

A Practical Guide for Managing Construction Closeout Documentation

Organizing and Accessing Building Information
During and After Project Close



Introduction

Whether you're the facility manager for a university campus founded in the 1700s or a mid-century community hospital, you are probably painfully aware of the historical and current building documentation that's in your plan room. With every renovation and retrofit there is further accumulation of building documentation making the situation even more untenable.

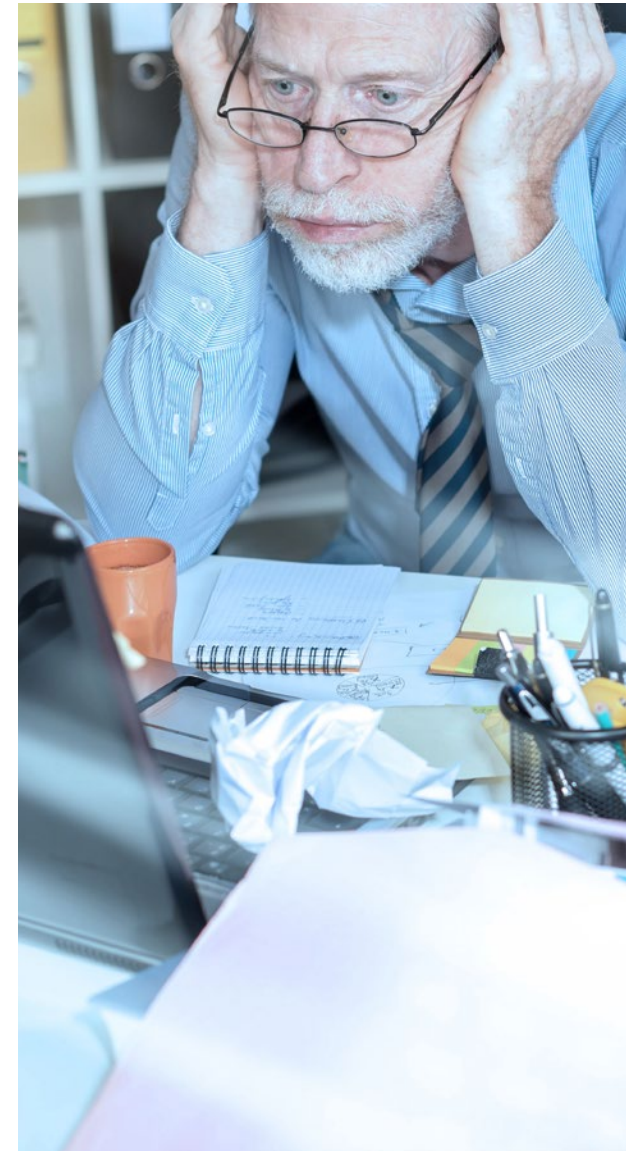
Facilities teams have been at the mercy of general contractors (GCs) and sub-contractors to provide them with complete and accurate closeout documents at the end of projects. This dilemma can be prevented by having a system to track all project documents from the time the construction documents are issued and during every stage of the project.

The goal? To incorporate the closeouts into the main facility drawings when the project is completed and provide **a single source of truth for all construction information** during the life of a renovation project.



Unfortunately, construction closeouts are delivered to facility managers in a confusing array of paper and electronic formats, including 3-ring binders, BIM models and USB drives. Incorporating all this additional information into the main body of building information is a constant challenge. The lack of a standard format is a headache which creates barriers to efficient facilities management when technicians must search through multiple formats of building information.

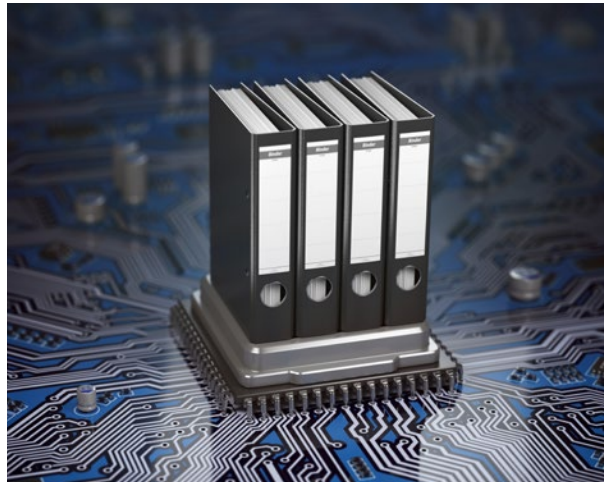
What makes the situation potentially dangerous is not knowing the locations of gas or water shut-off valves for emergencies – especially when you're constantly on the go.



