PlanGrid

Building with Care:

5 Strategies to Skyrocket Productivity in Healthcare Construction

How to Mitigate the Complexities of Healthcare Projects

What's Inside?

Introduction

Healthcare construction projects represent a significant market potential for both contractors and owners alike. The sector has been steadily expanding year over year, with an anticipated 3.5% growth in 2018.[1]

But healthcare is changing. A trend in recent years involves large, household names decentralizing their services. While the industry remains vertically integrated, facilities are no longer in one just location–and one form. Beyond just ambulatory hospitals, the growth of medical facilities is shifting towards specialized clinics, microhospitals, cutting-edge laboratories and more, all to better address both the advancements in the field and patients' needs. As providers take a patient-focused approach to the care they provide, trends in construction are following a parallel path.

As healthcare evolves, owners and contractors will need to navigate both the existing and emerging hurdles of facility design and construction. In this ebook, we'll focus on how trends in healthcare are impacting construction and how builders and owners can overcome major challenges to:

- Improve productivity of construction
- Enhance efficiency of designs
- Reduce overall construction costs
- Maintain quality of construction
- Provide a complete turnover package
- Lower facility and operation costs in the long-term

How Healthcare's Patient-Focused Approach Affects Construction

Patient-focused healthcare means providers prioritize outcomes and experiences over volume. As a result, healthcare organizations are investing in ways to be closer to patients and diversifying the types of services they provide. In recent years, this includes a surge in building outpatient care centers. According to Patrick Duke, Managing Director of KLMK Group, "In the early 1990s, outpatient care accounted for only 10-15% of hospital revenue; today, it's closer to 60%."

Even where healthcare facilities are setting up shop is evolving. As mentioned, hospitals are no longer the central "hub" of care and networks are increasingly less anchored to one location. For instance, healthcare companies are making key investments in real estate that has traditionally been designated for retail. In fact, global commercial real estate powerhouse, JLL, reports that in some locations, 40% of new retail real estate transactions are for medical facilities compared with 2% a decade ago.[2]

As healthcare continues to evolve, construction will need to meet the increasing complexities of the patient-centric approach. To better address patient needs, many networks are relying on evidence-based design or designs that are researched to understand how they impact patient outcomes and experiences. The design-led construction approach means teams need to be in constant communication and owners require full visibility into project progress at every phase of building. Thus, project delivery methods in healthcare projects have been favoring design-build and integrated facility design to ensure patient-led designs are implemented at a more rapid rate.

As healthcare systems change and the population ages, communities, companies and individual patients all rely on the expansion of facilities to adequately provide care. To address both the changing needs of patients and challenges of the construction landscape, builders will need the right tools in their arsenal. Therefore, the responsibility falls on project teams to aid delivery by adopting innovative workflows and technology.

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Top Challenges for Today's Healthcare Construction Projects

To compete for patients, networks are racing to build the latest and greatest facilities across communities. Beyond new build facilities, the industry's expansion into retail and other spaces requires existing spaces to be repurposed and extensively renovated. Existing medical facilities also are in a constant state of renovation. A "modern" hospital five years ago, could need a complete design reconfiguration to accommodate new technology from advancements in the field.

Even beyond basic construction needs, healthcare projects are significantly more complex than other projects. There's an exhaustive list of elements and variables to consider when building a medical facility.

To manage both facility needs and the regulations of healthcare projects, construction companies are consistently aiming to control quality, performance and cost.

A Balancing Act: Maintaining Quality, Performance and Cost

Quality

Healthcare is a highly regulated industry, and this means more regulations and design standards that need to be carefully evaluated and tested throughout design and construction. If contractors fail to deliver quality work, healthcare companies open themselves up to liability and patients could suffer.

