



RAKEN

# Construction **Document Management**





## The American Association of General Contractors recently conducted a survey of general contractors about their outlook for the rest of 2019 and beyond.

Overall the outlook was optimistic. 79% of those surveyed said that they were planning on increasing their headcounts this year, with practically every sector reporting that they were anticipating a higher volume of projects in 2019 compared to last year. That sort of growth is good news for anyone working in the construction industry, as it indicates a healthy market with plenty of opportunities no matter what your specialty is.

However, that's not to say that the respondents didn't notice that there were plenty of challenges on the horizon as well. A staggering 88% said that they were having a hard time filling some or all of their positions, with 65% saying that it will be hard to hire hourly craft or salaried employees in the coming year. The construction labor shortage is nothing new: it's been going on since 2010, with no real end in sight. A full 28% of respondents said that worker shortages were the biggest challenges facing their firms.

But what does it mean? Well, for 84% members of the [AGC](#) it meant increasing base pay rates and providing other incentives to keep salaried and hourly personnel on the job. Even with those incentives, however, the shortage of workers has had an impact on the way construction firms operate from day to day. 30% said that because of increasing salaries and other incentives, that their costs were higher than they anticipated, while 23% noted that, as a result, projects were taking longer to complete, and 24% said that they put higher prices into their bids.

88%

of GCs and Subcontractors said that they were having a hard time filling some or all of their positions

28%

said that worker shortages were the biggest challenges facing their firms.

### Contents

- 4 Why Should Anyone Care About Construction Document Management?
- 6 Which Construction Documents are we Talking About?
- 12 The Do's And Don'ts of Construction Document Management
- 17 Construction Document Management Can Be Easy



**Read between the lines of those figures and you'll come to one conclusion: because workers are expensive and hard to come by, projects are costing more and taking longer to complete than they used to, which means fewer profits for your firm.**

You would think that, with such strong evidence behind it, the construction industry would be scrambling to find new ways to get around the labor shortage. But 43% of respondents to the survey said that they didn't have plans to implement drones, robots, BIM, offsite fabrication, or added specialists in lean construction methodologies. In other words, for just about half of the industry, it was business as usual. And it wasn't just the AGC. [JBKnowledge](#), in their 2018 construction technology report, had over 2,800 Subcontractor and General Contractor respondents across the world, and a full 42% of surveyed companies said that none of those technologies would give their firm a strategic advantage.

**42%**

said that none of those technologies would give their firm a strategic advantage

**43%**

didn't have plans to implement advanced technologies

But that doesn't mean construction firms aren't doing anything. On the contrary: rather than investing in ways to completely overhaul construction as we know it through expensive, advanced technologies, 92% of respondents were investing in file-sharing sites such as Dropbox or online project collaboration software.

And what are they using that file-sharing software for?  
**Construction document management.**