Building Documentation: What's in Your Bucket?

Facilities have an urgent need for law and order in their document storage rooms which are bursting with current building information, historical building information and ongoing construction information along with maintenance and equipment info. Organizing building information in a way they can be accessed easily for specific needs improves the efficiency of everyone connected to the facilities space.

“Having access to those plans is vital to building operations and future renovations. At home, we don't really worry too much about having old remodeling plans, but in a hospital where we are going to knock down a wall next week, it is critical to know ahead of time that there is a water pipe running through the wall now, that wasn't there when the building was built,” said David Trask, ARC Facilities. “Otherwise, if a leak is found, it could cause severe damage, change orders and construction delays.”



“I see technology as a very important part of what we do,” said Rich Steiger, Facilities Manager, Orange County Government. “It helps us to do things better and faster. We use technology to show all the things we maintain. Just click on a set of files and go to the drawing you need.”

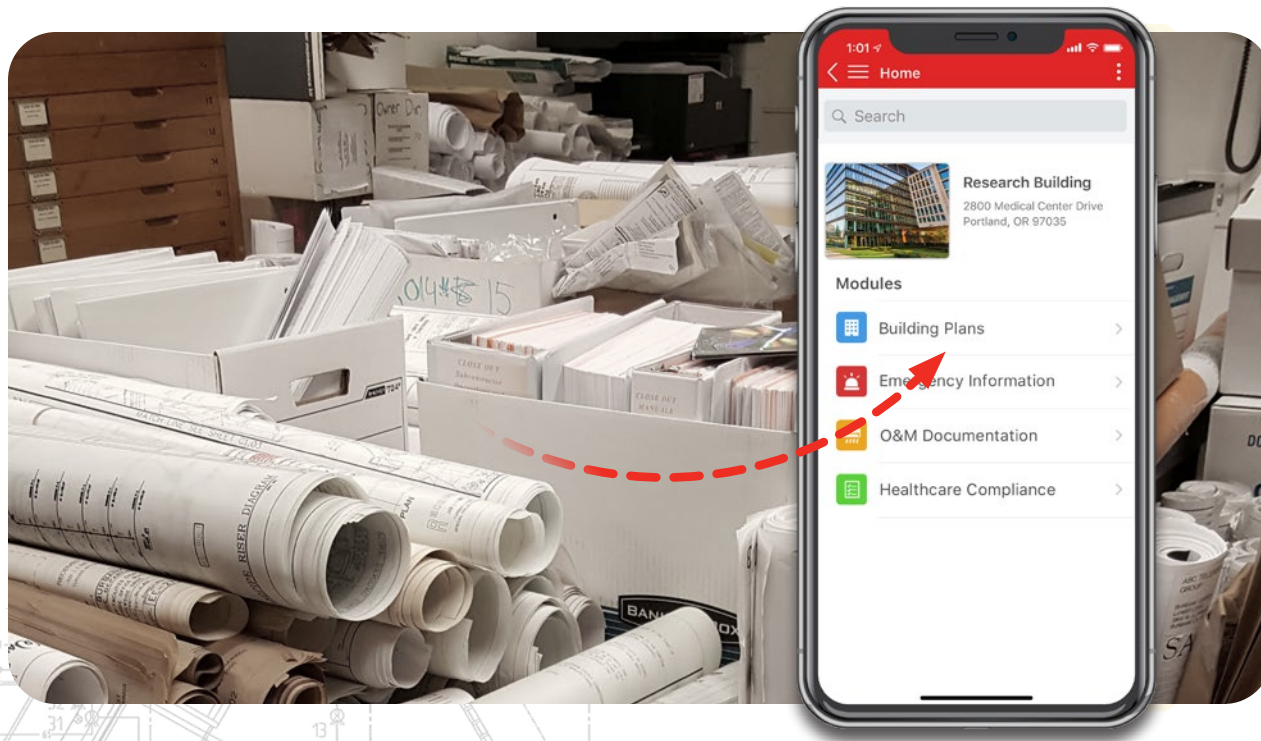
There's Never Been a System... Until Now

