EBOOK

The Extinction of Paper-Based Specifications

Don’t Be Left in the Dust

PROCORE

Contents

01

Pack up your things— we're movin' to the cloud

WE'VE BEEN HERE WAY TOO LONG.

Many types of construction documents have experienced a slow migration. First from paper-based documentation and storage to digital organization, then cloud-based software, and more recently, open cloud-based platforms and mobile applications. But specification books—those hefty tomes that catalog every detail of a design and its subsequent execution in the field—have remained paper-based, or, at best, have been digitized in the form of isolated files. The data sets have been too large with too many information sources to make for an easy transition to the cloud.

But that is finally changing.

More agile software applications, and state-of-the-art technologies like optical character recognition (OCR), are enabling even these massive compilations to move to the cloud. This means specifications, like other critical construction documents, are now available in real time on the jobsite–not to mention being more complete and accurate than ever before.

02

The current state of specifications

In the beginning...

Along with design drawings and plans, specifications are a critical component of the contract document (CD) set that is presented to project owners for review and acceptance. They are also part of the bid documents that are given to contractors to facilitate competitive bidding.

Construction commences...

Jobsite personnel need to have ready-access to the specs in order to:

+ Prepare or review submittals
+ Check project details in real time, wherever they are
+ Answer questions
+ Ensure the right work is being done on site

Project build-out progresses...

Any changes to the original design intent that occurs in the field must be recorded. This results not only in frequent updating of the drawing set, but in frequent updating of specification sections and details.

Eventually...

All of these as-built documents must be collected, organized, and submitted by the contractor to the designer and delivered to the owner at a project's conclusion.

Playing, as they do, such a critical function during every stage of construction, it is good news indeed that specifications are joining the ranks of other cloud-based documents.

03

What's in a spec?

Typically created in the architect's office, specifications are the instruction set for how every building component should come together. Specifications may be performance-based, laying out requirements only for how an end system must function, while leaving product selection and other details to the contractor. But, they often go into greater detail, spelling out the exact processes and products that are to be used for a given design element.

> **Specifications can cover everything from materials and processes for submittals to inspection procedures.**

Construction specifications are categorized according to divisions—such as plumbing and fire suppression—that represent the typical stages and types of work performed on the jobsite. They can be as nuanced as stipulating the distance between nails in drywall or the position of a building component down to the millimeter. Therefore, in addition to specifications being separated into divisions, a hierarchical numbering system within each division is employed, the architect assigning a section number to each spec detail for efficient referencing.

04

Why paper-based spec books are a dying breed

Page-turning is costing you a pretty penny.

As with drawing sets, project managers and supers need to be able to quickly locate the information they need so they can distribute it to their subcontractors. Therefore, having an organized spec book at the jobsite trailer is vital.

Because of the breadth and depth of information, spec books can range in size from 100 to over 3,000 pages. Managing that paper load is no small feat. Ample time spent trying to access and track down the right information in these endless binders is not only costly in regards to the money spent on the physical search, but even more so in terms of resources wasted on rework due to outdated specifications.

It’s more than just a page number problem.

Teams require the latest set of specs at all times to eliminate the potential for rework. If teams are not informed of the latest updates in real time, they will continue building off of the now-outdated information—resulting in rework and added cost.

Aside from inefficiency and disorganization, one of the biggest problems with paper-based spec management is the immediacy of outdated information. The instant an updated version is distributed, it may simultaneously become outdated because as soon as the next update is made, that version is now obsolete.

In other words, as soon as an update is made, it needs to be synchronously distributed to all parties involved, especially teams in the field. But if it needs to be manually printed and distributed, that hard copy documentation might already be out of date before it even makes it to the field.

05

Digital specs: One step forward—two steps back

Digitization of spec books doesn't solve the problem either—you still have to scroll through endless pages of digital text to find the exact information you're looking for.

Many construction firms believing themselves to be progressive and up to date with technology store their spec books electronically as PDFs in a document storage system such as Box, Dropbox, or a similar storage application. However, cloud-based repositories like Box and Dropbox are just that: digital filing cabinets that only store your documents, nothing more.