# Why Should Anyone Care About Construction Document Management?

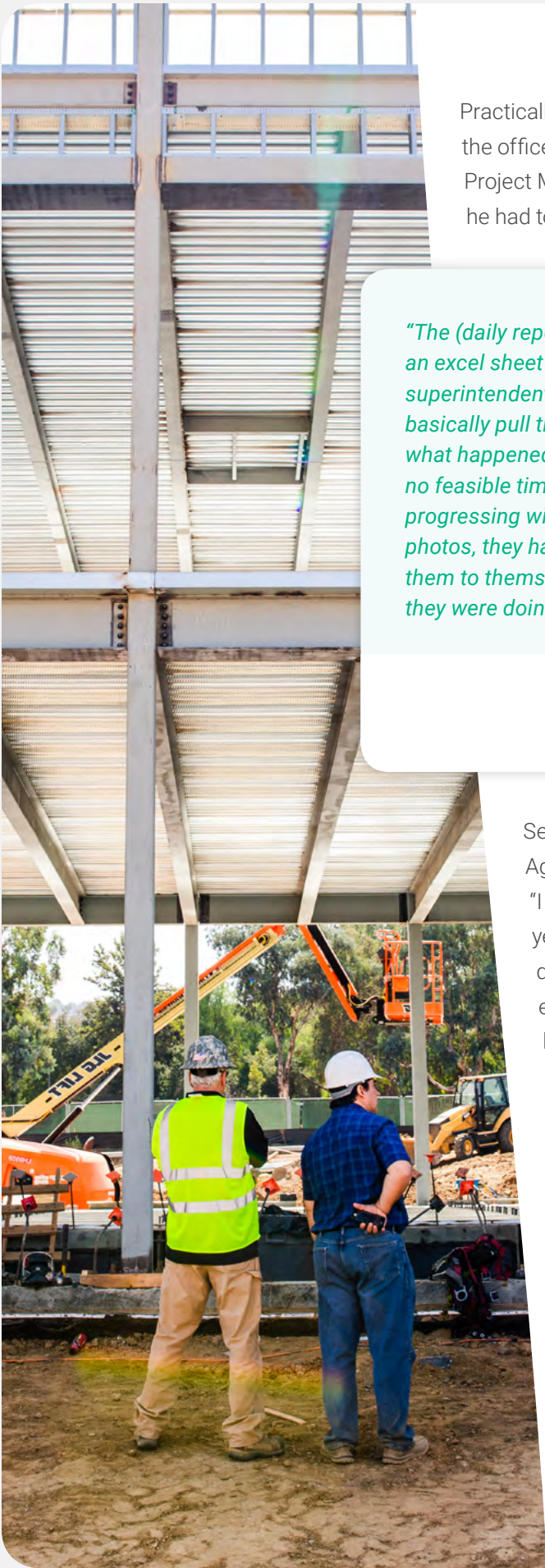
When we read that the vast majority of respondents were using file-sharing services like Dropbox, Google Drive, Egnyte and others we were honestly a little surprised. Just about everyone in the industry that we speak to regularly used pen and paper, a notebook, or at best an excel spreadsheet for their reports, and when the reports actually did get done then they would sit in giant, dusty binders in a trailer or a storage unit somewhere.

That's why we were curious about why so many respondents were investing in cloud storage for their construction documents. When we dug a little deeper into the AGC's findings we discovered that not only were most construction companies investing in online file-sharing, but that 48% planned to increase their investment into IT in the coming year, with 90% saying that they were either going to maintain or increase their investment into document management software specifically.

Well, that just left us with more questions than answers. Why, in the face of tremendous growth opportunities across all construction sectors and a labor shortage that make projects harder and more expensive to complete, an overwhelming majority of construction companies going to be investing so heavily into document management?

And that's when we remembered some of the conversations that we'd had with supervisors, project managers, and superintendents in the past. They kept mentioning that keeping on top of their documentation was the worst part of their job: it's not why they got into construction, it's a hassle, and it takes up all of their time.





Practically all construction documentation was giving the field and the office a headache. Just take Michael Sengara, the Director of Project Management at Unison Construction Management, and what he had to say about one workflow in particular.

*"The (daily reporting) system was nothing other than an excel sheet that got updated daily and emailed. The superintendents had to sit down, open their laptop, basically pull their notebooks out, and try to remember what happened that week. During the day there was just no feasible time to be able to sit down and really start progressing with your daily report. If they wanted to do photos, they had to take them, download them, and email them to themselves. It was just a lot of clunkiness to what they were doing to get a proper daily report."*

*Dominic Silvia  
Level 10 Construction*

Sengara isn't alone. David Ingram, a Supervisor for Maurice Agrillo and Associates general contractors in San Jose, says "I worked with a daily diary basically. I had done that for 24 years. It was a weekly journal of what my crew and I were doing, with a description, all by hand," says Ingram. "At the end of the week, I would send that to stakeholders. I'd get home and be writing stuff out, minimum an hour, usually two, sometimes three. I'd also transfer accounting and time card info and I'd be done sometimes at nine o'clock at night. First, I'm writing it in my journal, then I'm typing it into the program, then I'd type my own words into the invoice program."

Looking at what these guys had to say, we started to connect the dots.

The reason that more and more firms are investing in construction document management is that they see it as a way to keep on top of where their resources are likely being drained fastest: in the field.

[illegible]

Generally speaking, you can break down the different types of construction documents into the following categories.

Projections for overall man-hours (applied to cost codes), materials, and equipment costs. You'll find these either kept in a spreadsheet or, nowadays, in dedicated software. These are critical because it's how the business can both plan for the future and, when comparing actuals vs. budgeted hours and materials, executives can get an idea of how efficiently their crews are performing.

The technical schemata for any project, specification documents are guides for field crews to make sure they are working with the right materials and methods to meet the owner's requirements.