In the world of construction, there is no standardized system for delivering building information from architects to contractors to facility managers. Everyone seems to do their own thing, but because facility managers are ultimately responsible for the safety of their buildings, having inaccurate information could prove to be deadly and costly. Ensuring the successful handoff of a construction project closeout package is extremely important to facilities teams.

There's no excuse for it to take 7 months or longer to receive closeout packages which might be a mix of paper, CDs and thumb drives all dumped into a box, but this is reality for facility managers who oversee aging buildings.

It's Time to Get Out of the Depths of the Document Storage Room

Imagine if you had to spend about a third of your working hours doing necessary, but unproductive work. Well, that's what many facility teams face on a regular basis, when they spend hours searching for documents that must be carefully read. Meanwhile, their work out in the field still needs to be done. It's a frustrating scenario.



Finding precise, pristine paperwork is practically impossible. Paper fades and disintegrates. So even if you find the closeouts from 1975, they may be dog-eared, coffee-stained, illegible, torn or damaged. Digital documents, when found on hard drives or servers are equally difficult to locate and decipher.

In some cases, several different groups of people are looking for different types of documents, too. The difficulty of managing social distancing in chaotic and potentially crowded storage rooms, coupled with excessive paper handling does not make sense in the post-pandemic workplace.

The inefficiency of burdening highly skilled technicians with mind-numbing searches in document storage rooms needs to be addressed.

The solution begins with a mobile device.

Think of it like this - your own personal device on which you can access information - no masks, no social distancing and no risk of any infections!

Tools to Simplify Your Life with a Single Source of Truth

Essentially, facility teams operate in the dark until they receive these documents. If they make any modifications to equipment or the building itself, it's impossible to record those updates without the closeout drawings in hand.

Traditionally, in every facility, building plans and information of all types are stored together causing it to be disorganized and sometimes in complete disarray. Often drawings get misplaced or misfiled causing more chaos when drawings are required for an emergency or routine maintenance. This is further exacerbated when new documents from expansions or upgrades are added.

What is needed is an intuitive, easy to navigate resource for instantly finding information across the entire enterprise.

How Maintaining Current Building Plans Can Go Off the Rails

Here are the challenges that arise with building documentation during different stages and types of construction projects, and once the building is in operation:

Design – Before construction begins it's not uncommon for there to be several requests for design changes among the construction documents.

Build – When construction is in process, revisions may be made in the form of change orders which cause delays. All these changes need to be documented.

New Buildings – Building operations can't wait for delivery of the closeout package. Building operations start immediately, and sometimes the next renovation project begins before the closeout package from the last one has been received. Given that 90 percent of project closeouts are still paper-based and contractors often don't start compiling them until the project is at its end, it often takes 6 - 12 months from the time a project is completed for a general contractor to complete the closeout package.

Existing Older Buildings – Current building plans are essential when renovations or building improvements are being planned. Often, team members with the longest tenure know which drawings are the most current. What if they are on vacation or worse yet, retired?



Missing Building Plans Lead to Other Facilities Management Misses

There are several ways missing building plans can impact facilities teams:

- Productivity and customer service suffer when facilities technicians can't find the building plans they need to complete work orders.
- Retiring workers often leave before their institutional knowledge can be captured and documented for future reference. Onboarding becomes costly when new hires must shadow other workers to learn building information.
- Preventive maintenance tasks get missed which results in expensive repairs and overtime – up to 50 hours per month per team.
- Accidents can become catastrophes when critical information about shut-offs or equipment operation isn't available quickly, or worse isn't documented at all.

