrial scaffolding environments—numerous scaffolds constantly undergoing planning, erection, modification, dismantle, repurposing, and other status updates—tracking all materials and activities is time-consuming, which often leads to project delays as information is compiled manually, or lack of transparency results in costly surprises. Quantify makes it easy to input and report on all scaffold data required for site operations and oversight while maintaining accurate material inventory and automating rental cost reporting.

Some contractors and sites employ a mix of owned and rented equipment to fulfill peak needs. However, this fulfillment process can result in difficulties identifying rented stock quantities, their utilization, their location, and their costs. Quantify provides an easy-to-use process for entering rented materials, tracking their movements, and evaluating the costs and need to keep them on-hand.

## Inspection Management

Scaffold foremen and safety personnel can schedule inspections, record outcomes, and produce site maps showing locations of scaffolds in need of inspection or repair. Customizable reports allow managers to document all inspection activities and statuses. As such, crews can instantly get notified about scaffolds that are ready for use, as well as those deemed unusable so they can maximize productive time elsewhere.

## Materials Availability Tracking

When crews face inventory shortages, they tend to get around it just to get the job done, which may cause safety hazards or inefficient builds. With Quantify, you can track real-time scaffolding inventory (and shortages) to ensure that appropriate materials are available.

## Equipment Maintenance

In addition to managing inspection schedules, Quantify also tracks maintenance scheduling and activities for equipment inventories. Service personnel can receive notifications when maintenance is due and log their activities, such as service notes, time spent, and components used for safety gear, mechanical tools, and other critical stock.

You can build custom reports to carry out site auditing or to check maintenance compliance across the entire inventory. This enables both proactive inspection and maintenance of safety-impacting gear, while supporting the incident investigation process when faulty equipment is suspected.

Quantify is the single platform you'll need for managing materials, inspections, work orders, man-hour allocations, and cost reports. You can also utilize the software to organize and filter all this information to create documentation and custom reports for stakeholder communication.

These features aid crews in working efficiently and managers in making safety- and cost-conscious decisions about how to conduct site operations.

# QUANTIFY FACT SHEET

- Inventory control of volume (scaffolding, other materials) and serialized (tools, other equipment) assets.

- Equipment maintenance and recording of damaged, scrapped, and lost items.

- Costing/invoicing of items in use and other charges (labor at a charged rate, other service fees).

- Individual scaffold scheduling, tracking, and reporting.

- Activity reporting and schedules, including erections, modifications, inspections, dismantles, and productivity.

- Via the Quantify Web interface, mobile access to requests, scaffold inspections, inventory reports, scaffold tracking details, scaffold location maps, and uploaded scaffold drawings.

# SCAFFOLD DESIGNER

Interactive Walkthroughs for Compelling Bids and Clearer Communication

Scaffold Designer is a standalone scaffold drawing and estimating tool that helps foremen, estimators, and planners better anticipate materials needs and support safer, more efficient scaffold builds through detailed, accurate designs. The complete scaffold design functionalities allow you to create professional 3D scaffold models and manage future modifications and bills of materials all in one place. No more low-tech, hand-drawn designs and manual materials counting.

## Complex Scaffold Models in Minutes

Simply import the building plan in PDF, AutoCAD formats, or even satellite images; then, create a scaffold model in minutes with drag-and-drop components. This process, typically at least twice as fast as manual methods, also provides greatly improved accuracy of material counts and ensures requirements are met by the initial build.

Compatible with AutoCAD or BIM packages such as Navisworks, Revit or Tekla Structures, the software offers an intuitive interface as well as automatic and customizable scaffolding designs to help you create complex structures at speed. Then, visualize your design in Scaffold Viewer to experience an interactive 3D scaffold for clearer communication with stakeholders.

## Information Accuracy via Automatic Design Estimates

Being able to produce clear, realistic estimates quickly (yet with utmost accuracy) is a critical piece of the scaffold efficiency puzzle, enabling creation of a scaffold plan for every build. With Scaffold Designer, you can automatically generate a bill of materials based on your design. This way, you can cut scaffold drawing and material counting time by up to 90 percent.

### Customization to Fit Project Requirements

The software allows you to customize the materials database and call out key details (e.g. emergency exit route, edge protection, fall arrest systems, loading platforms, etc.) in your scaffolding plans.

# SCAFFOLD DESIGNER FACT SHEET

- Detailed scaffold plans with automatically generated 3D models, which can be exported to DWG format for use in Navisworks, AutoCAD, and other modeling suites.

- Automated and manual options for scaffold generation, maximizing flexibility in design.

- Ability to overlay scaffold drawings on existing PDF, image, and AutoCAD 2D plans.

- Photo import, editing, and scaffold drawing overlay.

- Automatic, accurate counting of parts needed to assemble the drawn scaffold.

- Basic leg loading checks to help ensure safe designs.

- Review of scaffolds in first-person virtual and mixed reality using the Scaffold Viewer app.

- Integration with Quantify for seamless creation of planned or built scaffold from a Scaffold Designer drawing.

# SCAFFOLD VIEWER

Interactive Walkthroughs for Compelling Bids and Clearer Communication

As an added capability to Scaffold Designer, Scaffold Viewer helps visualize scaffold designs in immersive environments and improve operational efficiency through its state-of-the-art augmented and virtual reality (AR/VR) technology.

## Streamline Collaboration with 3D Scaffold Walkthroughs

Scaffold Viewer is equipped with powerful visualization technologies like 3D, Virtual Reality (VR), and Augmented Reality (AR). Leverage these capabilities in live presentations, or create a predetermined scaffolding path, record, and save it to share with crews wherever they are.

## Safety-First Designs

Walk through the designs as a team to identify potential safety issues like gaps and removed guardrails that are otherwise obscured in two-dimensional illustration. Reworking scaffolds after they've been built is costly. By confirming the Scaffold Designer plan in Scaffold Viewer with a "virtual handover," you can proceed to execution confident that there won't be unplanned modifications and costly delays.

### On-the-Go Design View and Review

Breaking your scaffold models from the confines of a computer couldn't be easier. You can now take your designs with you and review them right at the job site with the team. Everyone will be on the same page before work begins.

# SCAFFOLD VIEWER FACT SHEET

- Instantly renders your scaffold model for immersive 3D viewing in virtual reality.

- One-click YouTube export to share your 3D walkthrough.

- AR brings your scaffold designs into the real world and helps you catch mistakes during the planning process.

# Conclusion

A robust industrial scaffolding management platform brings critical capabilities to the project that drive competitive advantages and operational efficiencies. And it's equally important to be strategic about technology investment to ensure safety compliance, particularly in strictly controlled, downtime-sensitive industrial environments.

Avontus provides a carefully managed implementation process to ensure a smooth, straightforward transition into active use of the system. Get in touch with us to learn more about the Avontus industrial scaffold management suite and how we can put it to work for you.