Best Practices for Document Control in Construction

Better Manage Construction Documents by Leveraging the Right Techniques
What’s Inside

3 Introduction

4 Risks of Poor Document Control
   - Accessibility Issues
   - Security Breaches
   - Data Loss
   - Content Violations

6 10 Best Practices for Construction Document Control
   1. Version Data
   2. Automatic Tagging
   3. Access Control
   4. Central and Single Source
   5. Critical and Non-Critical Documentation
   6. Document Audits
   7. Daily Reports and Work Logs
   8. Photographic Records
   9. Data Security
   10. Complete Approach

10 Conclusions
Introduction

From milestone charts to the dozens of pages generated in response to a request for information (RFI), modern construction projects generate hundreds to thousands of unique and important documents.1 Keeping track of them, not to mention updating them and securing them from theft or loss, can become a project manager’s full-time job. Poor document control often leads to serious complications that push a project over budget and overdue, leaving everyone in the construction team struggling. Instead of playing catch-up by addressing issues after they occur, use these tips to polish up construction document control from the start of any new project.
Risks of Poor Document Control

Poor document control creates tangible risks. Aside from generating frustration and delays, losing track of essential data can result in lost contracts and even lawsuits. The risks of poor document control for construction projects, especially for commercial and government contracts, greatly outweigh any cost of implementing new practices and technology.

Accessibility Issues

With over 50 percent of construction firms still relying on manual data-transfer methods, access to essential project documents clearly remains a stumbling block. Reliance on printed materials is the most common barrier to document accessibility since it’s impossible to access drawings or contracts stored in the office while in the field. On a fast-paced project, printed documents go out of date almost daily, leaving workers relying on incorrect information and facing rework when they do get the updated materials.

Security Breaches

The construction industry is as vulnerable as any other to hacks and security breaches. A phishing campaign exposed employee personal data in 2015 for Turner Construction, a firm with locations in nearly half the states of the U.S. Whiting-Turner Contracting, another national firm, was affected by a breach in 2016, when a vendor preparing tax forms for their employees noticed suspicious activity on their file servers. Loss of project data can cost even more when it results in the loss of a contract.
Data Loss

Unrecoverable hard drives, lost flash drives, physical documents burned in a fire—there are plenty of ways to permanently lose valuable data. Even without any particular catastrophic event, large-scale commercial projects tend to lose about 30 percent of valuable data between project start and the closeout process. Recovery and backup methods work only as well as they’re maintained, and many backup systems are circumvented when they slow down document filing practices. Valuable construction technology systems make backups seamless and painless, ensuring there’s no chance of permanent data loss regardless of what happens to physical copies and devices.

Contract Violations

Violating a major contract with a government contracting account or a public infrastructure bid can result in costly fees and legal penalties. A breach of employee or project data may result in a lawsuit or even a class action suit filed against a construction firm. As well, many commercial and industrial contracts stipulate penalties for violations of data-handling standards. A document control system that works well during all stages of construction is the best way to comply with all contract terms.
10 Best Practices for Construction Document Control

Construction documents contain many visual and graphic components, making it hard to convey all the details in a spreadsheet or text document. Document control processes for construction projects need to reflect the type of data being stored and accessed. With the right combination of construction technology apps and software, remote team members can access the same updated documents as everyone else without creating additional security risks. Whether a firm decides to follow their own set of document-control practices or seek established certification through ISO 9001 standards and similar programs, these 10 best practices will improve every type of control system.

1. Version Data

Without accurate version data information, it’s impossible to tell if the document being accessed is the latest update. Working from an outdated set of drawings or specifications results in material and labor loss, both during the initial incorrect work and then during the resulting rework. Automated version data tracking is a standard feature for many construction technology apps, including PlanGrid. It’s the best way to keep the entire team on the same page with a glance, especially when the designers and architects can access the previous revisions at the touch of a button to compare changes.

2. Automatic Tagging

In addition to metadata tracking the version of each document, most document control systems call for tagging data with as many signifiers as possible. Documents need clear names, accurate numbers referencing related files, notations on inspection and approval status, and other related tags. Adding and updating these tags manually can add hours of labor to project management. Instead, automate the process with construction technology that relies on machine learning to identify common features and list them in a common index. Any document control method that simplifies the search for a specific file or measurement doubles the value of the system and software.
3. Access Control

Controlling access to both individual documents and types of data requires a fine touch. Excessive security features make it hard for remote and lower-level employees to access the files they need, while permissive access control results in data loss and security breaches. For the finest level of control over access, set up security permissions by role rather than by individual users and documents. Role-based permissions reduce the work for the project manager handling the document control process. New employees or subcontractors are easily added, and any resulting documents added to the project are accessible only to the right people.

