



2025

The State of Healthcare Construction

ROBINS & MORTON

Building With Purpose

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Introduction

This year marks Robins & Morton's fifth annual State of Healthcare Construction Report, and this edition tackles the most pressing questions affecting healthcare facility construction as we enter the second half of the decade. To develop a comprehensive snapshot of predictions for the coming years, healthcare leaders, builders, and design experts weighed in on topics ranging from revenue generation and sustainability to cybersecurity and personnel recruitment based on their areas of expertise. Several key themes emerged.

First, the current economic environment — high interest rates, staffing and labor shortages, and difficulties securing capital — pose significant challenges for healthcare systems. At the same time, a confluence of unique market conditions is stretching the creativity of commercial contractors. With high construction demand, long lead times, a shrinking workforce, and the increasing frequency of weather conditions, contractors must actively participate in the early stages of project planning to help their healthcare clients meet budget, schedule, and revenue goals.

Second, healthcare systems, architects, and contractors are working to design facilities that balance both patient- and caregiver-focused elements with the economy of cost per square foot. Healthcare systems must also consider that these spaces contribute to all occupants' physical and emotional well-being.

Sustainable materials and practices continue to gain steam; however, articulating their concrete returns has become increasingly complicated. While sustainable building practices have traditionally reduced operational costs, outcomes from emerging regulations and other wellness-focused features are more difficult to quantify.

Lastly, while new technology enhances efficiency, increases patient comfort, and decreases staff burnout, it presents unique hurdles for healthcare systems. Connecting with patients has never been more convenient, but safeguarding their data has never been more difficult.

Despite these challenges, opportunities abound for the healthcare construction industry. The need for healthcare services remains urgent as the number of patients continues to trend upward, particularly in regions seeing rapid population increases.

Meeting the growing need for healthcare requires a balanced, collaborative approach to construction. To address each challenge, strategies emerge for improving operational efficiency — and result in better patient outcomes, a healthier workforce, and a better bottom line.

01

Economic Drivers

What challenges are healthcare systems facing when securing capital and making financial decisions for construction projects?



Westover Hills Baptist Hospital
San Antonio, Texas

Every industry is subject to the principle of supply and demand, and healthcare construction is no exception. As systems strive to balance the costs of today's absolute needs for their facilities with predictions of future needs, the scales can tip based on several considerations.

To better prioritize, strategize, and problem-solve, healthcare leaders weigh both intangible and tangible factors when determining how and when to use their capital construction budgets.



UHealth Doral Medical Center
Doral, Florida

SECURING CAPITAL

Current economic conditions present several key considerations for healthcare facilities attempting to secure capital in 2025. Patrick Duke, the Americas healthcare solutions lead with Turner & Townsend, weighed in, stating that the economic climate will continue encouraging healthcare systems to scrutinize their capital spending more deeply, compelling them to grapple with difficult decisions regarding revenue-versus non-revenue-generating features. He added that many organizations still rely on developing localized, site-specific planning rather than adopting enterprise-level strategies, sometimes making decisions defensively to compete in specific markets.

“To truly optimize resources, organizations need to make hard decisions around change management,” said Duke. “This includes distributing services equitably and cost-effectively across the enterprise, which might mean some specialists or doctors aren’t practicing in their preferred locations. That’s a difficult balance to strike because if providers are dissatisfied — whether they’re employed by the organization or not — they may choose to leave.”



Skolnick Surgical Tower and Emergency
Department at Mount Sinai Medical Center
Miami Beach, Florida



Methodist Hospital
San Antonio, Texas

Although the ability to secure capital for healthcare facility projects may vary based on the size of the healthcare system, the approach to spending is nearly universal. Systems are relying heavily on data-driven decision-making.

“Every healthcare system — no matter its size — is going to have to be very strategic and data-driven when they make decisions,” said Chris Ressler, regional healthcare director and associate principal at Page. Smaller regional hospitals face challenges in updating facilities amid mergers and acquisitions, Ressler explained. Meanwhile, larger systems prioritize strategic growth, shifting high-volume services to offsite locations.

Robins & Morton’s Chief Financial Officer Ben Leaver anticipates that mixed signals about interest rates and inflation may impact capital sources and construction decisions.