Likewise, inspections of medical facilities are more rigorous compared to other construction sectors. For contractors, this means that there is more scrutiny over the quality of their work and little tolerance for error. Every medical facility needs to meet a different level of standards, cleanliness and code. Even the location of the facility means a whole new set of regulations, with the potential impact of thousands of varying federal, state and local codes. Both owners and contractors need to constantly stay abreast of changing regulations that impact construction.

Failure of inspection or not meeting code could mean substantial delays, increased costs and, alas, unhappy owners. Missing a scheduled opening for a facility by a day, a week or a month could have a significant impact on both the patients who need these services but also the profit businesses that provide the same services. Therefore, a regular system of checks and balances is necessary throughout design and construction for quality assurance.

Performance

Healthcare is a highly competitive industry, and medicine continues to develop at a rapid rate. For owners, both location and speed-to-market are vital to staying relevant and profitable. As an example, momentum in telehealth can potentially render a dedicated diabetes clinic practically obsolete overnight. This places pressure on contractors to step up to deliver facilities quickly, as well as to build with the intention that reconstruction might be needed shortly down the road.

Adding to the challenges of quick speed-to-market builds and renovations is the complicated design feedback loop. Owners need to balance both the needs of its patients with the various facility stakeholders involved. Ninety-five percent[3] of facilities report that both clinical and nonclinical staff are included in the design process, even before breaking ground. If not managed and streamlined correctly with technology, communications can be severely disjointed and cause crippling overruns.

Cost

The bulk of healthcare facility costs primarily stem from long-term building management. Healthcare owners are responsible for the brunt of these costs as they are more likely both owning and operating facilities vs. in commercial construction where developments usually build and handoff.

Generally, operating margins of hospitals are low–2-3% is considered an industry average.[4] However, many hospitals end up losing money. With such low margins, owners need to manage the operation costs of their centers effectively. But on average, 30% of initial data created during design and construction is lost by closeout.[5] The data drop-off makes it difficult to manage costs efficiently in the long-term without a complete view of facility history.

Furthermore, healthcare structures are often in a constant state of upgrade or renovation. As advancements are made, and new technology emerges, facilities need to adapt and evolve. This challenge increases facility costs over time. To minimize long-term redesign costs, initial facility designs should have flexibility in utilization so that when changes materialize the cost burden is minimal.

On the whole, the large bulk of healthcare costs can be attributed to labor–on average, staff wages and benefits contribute to 60-70% of total costs.[6] To balance labor costs, facilities need to be designed for optimal efficiency of staff. Designs should be carefully evaluated and optimized with staff productivity in mind as it has the potential to make a major impact on the bottom line.

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5 Productivity Strategies for Healthcare Construction

Because there are countless moving parts involved in building or renovating a healthcare facility, it's challenging to identify the areas that can be improved for maximum impact. To overcome the hurdles of building in the sector and provide the most ROI, it requires an improvement in construction productivity. This means streamlining communications, standardizing workflows and refining processes with the help of technology.

Here are five strategies project teams can implement to start improving healthcare construction productivity to balance quality, performance and costs.

Adopt the Right Technology

The healthcare industry is already using the latest and greatest technologies in its facilities–it's time the field catches up. Most importantly, it's critical that the entire project team–from project manager to foreman–can seamlessly collaborate from anywhere. Adopt a platform that's easy and reliable enough to use for all on your team–from industry veterans to jobsite newcomers–for quicker project delivery.

Ensuring quality of projects is a field-centric process. Since the bulk of data during construction comes from the field, workers need to access and markup project documents at a moments notice. With the right software in the hands of field workers, quality can be monitored and executed at every step of the job.

Go Lean

Lean construction is gaining popularity in the healthcare sector. The practice focuses on decreasing waste and increasing efficiency whenever possible, making it an ideal method to speed up project delivery. Eliminating unnecessary waste in construction and operations increases staff efficiency as well as safety. For owners, this means more measurable outcomes and even risk sharing in the design and construction process.