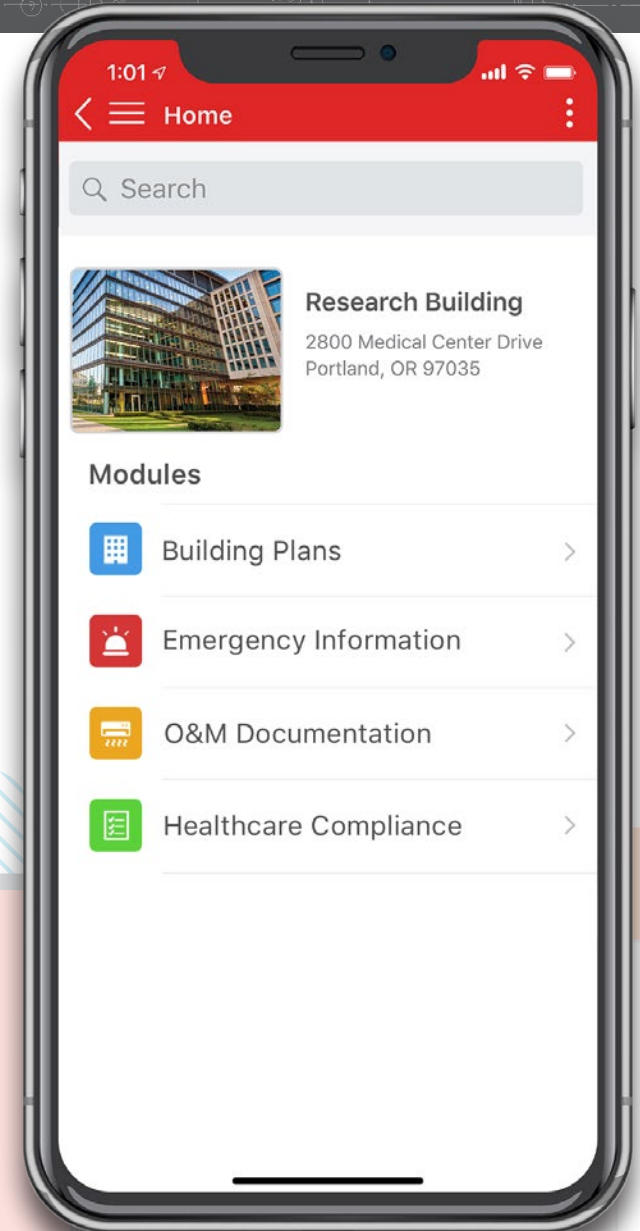


Instant Access to Current Building Information is Essential for Making Better Business Decisions

Whether the current state of a building is brand new or 20 years old with multiple renovations, having instant access to the most current building information is essential.

Up to now, no one has figured out a way to extract building intelligence from decades-old architectural, engineering and construction plans and drawings. But, ARC Facilities has done just that and now facilities teams are in command of the extensive documentation generated throughout their buildings' lifecycles which benefits both facility technicians and building engineers.

With advances in artificial intelligence, machine learning and optical character recognition (OCR), it is now possible to scan, digitize and organize thousands of pages of documentation and various electronic data formats, including thumb drives and CDs.



The Last Word in Active Construction Document Management



We live in a world where the accumulation of both electronic information and paper is overwhelming. It's relatively easy to delete a bunch of emails or recycle paperwork that are no longer relevant when you're on your own time, but where time and best business practices intersect, like on renovations and retrofits, managing active construction project information takes on a life of its own.

Up to now every facility's building information is literally trapped in paper. In cases where information has been digitized, it is now contained in a digital file and sitting in a folder someplace. The key is to extract building intelligence from any file format whether it is in paper or as a digital file and then deliver that information in a form that is easy to consume by the facilities professionals on the front lines. The best way to accomplish that goal is to deliver critical information wherever and whenever it is needed, from the roof top to the boiler room via mobile devices.

The ability to extract intelligence from both current and decades-old architectural, engineering construction plans and drawings has enormous benefits for facilities teams, including eliminating guesswork, maximizing time management and taking ownership of information that will be important to share for future generations of builders and facility teams.

ARC Facilities will oversee, scan and organize active construction information used for renovations and retrofits and seamlessly incorporate closeouts into building plans. Additional information can be added monthly. So, when you're ready to master massive building plan details via your mobile device, we're ready to help.