As a result, PDF files present many of the same issues as paper-based drawing sets:

+ Time-consuming to access and locate desired information
+ Difficult to organize
+ Poor version control

So if neither paper-based nor digital spec management can efficiently provide project teams with real-time spec information—what's the solution?

06

Goodbye old school spec management, hello construction software!

When data has to be entered manually in multiple programs, or copied and pasted from program to program, it opens the door for errors to occur.

The overall accuracy of a project's record becomes eroded. Similarly, when many team members are working with the same files, they may inadvertently insert duplicate or erroneous data without other users knowing, and suddenly there are competing versions of files taking up space and creating confusion.

But with cloud-based construction software, all contributors have simultaneous access to every document and all parties are notified in real time when changes—including markups to a spec—are made.

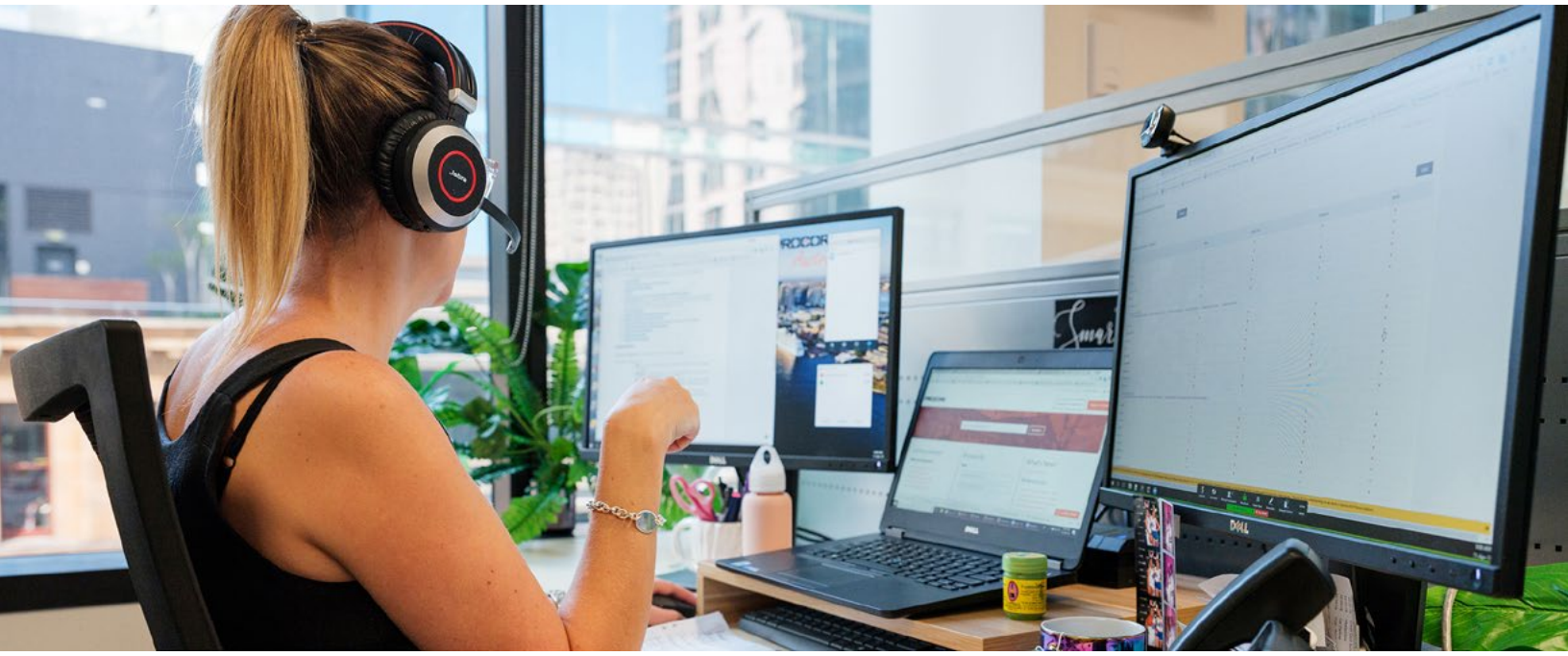
There's no need to save the latest version and redistribute; it's already in the software for everyone to see. Construction software has become the single source of truth for team members to reference from any device. As revisions are made to documents, the software automatically creates a version log to track those changes. Timestamps indicate when a file was modified and who uploaded it, as well as any notes users would like to associate with the new version. Clearly marked previous versions of documents also remain available for download, so that side-by-side comparisons can be made.