Lean also complements other construction methods well-suited for healthcare projects. For instance, integrated project delivery (IPD) is highly collaborative. When used in tandem with Lean construction principles, waste and inefficiencies are drastically reduced, and project teams are better aligned.

Finally, modular construction is one method Lean enthusiasts are adopting. Going modular poses major opportunities for healthcare construction primarily because it comes with a more flexible approach to construct facilities. For instance, consider a cancer treatment facility which typically has a 3-5 year business plan. As it does not line up with the typical 30-50 year building lifecycle, modular construction could be effective when the treatment center needs to be redesigned shortly down the road.

Utilize Visualization Technology

Considering the amount of design feedback needed to build your average medical facility, the more accurate visualization can be, the better. In all construction projects, incomplete and uncoordinated design documents almost always lead to change orders and rework. Therefore, visualization through applications like BIM provides a more complete view of project designs and needed changes.

One added benefit of data visualization for healthcare projects is the ability to maximize space and efficiency. Especially, in the remodeling space, visualization technology allows design teams to reconfigure complex spaces like operating rooms. Nonetheless, visualization tech is still relatively untapped in the healthcare sector. Currently, only 17% of hospitals use simulation software.[7]

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Improve Data Collection in Design & Construction

After construction ends, the real work for owners in the healthcare space begins. Just to break even, facilities have to be meticulously managed. The more information that owners have about the project's history, the more empowered they are to make changes that minimize operating costs. Nevertheless, many owners are provided with insufficient data in their turnover package to make informed decisions. It's estimated that $15.8 billion is lost annually due to inadequate interoperability in the capital facilities segment.[8] $10.8 billion of that costs falls to owners just to catch up, recover and replicate the bad data they are left.

When given a full set of design and construction data, owners can make better decisions about their facilities management. With a more accurate picture of the project's entire history and background, owners can address issues more effectively and reduce operations costs in the long-term. Construction teams that use technology that helps them capture a complete set of data from the design, construction and closeout phases will improve the turnover package they provide. This means more satisfied owners and repeat business for contractors.

Standardize Workflows

Quality is one of the critical pillars of successful healthcare construction. To help ensure optimal quality is met, setting standards is essential. Already, many healthcare facilities are already standardizing hospital designs like telehealth centers and operating rooms. Currently, around 65% of hospitals are adopting construction standardization throughout their facilities.[9] Modular construction is one method to achieve design standardization as a huge cost-saver. As an example, standardizing operating room layout and equipment can boost efficiency, allowing surgical staff to streamline procedures.

With the right software, project workflows, templates and processes can also be standardized to improve quality control of construction. By ensuring field workers know exactly how to execute on a project, each step of the way, there's less concern from project managers and owners about meeting codes and passing inspections. Project-wide standardizations also help to keep workers as efficient as possible as little room if left for critical steps to fall by the wayside.

4 Technologies that Will Improve Quality of Healthcare Construction

BIM and VR

BIM paired with virtual reality (VR) technology are powerful tools to enhance data visualization. With these innovations, construction teams can simulate and consider facility design and operational variables, such as patient flow and physician and staff workflow for ultimate efficiency. For contractors that need to coordinate with end-user groups to solidify the layout, VR can provide an immersive element that 2D designs lack. Nurses, pharmacists and other staff members can "walk-through" designs, before they're built, to understand how the layout impacts their efficiency. In turn, users can give meaningful feedback on how they will actually utilize the space as well as if there are better alternatives.

Implementing BIM on healthcare projects is also useful in maximizing space in a redesign environment. Finally, utilizing the tech on projects ensures more data is collected through each phase of construction.

Integrated Data Management and Business Intelligence Systems

Access to the right data on healthcare projects is critical to its success–during and after construction. To make the most out of the data that's collected on projects, builders in the healthcare sector should look to adopt data management systems. With the right implementation, these can be integrated into their business intelligence systems that collect, integrate and analyze critical company data. This integrated and deeper dive into data can be used in every phase of construction; from maximizing space and efficiency of designs to providing evidence to make informed decisions about how to reconfigure space when a remodel is eventually needed. Integrated data with design software will allow owners and builders to make better choices in construction that will impact overall facility costs in the long-run.