### RFIs/Submittals

What happens when your crews bump into something they didn't expect, or when one aspect of the plan doesn't fit with another? In moments like these the field and the office need a process for communicating clearly and then proceeding smartly. Requests for Information (RFIs) and Submittals describe the flow of information from the field to the office and vice versa. RFIs usually get started in the field when a Super runs into a new problem or issue. Once he submits the RFI, though, it's managed by a PE or PM in the trailer until the architect, engineer, or owner can answer the question with how best to proceed. Submittals, on the other hand, are totally managed by the office whose responsibility is to provide documentation of requested submittals from the specifications book for review or approval by the architect or engineer. Once it's approved, it's distributed to the field so they know the right materials to install on the job.

### Drawings

So many drawings. Blueprints, schematics, layouts, and markups each need to be stored and, more importantly, you need to make sure that your workers in the field are building off of the most current, approved plans. Markups and notes made in the field need to be transmitted as quickly as possible to the office to avoid costly delays: red sticky notes and colored pencils just aren't doing it anymore.

### JHAs and Toolbox Talks

Job Hazard Analysis is done before the project even begins lets crews know what they can expect, while toolbox talks address specific safety concerns and training while the project is ongoing. It's necessary to document whether these safety processes were followed and who attended the training in case of an accident.





### **T&M Tickets / Change Orders**

T&M stands for Time and Materials, and it describes the workflow between the field and the office when, under a T&M contract, the field crews are working on a project that's hard to estimate or would just take too long to estimate. Under a T&M contract the subcontractor tracks how many workers and hours were put into a scope, how much material they installed, and what equipment they used. A T&M ticket with all that information is signed every day, and once the job is done all those documents get sent to a project manager who then puts the costs associated with the time, material, and equipment used, along with their overhead into a change order submitted to the general contractor or owner for approval and payout. While all T&M tickets eventually become change orders, a change order can actually originate from anywhere, it just describes the document needed when work is added to or taken from the original scope, thereby changing the estimated completion date or materials needed.

### **Daily Reports**

The daily journal for what happened on site that day, or the place where you see exactly what was done that day. Crucial for an owner's visibility into the project, and necessary for firms to avoid litigation in the future. Usually the repository for photos and videos of the work in progress.

### **Time Cards**

Documents used for keeping track of time in the field, absolutely necessary for payroll to process payouts in the short term, and keeping a record in the long term. They will allow you to compare actuals vs. budgeted hours after a project is completed to see where you can improve.





While there are definitely more specific construction documents out there, you'll find that the vast majority of what you need to be gathering and storing falls into one of these categories, and anyone can easily see how clear documentation and a repeatable, easy to understand process is absolutely necessary, otherwise your crews are going to get bogged down in endless piles of paperwork. But there is much more at stake than just wasting your field crew's time (though that's bad enough as it is). If you needed more of an incentive to look at your documentation process then just remember that if an important document is missing from a T&M ticket, time card, or drawing then fixing that mistake could be a long and costly endeavor.

The main challenge to construction document management is that many of these documents rely on seamless communication between the field and the office. Drawings, RFIs, daily reports, time cards, toolbox talks and more all mean

something to the office, but the actual data that makes them worthwhile is supposed to be entered in the field as it happens. Construction document management is all about making sure that each of these documents is completed the right way and, just as importantly, is stored in a secure place that can be easily accessed just in case you need those documents in the future.

And when we say "just in case you need them" make no mistake: we are talking about the likely event that your firm gets sued over a contract dispute and you are called upon to prove that you did the work you said you were going to, the way you were hired to do it. Moments like those, which can make or break any firm, rely on documentation. As Sam Bacon, Manager of Green Circle Demolition has said, "In this business, he who has the best information wins."

*"In this business, he who has the best information wins."*

**Sam Bacon**  
**Green Circle Demolition**





Depending on the type of project you're doing your firm can be liable for any breach of contract (read "this work wasn't done right") disputes for up to 10 years after the project is completed. If you can't find, within 5 minutes, daily reports from projects you completed 9 years ago then you need to pay close attention to whenever someone says "construction document management." Because we guarantee that if you can't find them it's going to be up to an expensive legal team to find them for you, and investing a little in making sure all your documents are in a secured, easily searchable place now can save you lots of money and stress later.

