



4 ESSENTIAL CONSTRUCTION MANAGEMENT WORKFLOWS

TRUSTED BY INDUSTRY LEADERS



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Table of Contents

Introduction.....	1
Who We Are.....	1
The Big Dig Debacle.....	2
Dangers of Poor Jobsite Management.....	3
The Big 4 Workflows.....	4
1. Time Cards.....	5-6
2. Toolbox Talks.....	7
3. Material Tracking.....	8
4. Daily Report.....	9-10
Modernize your Management.....	11-12

Introduction

To get insight into how to effectively manage a construction site we talked with GC and subcontractor firms, superintendents, foremen, safety supervisors, and other construction professionals in the field to find out what workflows or documents they were using to manage their sites, where the pitfalls were, and how they overcame them.

Who We Are

Raken provides innovative mobile technology to streamline field workflows for construction workers. Raken's "digital toolbox" connects the field to the office with daily reports, time cards, task management, project insights, photo management, and more. Clark Construction, AECOM, Skanska, Whiting-Turner, Hensel Phelps, and thousands of the world's top construction companies use Raken to solve their field reporting needs. To find out more, visit www.rakenapp.com or call 866-438-0646.



The Big Dig Debacle

Have you heard about Boston's Big Dig? Back in 1991, the city of Boston was looking to ease the city's notoriously horrible traffic problem. The plan would eventually turn into the Big Dig, re-routing one of Boston's major highways into a 1.5-mile long tunnel underneath Boston Harbor, another tunnel to Logan International Airport, and a bridge over the Charles River.

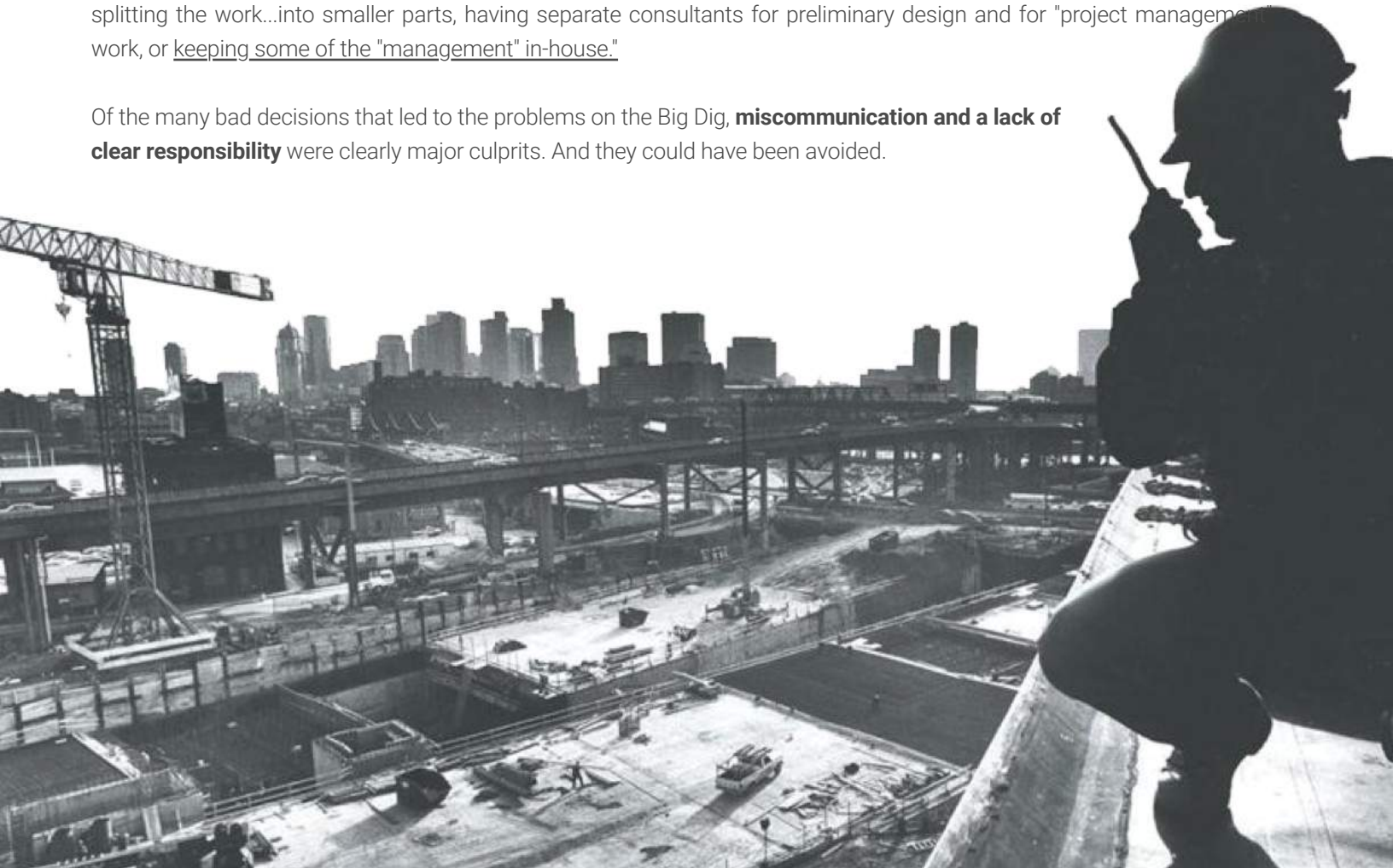
The project was supposed to take 7 years and cost \$2.6 billion dollars.