“If interest rates drop, demand for contractors could drive up costs, potentially offsetting savings from lower rates,” Leaver said. “Without clarity, companies may need to base decisions on their facility needs rather than wait for market stability.”

PRIVATE EQUITY INVESTMENT AND CONSOLIDATION

Other national trends in healthcare construction include continued private equity investment in specialist groups and an uptick in mergers, acquisitions, and consolidation.

“Private equity will continue to invest in specialist groups across the country, consolidating them into larger organizations,” said Turner & Townsend’s Patrick Duke. “The adoption of technologies, especially artificial intelligence, will play a key role in healthcare operations to reduce costs.”

On a similar note, Page’s Chris Ressler observed that rapid population growth, specifically in the Southeastern United States, has led to both consolidation in healthcare systems and an influx of for-profit and nonprofit providers.

“The construction and architectural industries face challenges in keeping up with this growth as maintaining relationships with hospital stakeholders becomes more difficult,” he said. “Additionally, changes in [Certificate of Need] laws and the entry of new private providers further complicate the situation.”



REVENUE VERSUS NON-REVENUE GENERATING PROJECTS

Another notable challenge for healthcare systems is prioritizing non-revenue-generating projects over those directly contributing to income, explained Bill Hercules, president and CEO of WJH Health. Specifically, he observed that addressing aging infrastructure — such as building new central energy plants, updating HVAC systems, and replacing substations — does not generate revenue, and healthcare facilities often struggle to give them precedence.



North Central Baptist Hospital
San Antonio, Texas

“Reducing costs by streamlining services and maximizing efficiency can make some service lines profitable, though often in tension with patient choice and care quality,” Hercules added. “While leadership teams try to prioritize all projects equally, the top revenue-generating projects usually come out ahead. For example, concierge medicine is currently a popular choice for hospital systems because of its quick [return on investment].”

Mohammad Alai, director of design at AdventHealth, has found that healthcare systems can also have varying focus areas among departments internally, adding to the push and pull of funds.

“Hospital administrations prioritize revenue-generating spaces, while facilities teams focus on durability, creating a natural tension,” Alai said. “Economic factors and circumstances influence those decisions. For instance, if funds are limited and speed to market is critical, lowering quality [finishes] might be acceptable. However, if there’s more flexibility, investing in longer-lasting materials makes sense.”



Health systems also use new or renovated spaces to attract patients in an increasingly crowded marketplace.

The post-COVID “perfect storm” of escalation, high interest rates, and declining reimbursements has ensnared many healthcare real estate deals, compounding pressure on health systems, ESa Principal Sam Burnette explained. Further, these reductions, combined with penalties for poor outcomes, increase financial strain. At the same time, insurers fail to match rising service costs, especially in areas such as staffing, where there’s also a shortage. Burnette stated that together, these challenges make it difficult to justify large-scale projects without a strong business case.

In response to stagnating reimbursements, HKS Vice President and Sustainable Design Leader Sammy Shams said that all systems must adopt a strategic rubric to justify investments in the face of rising costs and inflation. “Lenders prioritize investments that offer resilience, cost-effectiveness, and long-term value,” he explained. “As a result, healthcare facilities need to demonstrate that their projects are functional and designed to minimize repair and maintenance costs over time. While healthcare facilities often do well in showcasing the value of their investments, there is room for improvement in designing projects that further emphasize resilience and efficiency to align with financial expectations.”

Robins & Morton’s Ben Leaver remarked that as entitlement spending and the national deficit grow, potential cuts in federal healthcare funding could impact hospital revenue and investment in new facilities. He also noted that the healthcare industry needs to lean on design and construction teams now more than ever to navigate these financial pressures.



Mayo Clinic Mangurian Building
Jacksonville, Florida

Another key trend in healthcare construction nationwide is the move toward all-electric buildings to reduce energy costs and carbon emissions.

“While all-electric buildings reduce operational carbon by eliminating fossil fuel combustion, [they can sometimes push] clients beyond their desired construction cost limitation,” said Rachael Rome, studio practice leader and mental behavioral health director at HKS. “As the AEC industry now considers the holistic impact of tariffs on imports of steel and aluminum into the U.S., we are already starting to see more consideration and upfront collaboration provided to renegotiate this balance in support of future flexibility. Battery storage and demand response strategies help manage peak loads and reduce reliance on fossil fuel-powered backup generators, but so much is still contingent on the generation of the local utilities.”