Collaboration Software

With the need for speed-to-market builds, healthcare construction teams cannot afford to rely on disjointed communication processes. Therefore, it's necessary to centralize communications. Collaboration software will ensure the whole project team stays on the same page and can follow project standards. The right software allows whole teams to easily collect information, manage issues and deliver on tasks as one cohesive team. It not only keeps contractors and subs on track but gives owners full project visibility.

Field Inspection Software

Field inspections can be a stressful part of the job for those building in the healthcare segment. Nonetheless, field inspection software allows for better oversight of quality, directly from the field. In addition to ensuring codes and standards are met, field inspection software streamlines punchlists for more efficient project closeout. Since software can capture an electronic record of all field activities, owners will have a complete set of data at closeout.

Case Study: How DPR Increased Productivity to Reduce Project Costs

In 2012, DPR Construction began working on a new, 100,000 square foot hospital tower replacement for San Francisco's Chinese Hospital. The new building contains four operating rooms, numerous floors of patient rooms, and diagnostic imaging spaces. As an alternative to San Francisco General Hospital, the non-profit Chinese Hospital primarily serves the surrounding immigrant community. Therefore, it was important to the team to meet project milestones and deliver the project on schedule as well as below budget.

Due to dispersed project teams, it initially looked like a challenge to communicate and distribute all the project documents such as drawings, submittals, markups, photos, issues, and RFIs and more. As foreman and others in the field encountered issues, they needed a fast way to document and share details to find a resolution. Furthermore, as a California hospital, the project fell under the jurisdiction of OSHPD, which requires a hard copy set of drawings be kept on site for the duration of the project for easy access by the OSHPD field staff and inspector(s) of record.

Keeping a paper set on site is cumbersome, takes up space, and requires countless hours of effort to maintain. With these challenges in mind, the DPR team chose PlanGrid as the solution to digitize, maintain and distribute information across multiple parties and locations. Subcontractors, vendors and Office of Statewide Health Planning and Development (OSHPD) could receive the same information as quickly as DPR received it from the client and design team.

Because PlanGrid allowed for quick sheet uploading and an almost immediate distribution of documents through tablets, the team recognized the benefits of using PlanGrid immediately. In addition to drawing, specification, and RFI management, the team used PlanGrid to document issues in the field. This helped to streamline communication between the office and field, especially with a drawing, photograph and location as a reference.

By using PlanGrid to communicate and share information with different teams efficiently, DPR drove considerable cost savings for the project. The Chinese Hospital project involved about 350 change orders and 140 bulletins. DPR estimated that PlanGrid saved them two hours per change order, which added up to 1,000 total hours saved during the project on change orders alone. PlanGrid allowed DPR to dedicate more time to productive work, instead of wasting time chasing down information.

References

[1] AIA Releases Construction Forecast for Remainder of 2017-18

[2] Despite uncertainty over healthcare reform, healthcare real estate remains an attractive investment

[3] Feedback drives health facility design processes

[4] How the Affordable Care Act Affects Healthcare Construction

[5] Operational Readiness: Bridging the Gap Between Construction and Operations for New Capital Assets

[6] 4 Steps to Overcome Challenges in Healthcare Construction

[7] 9 Takeaways from the HFM Healthcare Construction Survey

[8] Inadequate Interoperability: A Closer Look at the Costs

[9] Health care designers focus on efficiency

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.