It eventually took 15 years and cost \$15 billion dollars. The total cost, given interest on the debt, was probably closer to \$24 billion.

Trying to pin down a definite reason for the chronic delays and botched work has been the mission of professional analysts and journalists for years. However, they all seem to agree on one thing: the entire project was mismanaged from the beginning.

Looking at it closely, too much decision-making power was held in one company. According to City Journal journalist Nicole Gelinas, "Massachusetts would have been smart to introduce some checks and balances early on—perhaps splitting the work...into smaller parts, having separate consultants for preliminary design and for "project management" work, or keeping some of the "management" in-house."

Of the many bad decisions that led to the problems on the Big Dig, **miscommunication and a lack of clear responsibility** were clearly major culprits. And they could have been avoided.



Dangers of Poor Jobsite Management

Many General Contractors out there aren't handling projects anywhere near the size of the Big Dig. It was the largest infrastructure project in US history, which seems far removed from the single-room renovation or new elementary school gym that some GCs are working on currently.

But that doesn't take away the lessons that we were supposed to have taken away from the Big Dig- if anything, it makes them more meaningful.

In the end, Boston taxpayers are recouping the losses of the Big Dig, and now that it is 12 years in the past the city is starting to forget some of the pain in their wallets. The taxpayers ended up footing the bill because construction is such a collaborative enterprise it's hard to assign blame to a single company if something goes wrong: between the GC and dozens of subcontractors, it's hard to identify any sort of culprit. However, the way it usually goes is that when a job goes significantly over an estimate it's the subcontractors and GC that either shoulder the burden equally or it's divvied up based on any responsibility that can actually be assigned.

What's worse, the actual amount of liquidated damages are incredibly difficult to pin down if you use the formula method in your contract and can quickly balloon into enormous sums depending on the type of business or building you are constructing. If you don't complete the work on time, and the owner can reasonably prove the money they would have made from that structure in that time, you could be held accountable for recouping their losses. And that's not the sort of situation any GC wants to be in.

So what's a proven way to make sure you are running an efficient jobsite, ensuring that communication and responsibility are clear? It's not a new idea, in fact, it's been around for a while. Do your homework.

The best way to avoid mismanaging sites: the right documents in the right way.



The Big 4 Workflows

Efficient construction management often comes down to doing your homework: that means workflows that link what's happening in the field with what the office thinks or is expecting to happen. However, these very workflows which were designed to make decisions easier, to make sure that everyone was on the same page and that responsibility for delays could be clearly assigned, are more often than not the culprits behind a huge amount of wasted time on the site, especially from superintendents, project managers, and foremen.