Carbon emissions are a complex topic in construction, specifically in healthcare, said HKS’ Sammy Shams. He has also observed the ongoing trend toward reducing carbon emissions. Differentiating between operational carbon — energy consumption and natural gas — and embodied carbon, which is emitted in manufacturing and when installing building materials, better defines the ultimate carbon footprint. However, there are gaps in tracking embodied carbon.

“Currently, environmental priorities focus on materials like flooring, ceilings, and concrete, though there's a growing trend toward better understanding the [total] carbon impact of buildings,” he said. According to Shams, the healthcare construction industry is advancing initiatives such as the Health and Human Services Climate Pledge, emphasizing carbon reduction and resilience. As more clients set these targets, these objectives will require ongoing collaboration to make improvements and achieve reliable metrics.



CASE STUDY PERMIAN BASIN BEHAVIORAL HEALTH CENTER

Healthcare Staffing

Permian Basin Behavioral Health Center in Midland County, Texas, is being built to address a critical issue: citizens are in dire need of mental health support, and there is nowhere to turn.

“We knew from the very beginning that we were creating a behavioral health center that doesn't exist in our region,” said Russell Meyers, president of Permian Basin Behavioral Health Center (PBBHC).

In addition to building an entirely new health center, another challenge loomed: recruiting enough staff. “We were going to have to build a workforce to staff [the center] because these services are not being provided here right now in any meaningful way,” Meyers said.

The country is facing a widespread nursing shortage, and the Health Resources and Services Administration (HRSA) forecasts that the shortage will likely endure until 2037. Behavioral health professionals such as licensed counselors and social workers are even more limited. Permian Basin Behavioral Health Center's leadership observed that the ongoing shortages and the health center's remote location would make staffing especially difficult, so Meyers and his team devised an innovative solution: focus on investing in and recruiting locals rather than looking outside the area.



Permian Basin Behavioral Health Center
Midland, Texas

“If we were not prepared to grow our own workforce, then we would fail. We knew we would [need to] develop a workforce from people who have roots in west Texas,” said Meyers. Aside from drawing on the local population for staff, Meyers and the Permian Basin Behavioral Health Center leadership also had to consider how to equip prospective employees with the education and requirements needed to work at the health center. Thus, they realized they would have to work with educational institutions to create new programs.

However, there was concern that the costs of education would be a significant barrier for residents. Local foundations and area businesses collaborated to provide scholarships and support to ensure the local population could afford these new educational programs.



“Local young people needed a career path, and we'd have to develop that career path,” said Meyers. “We need to make it attractive to them, and part of that is funding the education.” The result dramatically benefits the community.

The Permian Basin Health Center's projected opening is in 2026 — nearly five years after the state legislature first approved its funding. However, Meyers remarked that the center would not function without the efforts to recruit its local population. “We have a strong commitment to staffing this facility correctly,” said Meyers. “If that means there are services we have to phase or delay because of a lack of staffing, then we would rather do that. What we do, we want to do right. And if we can't do it right, we wait until we can. That's been our guiding philosophy.”