Try PlanGrid for Free

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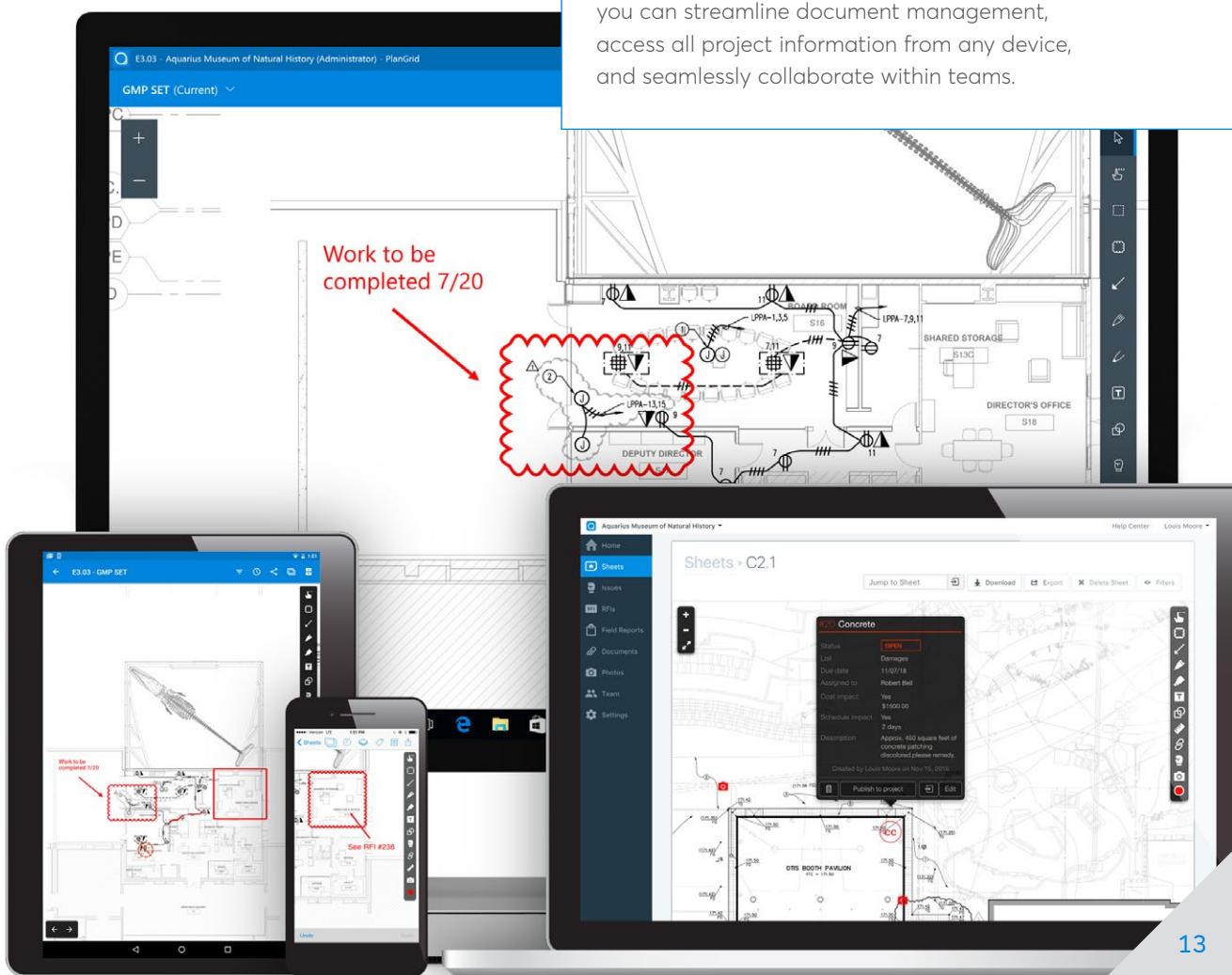
There is a reason why PlanGrid is not only the #1 construction app, but also the highest rated. With PlanGrid construction productivity software, you can streamline document management, access all project information from any device, and seamlessly collaborate within teams.



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Used on more than 1,000,000 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.

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