But it doesn't have to be that way. That's why we went into the field to take a look at some of the most successful construction companies around to discover their approaches to construction documentation and how they make it work for them rather than against them.

We discovered that every company had these four workflows in common:

- ✓ **Time Cards**
- ✓ **Toolbox Talks**
- ✓ **Materials Tracking**
- ✓ **Daily Reports**

While these might seem obvious to anyone in construction, what isn't obvious is how successful companies went about these workflows, and what they did to make them as



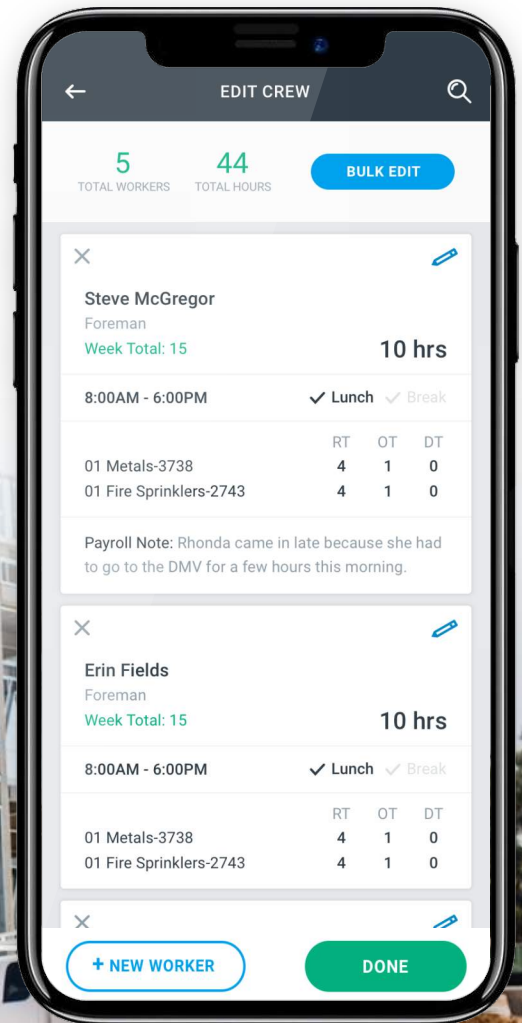
1. Time Cards

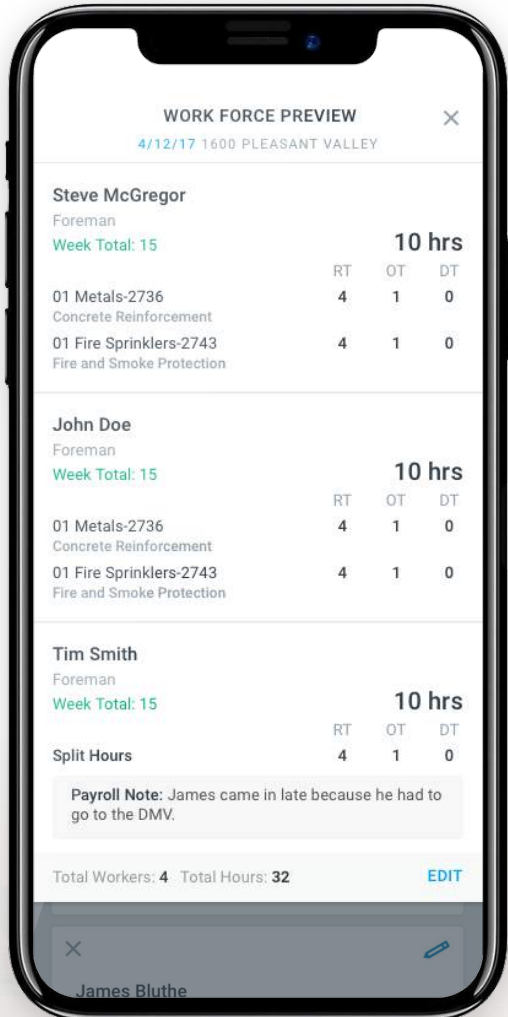
Construction is expensive- and one of the easiest ways for companies to lose money is on labor. Between subcontractors coming and going, different time card formats, and conflicting reports this can be one of the easiest workflows for companies to mess up.