**Here's the bottom line:** *you can save money and stress with construction document management software, which we can here define as any software that streamlines the workflows associated with those documents, produces a report, or stores them somewhere secure and searchable.*

JBKnowledge compiled a list of the most popular construction document management tools for 2018, and each one of them falls into a workflow associated with one of the documents above. Tools like Bluebeam, Procore, Plangrid, BIM360 Field, Raken, Viewpoint, HoloBuilder JobWalk, ExakTime, Safesite, Dropbox, Egnyte, OneDrive, and Box are all construction document management solutions. Each has benefits and drawbacks, but in the end, each was designed for a specific purpose: to tackle one or more of those documents listed above, make filling it out easier, and store it for you.



## Construction Document Management Software For Quick Wins

Keeping construction documents handy and searchable in case of a legal issue is thinking long-term, however, that's just not enough for some construction professionals out there. While it's admittedly a little short-sighted, we get the idea. Why stay up at night worrying about what might happen three years down the road when you're not sure if you're going to be able to get this project done on time today? Construction is about the here and now.

If you're not worried about the long-term safety of your company that doesn't mean construction document management can't help you with that sticky project you're currently working on. When we said that resources can get drained faster in the field than anywhere else in the construction pipeline we're not saying that superintendents and foremen are inefficient. But when you look at the entire construction process, more can go wrong during the construction phase than pre-construction or after the project has been completed (though that's not to say that things happening in the post-construction phase aren't expensive, and we'll get to that later). Proper documentation, with everyone on the same page and working together, is the best way to make sure that the build goes smoothly.

Just take John Albert, the founder of Unified Building Group. He says "Getting unpredictable job reporting for man hours from subcontractors can eat a company alive." Or listen to Sam Bacon, who says "our biggest cost is labor, so it'd be nice to have your time cards in the same place as your work logs so you can check those against when the trucks were turned off, so we can compare everything

quickly and easily. You'd have the information that day, and that would help you keep tabs on overtime on a midweek basis, so you'd know when some of these jobs are tight and you can make that call on Wednesday."

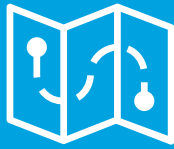
*"Getting unpredictable job reporting for man hours from subcontractors can eat a company alive."*

**John Albert**  
Unified Building Group

Seamless construction document management helps Unified Building Group and Green Circle Demolition keep track of overtime and man-hours from each of their sites, and that helps them keep their costs down. In a climate where more firms are reporting that rising labor costs are making projects more expensive to complete while simultaneously taking longer, you can see how information like that would be invaluable in the here and now, not just in the future.







# The Do's And Don'ts of Construction Document Management

Now that we know construction document management is important because it can help you avoid future litigation while providing some quick wins in terms of real-time labor reporting, how do you actually go about doing it? Have any methods or tools been proven to be better than others?

Luckily, the construction technology research professionals at JBKnowledge have compiled hard facts about construction technology. We distilled some of their findings on construction document management software solutions and can, with confidence, say that there are some definite places you want to start and certain pitfalls you'd want to avoid.



## Avoid Complicated Solutions

Most of us didn't get into construction because paperwork was just our favorite thing in the world. However, nobody got into construction because they just love figuring out new technology either. These are people that love to work outdoors, with their hands, and are used to working during blazing heat or freezing cold. Not necessarily the kind of person who really loves sitting down in an office figuring out which hotkeys will minimize their .JPG to fit within email parameters.