> **Can you really ask for more than that?**

It's about more than just specs

Project risk includes anything that threatens or limits the goals, objectives, or deliverables of a project. In the past, risk was particularly difficult to manage because there was a consistently high rate of unknowns. To perform their role optimally, project managers need to know who is doing what, and where. This translates into a need to have access to real-time data, and to extensively document project occurrences…both of which are easy to do with cloud-based software.

Not just project managers, but all project stakeholders are now able to stay up to date on even the most specialized jobsite activities. In addition to real-time updates on drawings and specifications, contractors are instantly notified when there's a problem, and new software tools make it easier to perform inspections and quality control. These factors combine to create a level of accuracy and completeness



that simply was not possible before. And more complete problem resolution—combined with more complete and accurate records—reduces project risk dramatically.

Automated software is intelligent software.

As construction project management—along with work performed in every other industry—moves from paper-based systems to standalone digital files to integrated records residing in the cloud, the transition happens in stages. One of the last items to remain in paper format is the specification binder. Because of the detailed, and sometimes fragmented, nature of the information involved, it has been no small task to weave that information into a digital document set.

But Procore's platform provides a seamless workflow across a complete array of software tools. With each of its product enhancements, the system has provided greater automation of day-to-day tasks and

information transfer. With the Specifications Tool, Procore can penetrate the deepest level of project information and encompass nearly every jobsite task. The result is even more time savings on the jobsite, improved accuracy due to the elimination of out-of-date paper specs, and an improved bid process, as subcontractors always have access to the correct specifications (along with other contract documents). By implementing this kind of "intelligent" software, your company will undergo a drastic leap forward in efficiency and ultimately, profitability.

Stop running back and forth; take a breather.

It's no longer necessary to clutter the jobsite trailer with an expansive library of binders and dusty filing cabinets. You shouldn't have to spend hours of your workweek hiking to and from the trailer to locate and reference vital documentation buried in those binders.

Instead, you can keep one digital master set of specifications in the cloud, and revise and distribute it to your entire team in one click. With all your data in the cloud, you can access specs and plans from your mobile device even when you are offline—any changes are automatically synced as soon as you reconnect. Workers in the field will be thankful for the convenience and time savings represented by having this digital "binder," and others will be glad for the reduction in printing costs and the storage space saved.

Eliminate hours of tedious manual labor spent labeling and distributing specs.

Using advanced optical character recognition (OCR) technology, Procore's Specifications Tool automatically names, divides and links spec sections as soon as the files are uploaded. It also facilitates faster searching, so team members can stop flipping through unwieldy paper spec books or scrolling through digital folders. Instead, they can perform a contextual search, typing in the division, section, or related key term, and search results populate in seconds.

Organizing specs using mobile, cloud-based apps keeps all related project information together. Spec sections can be attached to bid packages and submittals so relevant specs can be found in seconds and, for the first time, it is easy to view specs in context. As a result, informed decisions can be made more quickly than ever before.

Produced by
PROCORE TECHNOLOGIES,

Procore is a leading provider of cloud-based applications for construction. Procore connects people, applications, and devices through a unified platform to help construction professionals manage risk and build quality projects—safely, on time, and within budget. Procore has a diversified business model with products for Project Management, Construction Financials, Quality & Safety, and Field Productivity. Headquartered in Carpinteria, California, with offices around the globe, Procore is used to manage billions of dollars in annual construction volume.

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