The Problem: The nature of a modern construction site has sometimes 20 different subcontractors coming in and out, each with their own crews, and each wanting to get paid. Much like other workflows on this list, the documentation surrounding time cards varies from subcontractor to subcontractor and can be spotty at best. We've seen these important docs captured on pen-and-paper, on the back of a napkin, or scribbled onto a block of wood. Payroll admins have to collect individual time cards, review them for mistakes, chase down workers for missing information, manually enter everything into one document, then review and process it.

With so many different moving parts and margins for error, it's no wonder that inaccurate hours make it into the system and construction companies, large and small, end up bearing the financial burden.

The Solution: When subcontractors track their hours in a mobile app that automates the workflow for every subcontractor on site and seamlessly communicates with tools that the payroll admin is using in their office the margin for error is dramatically reduced. You might be thinking that an Excel spreadsheet would do the trick here (most payroll processing software just needs a .csv file), but we have found that you'll still run into that unpredictable job reporting problem: the sheets will often have different columns that make reporting a time-consuming mess for the field and still require payroll admins in each of the various companies to spend valuable hours collating them. More often than not the result are time cards and labor costs that are still skewed.





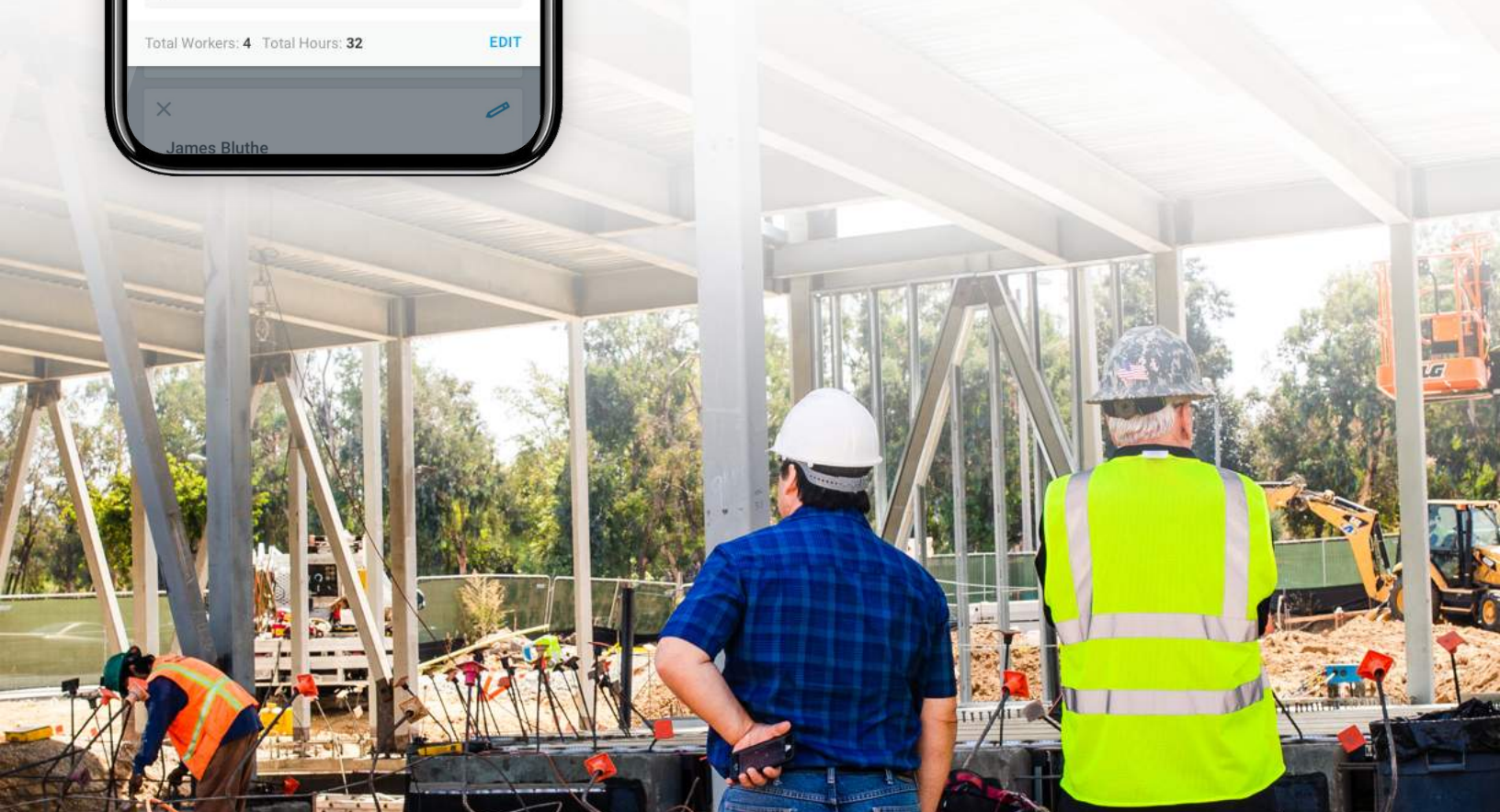
A better method is having every superintendent and foreman on site track hours in the field themselves. Hours collected in this way are more accurate because the information is captured in real time as the work is actually getting done, and because they are all on the same system the billable hours that get rolled up can be examined, if you need to, for any discrepancies.