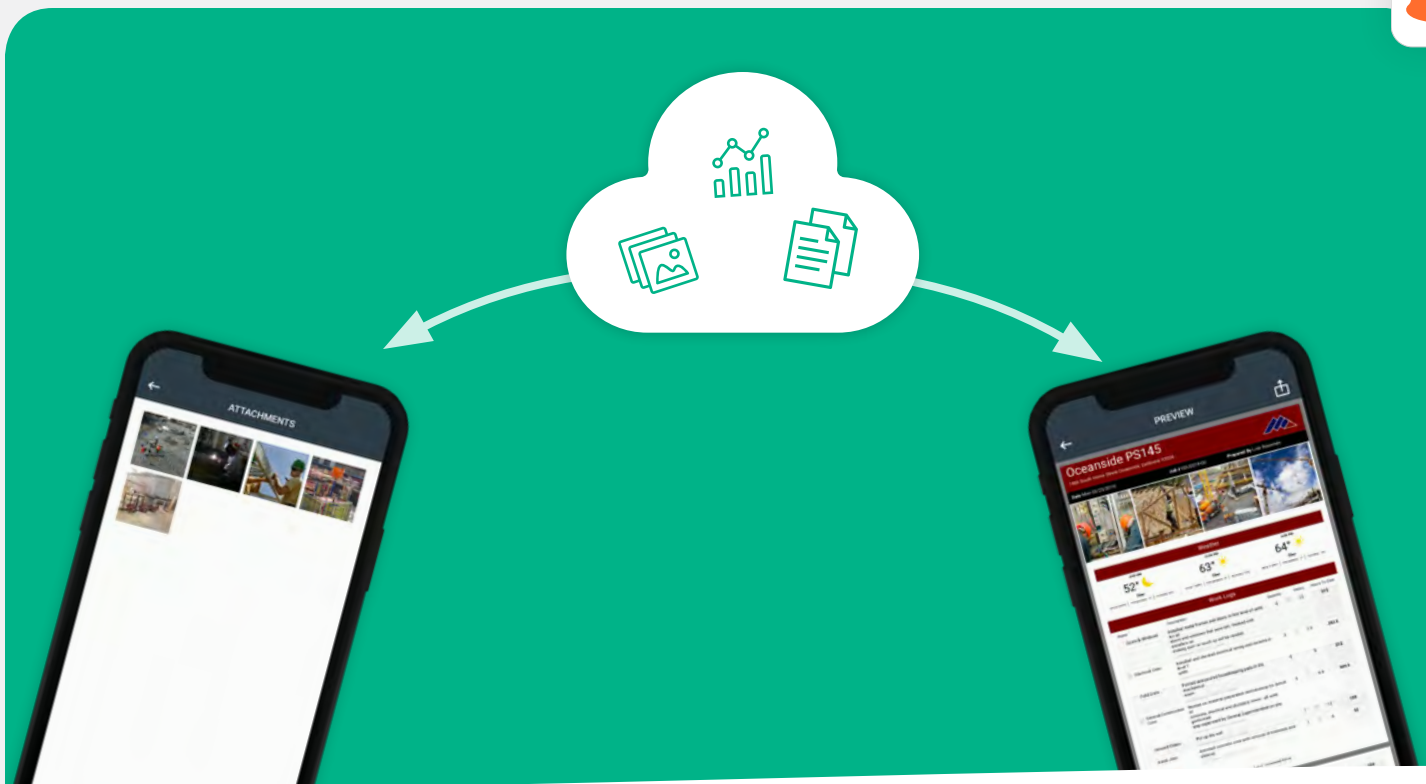
Unfortunately, many construction management platforms that handle multiple workflows are that level of complicated, or worse. They are wildly expensive and take months to train your people how to use them. Even after all that training, more often than not the crews in the field don't want to take the time to figure it out because they are busy with their real jobs, and they go right back to the old way of doing things. Now you not only aren't getting the documentation you want or need, but you are the proud owner of expensive construction management software that no one uses. Dominic Daughtrey, Continuous Improvement Program Director at Sundt, says "With the software we had implemented, none of the superintendents enjoyed working with it. It was very time consuming, and the value-added portion of getting the information and putting it into a format that's easily consumable was very hard with that software," he says, going on to state "for example, if someone was working on the foundations for three, four, or five days they would have to go in and enter the same information three, four, or five times."

What Daughtrey is talking about here is why a superintendent might not like the software that is passed down from the office: too complicated and redundant. In this case, the software didn't allow them to roll over duplicate information from one day to another. That's a perfect example of the kind of software that was designed with the executive in mind: they want to know what's happening on the site from day to day, but they didn't stop to think about the person who has to put that information in when they were designing it. And the result is an expensive software that no one uses.

And now you might be thinking "well, it's their own fault for not training their guys. We won't make that same mistake." Well, before you pat yourself on the back, remember that according to JBKnowledge, a full 50% of over 2,800 surveyed general contractors and subcontractors felt that they weren't trained on the technology their company uses at all, with the majority saying that they got little more than a login and a "good luck" before they were told to just go ahead and use it. Daughtrey and his team did everything right and they still found room for improvement. How likely are your field crews to use something that they need extensive training on?

**50%**

felt that they weren't trained  
on the technology their  
company uses at all



## Avoid Silos

When we say silos we mean tools that don't integrate with other tools easily. As the construction technology and software industry continues to rise you'll see more of these solutions: they are dedicated to a single workflow and don't have a built-in API (Application Programming Interface) that allow them to easily share the data they collect with other programs. And when we say it's becoming more common, there are solid figures to back that up.