4. Central and Single Source

The three previous best practices take a lot less effort to implement when a construction firm starts with a centralized source for storage and document control. Construction document-control apps and software simplify the work of tracking version information, tagging files with relevant data, and managing access roles. Look for apps that offer plenty of built-in security features and native integrations with other essential technology, such as building information modeling (BIM). In 2018, nearly 30 percent of contractors surveyed reported that none of their apps or software integrated with each other, so there’s clearly still a lack of seamless document handling.²

5. Critical and Non-Critical Documentation

Construction project document control must support a variety of file types. With the growing use of 3-D modeling and other advanced documents, document control systems need to encompass files stored in every format. If the document access system cannot open or display the file on its own, native integration with other apps is necessary to maintain high levels of data security. Cloud-based systems shift some of the processing demand to remote servers rather than putting all of it on the device accessing the files, making it possible to load complex 3-D and multi-layered drawings on a wider range of mobile devices.⁷

6. Document Audits

Third-party and internal audits are essential to verifying that document-control processes are functioning as intended. Without audits, the only way to know there’s a problem is to experience a data breach or loss of information. Why wait for a serious loss that could derail a major construction project when audits can verify the performance of security and control systems at a fraction of the cost? Make sure the audit service is familiar with the specific requirements of construction document control, especially for a firm that works with healthcare and government projects with secondary standards like HIPAA.
7. Daily Reports and Work Logs

Daily records of the work completed on site form an essential protection against claims of breach of contract or insufficient quality once the structure is completed. Clear descriptions of the work processes are often required by contract terms as well. Not only do these work logs offer protection against future risks, project managers can also use them for updating timelines and creating new work schedules. Moving labor around on a project is much easier when subcontractors and foremen are making regular reports on any delays or work that wraps up ahead of schedule. Document control methods need to include these work logs and daily reports while limiting access to them. Only the foremen making the reports, their project managers, and the executives of the firm need access to these files.

8. Photographic Records

Documentation of ongoing work generally relies heavily on photographs and, to some extent, video. These files require slightly different handling from documents and PDFs, especially since their text components are harder to manage and edit. Automated metadata application is especially valuable when a construction project requires thousands of individual photographs and video clips. With site and work photos considered one of the most powerful protections against future litigation, document control systems need to link these files to related documents for consistent access throughout the process.

9. Data Security

Document control software needs to be designed around data security features, not include them as an afterthought. File encryption from end to end provides a bare minimum of protection against data loss and theft. Construction technology is primarily delivered through the software-as-a-service (SaaS) model, and SaaS providers have many different certifications to choose from to prove their data security. For construction document control apps in particular, SOC1 and SOC2 certifications are a good place to start.

10. Complete Approach

A new approach to document control will succeed only when the entire team is equally invested. Executives need the information stored in these document control systems just as much as any other employees for accurate reports to stakeholders and investors. Project managers and engineers may spend the most time actually using the software and control practices, but everyone within the company should be familiar with them to spot when mistakes are made that could jeopardize the security of the entire system.
“The cloud may be a convenient place to store a construction firm’s documents and files, but it doesn’t automatically increase security or make them easier to access. Appropriate document-control practices are just as important as the software chosen to organize the data within.”
Conclusions

The cloud may be a convenient place to store a construction firm’s documents and files, but it doesn’t automatically increase security or make them easier to access. Appropriate document-control practices are just as important as the software and apps chosen to organize the files and apply relevant metadata. While software solutions like PlanGrid may handle the majority of the work required, some tasks inevitably require other apps. Dozens of native app integration options allow construction teams to move data between platforms as much as necessary without generating extra work for file conversion or manual transfer procedures.

References

[8] Site Photos as Safeguards Against Construction Litigation, Zia Mapper.
See a Live Demo
or give us a call at +1 (415) 429-1227

PlanGrid’s Construction Productivity Software is the easiest and most cost-effective way to get substantial return on your investment in construction mobile apps. By using PlanGrid you will:

- **Complete projects faster:** 90% of project costs occur in the field and not in the office. This includes wasted time and project delays. With PlanGrid, you can reduce wasteful trips to the trailer and time delays, while eliminating costly rework. PlanGrid also allows for faster collaboration and communication.

- **Reduce costs:** PlanGrid allows you to optimize productivity in the field, which eliminates time waste that causes project overruns. By completing projects early or on time with PlanGrid, contractors will benefit from reduced costs.

- **Win more bids:** The best way to bid more competitively is not just to track costs so you can provide more accurate estimates — it’s to improve your overall productivity. PlanGrid’s Construction Productivity Software will allow you to increase productivity so you can reduce costs and win more bids.

PlanGrid is construction productivity software used on more than 1 million projects across 90 countries. Our software helps teams collaborate more efficiently with access to an intelligent record set on any device.
Used on more than 1,500,000 projects around the world, PlanGrid is the first construction productivity software that allows contractors and owners in commercial, heavy civil, and other industries to collaborate, collect, and share project information from any desktop or mobile device through the entire project lifecycle.

PlanGrid increases project efficiency by streamlining document management, providing construction teams with easy access to all project information from any device, and enabling seamless collaboration within teams.

© 2019 PlanGrid, Inc. All Rights Reserved.