The Value: According to John Albert, the founder of Unified Building Group...

Getting unpredictable job reporting for man hours eats companies alive.

Knowing exactly how many hours are logged, and on which scopes, is crucial for keeping the costs within the original estimate. Maybe if the Big Dig had better hours tracking they wouldn't have run into so many additional costs.

For Albert, the turning point came when subcontractors were submitting their own hours, which Albert and his team then checked against records and estimates. Such a process has helped him run a more efficient job site and be more competitive.



2. Toolbox Talks

Toolbox talks, or short presentations on a single aspect of jobsite safety, can be a fantastic way to make your jobsite safer. While getting everyone on site for a little safety training sounds easy enough, the workflow gets complicated in the actual logistics.

The Problem: There are a lot of different toolbox talks that your company can go through during the life of any given projects. Fire safety and prevention, hazardous waste handling and disposal, wearing your PPE, working at height, manual handling of heavy materials or equipment, operating vehicles, and vibrating tools are all examples of quick 15-20 minute talks that the superintendent or foreman can give. While toolbox talks themselves are not the problem (they are usually pretty quick and easy to get through) the difficulty comes in documenting who was present and what was discussed on any given day. Emailing lists or materials or scanning handwritten sheets take a long time, which usually leads to the paperwork getting lost, forgotten, or just outright ignored.

The Solution: Keep the actual PDFs, Powerpoints, Videos, or handouts from your toolbox talks stored in a cloud service online so you never have to worry about losing them. **For even more ease-of-use, successful construction companies connect these services to their mobile phones so they can capture these notes in the field where the talks happen.** They also take a picture of the sign-in sheet for the toolbox talk and snap a picture of the actual lecture as it is being given. They then include the photos in the daily report so the evidence is always there when they need it.

The Value: Everyone should know the value of a toolbox talk- education makes the site safer, which reduces accidents that are costly both in terms of time and resources. However, in many states toolbox talks are more than a suggestion- they are required. Many general contractors are responsible for the health and safety on their sites, even if they don't directly employ the people working there. Having time-stamped photographs showing who was there or of the actual event can be invaluable if your company is ever called on to prove that the safety talks happened in the first place.



3. Material Tracking

Everyone knows that building things takes materials, and making sure that the materials you're using are within your budget has an enormous impact on the overall cost of the project. As such, it's worth any effort you put into it because not only does tracking your materials lead to a more efficient jobsite, it can also save your company plenty of money. Whether you're in the office or out in the field, a healthy bottom line makes everyone happy.