According to JBKnowledge, 65% of software solutions either didn't integrate with any other tool, or they limited their integrations to only 1 or 2 choices with no possibility of building onto it with easy connections.

You might be wondering what the big deal is about integration. If the whole point of construction document management is to make sure that all of your paperwork is getting filled out and stored, who cares if it doesn't integrate with other tools that do the same thing?

It's an important point because, in order for your construction documentation to be effective, you need to store your documents in a single, easily-searchable place so you can know exactly where to look for all documents related to a given project in the future. Trust us, when you are staring at a lawsuit in the face you aren't going to want a team of lawyers to have to research which tool you were using for that particular workflow.

JBKnowledge discovered that if their construction document software wasn't easily integrated with other tools, that 51.8% of respondents were moving information over manually, while 44.3% said they used spreadsheets or other methods. That translates to hours of wasted time doing something manually when you could have, with just a little extra research, bought a solution with an open API so you could connect your tools and have it all done automatically.





## Go Mobile for These Workflows

84.6% of JBKnowledge respondents said that mobile capabilities were either important or very important for any technology they used or were thinking about using. Not surprising, considering that a full 92.8% of those surveyed used their smartphone for work every day on the jobsite.

Luckily, construction document management is going increasingly mobile with a host of apps that make high-frequency field reporting and documentation workflows fast and easy.

If you were wondering which to start with, here is what your peers are using their phones for on the jobsite:

**53.6%**

captured daily field reports  
on their mobile device.

**55.3%**

used an app to capture jobsite  
photos and videos and shared  
them with stakeholders.

**46.5%**

used a mobile app for time  
management.

These three workflows were the most popular on the list by a factor of 10%, making them the three most popular workflows for field reporting by far. In terms of your construction documentation solution, these three workflows all have documents associated with them: photos and videos go into the daily field report, while time is captured in time cards that are then sent to payroll. Daily reports and time cards need to be a part of your construction documentation software, and since these are the workflows that are best suited to a mobile app you would do best to look for a solution that handles all three.

JBKnowledge's survey of top daily report management mobile apps listed the top five in the industry.

1. **Bluebeam**
2. **Procore**
3. **Plangrid**
4. **BIM360 Field**
5. **Raken**

If you were completely new to the idea of construction document management software and needed a place to start, researching these five apps and figuring out if they work for your business would be a great place to start.



## Have A Central Repository

We've already talked about the huge percentage of construction companies that are investing in cloud storage for their construction documents and the dangers of choosing a solution that doesn't integrate, but JBKnowledge listed out the most popular for us.

1. **Dropbox**
2. **OneDrive**
3. **SharePoint**
4. **Google Drive**
5. **Box**
6. **Procore Drive**
7. **Citrix**
8. **Egnyte**

Before you buy any construction document management solution you should make sure that it integrates seamlessly with one (if not all) of these options so you can make sure that your documents are stored securely, indefinitely, and are easily searchable.

*Technology has a major part to play in running an effective organization, and we saw a huge opportunity with Raken.*

*Dominic Silvia  
Level 10 Construction*

Dominic Silvia, who leads the IT department for Level 10 Construction, had this to say about using a construction document management solution like Raken and integrating it with a cloud storage solution, in this case, Egnyte. "Technology has a major part to play in running an effective organization, and we saw a huge opportunity with Raken. The product's focus on mobile is perfect for our superintendents in the field, making it easy for them to capture important events and communicate them quickly. It's a game-changer for how we use field information in our decision making," he says, continuing "And Egnyte Connect's ability to provide seamless access to our content streamlined our workflows and made our teams more efficient. Integrating Raken and Egnyte so that our daily reports were automatically synced to an Egnyte Connect project folder was a no-brainer."



# Construction Document Management Can Be Easy

All you need to do to start is to research the products we've listed out for you here. Research conducted by JBKnowledge and AGC has shown that more and more of your peers in the construction industry are following suit, so it's time you did the same or risk being left behind.

As you're researching these companies, ask yourself some questions we've posed in this eBook. Does this solution make generating the documents easy on my field crews? Does this tool integrate with other software? Can the documents all be stored in the same place?

Do your homework with those questions in mind and we're sure you'll find a suite of tools you'll love. You'll be saving time, money, and will be able to walk away from work at the end of the day secure in the knowledge that you have all your paperwork stored in the right place, ready for the future.

## Manage Your Documents