The Problem: Once again, it comes down to current documentation around materials being too complicated for superintendents to keep track of in the field. They need to record what materials were received, when, and how much there was. They then need to mark down how much of that material was used in which scopes. Tracking how many cubic yards of concrete were poured, or how many linear feet of pipe was installed is tricky enough without coming to the most important part: checking those numbers against what the office had budgeted in the first place.

The Solution: Materials are used in the field, so that's exactly where they should be tracked- not sitting in a trailer at the end of the day. Right now your superintendent might be going around the jobsite counting cinderblocks, pipes, and bags of concrete by hand and scribbling those figures into a worn-out notebook. It's not that he's doing anything terribly wrong- it's just that it takes a long time and he could be doing the job better with a standardized form he can fill out on his phone that ties back to the office. Documents stored in the cloud fit the bill quite nicely. Many of these storage services, such as Egnyte, Dropbox, OneDrive, and others let superintendents make changes in the field which are then immediately reflected in the office, creating that all-important link back to the project managers who are tracking the actuals vs. the estimates and making adjustments.

The Value: While knowing how many materials are being used on your site is valuable, many firms out there aren't using that information to its full potential. We've spoken with companies who track actual vs. estimate materials over time and come up with an average of how far off of their estimates they can be. **They then use that to improve the accuracy of their bids, which leads to a better bottom line, happier owners, and more business.**



4. Daily Report

The daily report is arguably the most important piece in managing a construction site effectively. It's supposed to operate as the constant stream of information and updates flowing from the field to the office, and from there to the owners. It's your first line of defense against delays because it is the best source of information for what's happening in the field.

Daily reports are invaluable if you need to prove the value of the work you've already done. Tyler Guith, General Superintendent of Alta Construction, says "We had a flood, everything needed to be replaced. We created our own Raken job for that specific task, tracked it daily, tracked all the cost, tracked all the manpower, and when the developer came to our client and said 'we're not paying the bill' we clicked, forwarded that information, and the check was cut to our client. There were no questions asked, there was no litigation, all the information was there."

[illegible]

The Problem: They just take too long to complete. David Ingram, Superintendent for Maurice Agrillo General Contractors, writes that...

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 sometimes I'd be done at nine o'clock at night. First, I'm writing it in my journal, then I'm typing it into the program, then I'm typing my own words into the invoice program.

Pen-and-paper methods are inaccurate and take so much time that more often than not the first response is just not to do them, which is where the breakdown in communication comes from. Suddenly the office doesn't know what's happening on site and can't make the decisions they need to in order to make sure everything is moving smoothly. The result? Delays and ballooning costs.

And this isn't even taking into account the fact that on most sites subcontractors are each turning in a different daily report, which superintendents then have to gather in one document at the end of the day and manually input into their system.



The Solution: Ditch the pen-and-paper and the notebook you've been carrying around for 25 years and get a daily reporting app like Raken on your phone. Blair McDonnell, Director of Opus Mechanical, has been using Raken for daily reports on his sites and reports that

“

Raken reporting is so well organized, and with the pictures it includes along with the reports, it elevates our company to a better level over our competitors that aren't using it.

”

And the best part is that by switching your daily reporting to an app you can save time. David Ingram, that same Superintendent who was spending three hours a day just doing his dailies, switched to Raken and says "Raken had everything I wanted in a daily reporting app. I don't have to spend more than ten minutes at my laptop looking through the pictures in Raken to know what's happening on site, not the multiple hours I was doing before."

John Albert of Unified Building Group says "We work in 24 states and we've found a lot of value out of Raken in working remotely. Our subcontractors have a commitment that if they want to get paid, they have to log in and utilize Raken 100%." Albert and his team simply invite each subcontractor to Raken, where they fill out their daily reports on their own. They add worklogs, hours, cost codes, photos, and progress in their own Raken daily reports which they then sign and send with a tap. The superintendent gets all of their daily reports filed into an overall Super Daily automatically, saving him hours chasing subs around the site asking for their reports. The superintendent looks over the Super Daily in minutes, adds his signature, and the whole thing is sent off to the office.

Carlsbad Mall


5600 Avenida Encinas Carlsbad, California 92008

CONSTRUX, INC.

Date Tue 02/01/2018

Job # 4

Prepared By Nathan Snow



Weather

8:00 AM

56°

Clear

Wind: 5 MPH | Precipitation: 0" | Humidity: 88%

2:00 PM

69°

Clear

Wind: 4 MPH | Precipitation: 0" | Humidity: 58%

8:00 PM

59°

Clear


Wind: 3 MPH | Precipitation: 0"

Work Logs

Name	Description	Quantity
American Mechanical	Laid 100 feet of electrical infrastructure and connected the first four floors to the MES. <small>Nathan Snow 01/02/18 02:43PM</small>	4
Bradley Concrete	Poured foundational concrete on northwest corner and reinforced. Excavated an additional 20ft. to connect power and sewage. <small>Nathan Snow 02/02/18 01:44AM</small>	6
Total		10

Site Safety Observations

1. We need more safety fencing on the southeast corner next to the rebar.
Nathan Snow | 02/01/18 | 02:43PM



The Value: Switching your daily reports to a mobile solution saves your superintendents time, increases jobsite visibility, and protects your firm against possible future litigation by providing a detailed record of jobsite activities.

TRY IT OUT

PREVIEW


Avalon Hillside Villas

2033 San Ego Ave. Carlsbad by the Sea, CA 92007

Date Wed 10/05/2016

Job # 12345

Prepared By Fern Hansen



Weather

8:00 AM 67° Clear

12:00 PM 70° Clear

4:00 PM 71° Clear

Work Logs

Name	Description	Quantity	Hours	Hours To Date
as C&I	Continued to lay roof pavers to the roof and roofing of the penthouse. <small>Continued</small>	6	7.75	46.5
Carpenters	Cutting, joining, and installing of structural elements on 7th floor. <small>Continued</small>	4	4.25	17.0
JR	Placed starter walls at the dining terrace elevator deck and "S" shaped exterior wall footing. Continued general cleanup and haul off of materials. Continued to form ball up curbs at doors, thresholds and electrical sleeves. <small>Continued</small>	12	8.0	96.0
Rodney Dangeloff	As he did today was walk around the job site saying "I don't get no respect!" <small>Continued</small>	1	2.5	2.5
SSP	Installed P traps and grates at second sink on grade deck. Continued installing floor drains at the penthouse and 13th floor. Continued installation of restroom waste and vents. <small>Continued</small>	9	3.25	29.25
TFB	Shelorette continued at B line wall. Also continued building tables and forming LLI. <small>Continued</small>	18	8.0	164.0

QUICK SIGN

SIGN REPORT



Modernize your Management

If you look at Boston today you can hardly believe that it was the site of one of the most bungled construction jobs in history. Traffic in downtown flows smoothly (though not so smoothly in other parts of town), the Bunker Hill Bridge is a beautiful backdrop for the historic city while the Rose Fitzgerald Kennedy Greenway thrives with parks, farmers markets, and kids playing on a carousel.

And yet many in Boston still clearly remember the embarrassment the Big Dig represents for their town, it's an ugly and deadly part of the city's history, and as we've seen so much of it could have been avoided with the right management style and workflows.

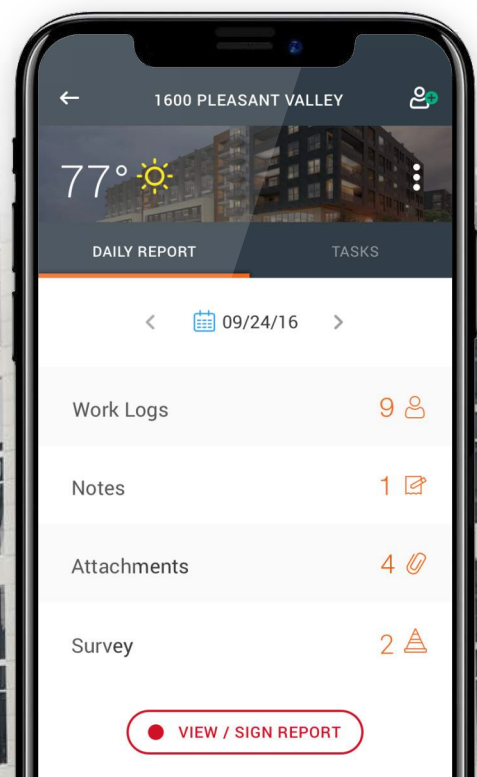
Not every one of these workflows is going to fit into every situation. However, every GC or subcontractor in the field today can and should be using most of them.

In an industry that thrives on experienced workers many of these workflows and tips for managing a jobsite might seem like common knowledge. Of course, time cards, daily reports, material tracking, and toolbox talks are important.

However, construction is also an industry that has been historically slow to adopt changes and new technologies, preferring instead to rely on time-tested methods such as pen-and-paper. What we've hopefully shown through talking with these GCs and subcontractors is that there is a better, faster way to manage your jobsites through technology such as a daily reporting app, cloud storage, mobile time cards, or digital toolbox talks.

While some enterprise or all-in-one legacy systems can be difficult to figure out the good news is that there are plenty of solutions currently on the market that were made specifically for the field worker- they are easy to use, fast, and require no additional training for even the most technologically challenged.

There's a better, faster way to manage your job sites: streamline workflows.



John Albert of Unified Building Group tells the story of a gym they were constructing. The Superintendent was notorious for poor communication: low daily report compliance, missing time card information, the entire spectrum of missing data that can quickly pile up into a mismanaged site that goes over time and over budget. Albert introduced the superintendent to an app specifically designed for the field and was amazed at the result. "He easily adopted it," Albert says, "and if he can use it, I'm hooked."

Rich DeLacey, a Superintendent with Hensel-Phelps, was working with an older generation of superintendents and he was nervous to give them a new app to try. However, he chose an app that had been designed for the field and should be easy to use. "I mean they like it, it's very intuitive, it's not very time-consuming," he notes, "they like the fact that they can take pictures, and it puts out a good report for them, that they can show their management, of what they're doing. It's working out."

So if you really want to modernize your management and create a streamlined construction site we've got one big recommendation for you: get technology that was designed with the field in mind. The rest will fall into place.

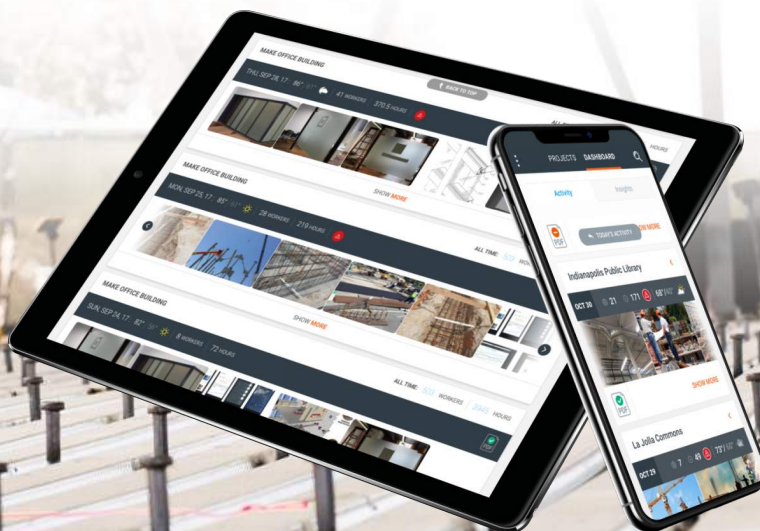
Good construction management begins with proper documentation, and it doesn't have to be a burden on superintendents. DJ Mason, General Superintendent at Tri-State General Contractors, says that when they started streamlining workflows with mobile, field-first tools they saw an immediate improvement in their employee's quality of life.

“

We gave it to one of our IT challenged superintendents, and within 5 minutes he was excited about his day again. He felt like he was going to be able to have a tool to make him look more professional, increase his ability to communicate well at the end of the day, and not take as much time for him to do that. He was rejuvenated about his day, and it was pretty cool to see.

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TRY IT OUT





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