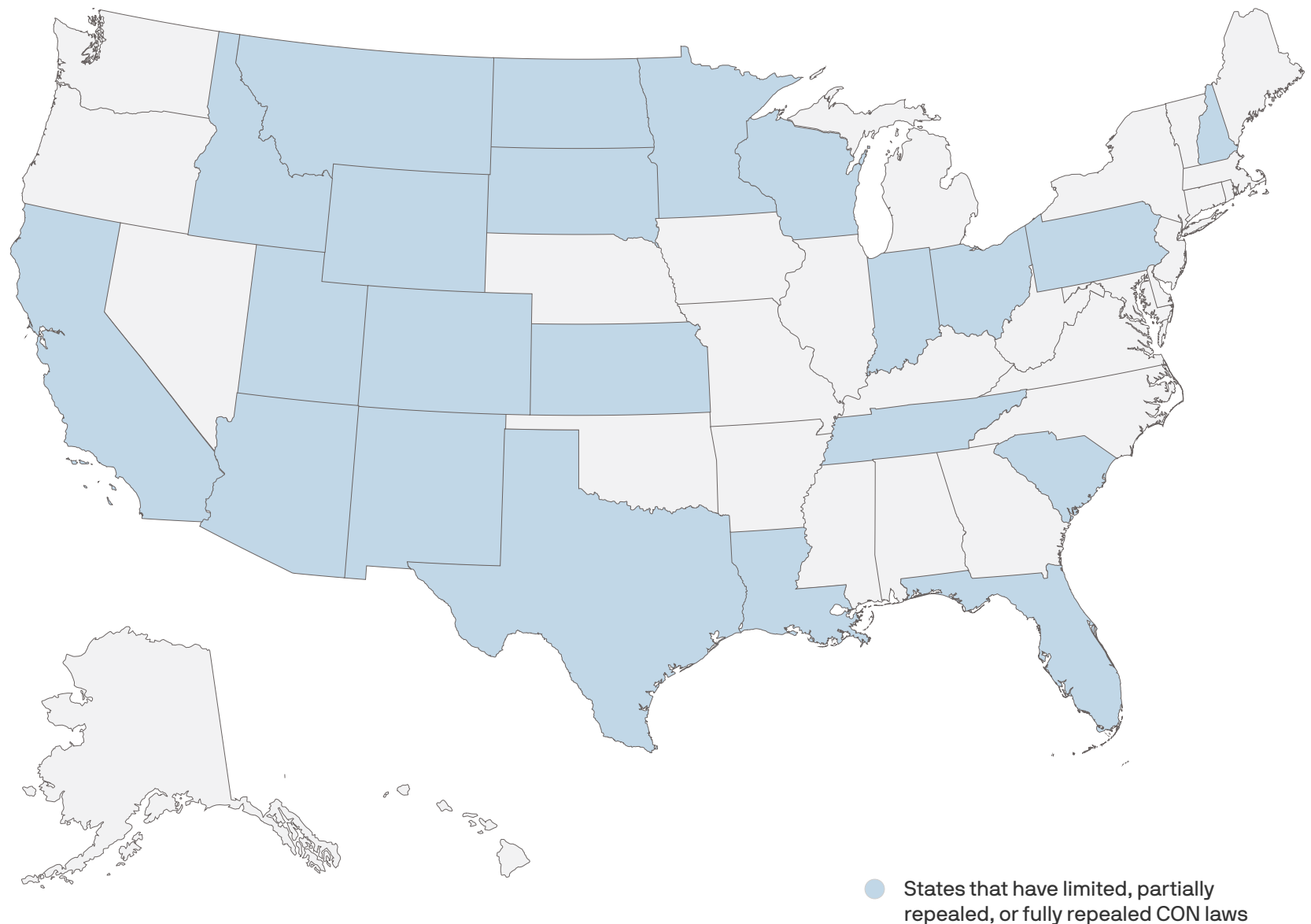
Steve Culler
Low Voltage Resource Director at Robins & Morton

Certificate Of Need Reform Influences Service Booms

When asked about building type trends in requests for proposals over the last five years, Robins & Morton Low Voltage Resource Director Steve Culler noted the surge in the number of freestanding emergency departments (EDs) in Florida.

To call it a surge isn't an exaggeration, and the distinct increase is mainly due to the state's removal of the Certificate of Need (CON) requirement for hospitals in 2019. "We've been seeing a lot of freestanding EDs, which isn't unique, but it's a trend in Florida," Culler said. "Previously, hospitals had to secure a certificate of need from the state to prove demand before building, but that requirement was removed several years ago. Since then, we've seen freestanding EDs pop up on nearly every corner. Some eventually evolve into full hospitals."

Culler's observation reflects a shift occurring nationwide, particularly in the Southeast. While Florida made significant changes to its CON law related to healthcare five years ago, states such as Georgia, Tennessee, and North Carolina also appear to be loosening restrictions. Other states, such as South Carolina, have nearly completely repealed CON laws. A construction boom seems to follow in each case, with numerous previously restricted facilities rising from available parcels.



Advocates for CON modernization cite increasing access to care, supporting patient choice, and shifting to more free-market healthcare opportunities as positive outcomes of reform. For opponents, reform introduces the possibility of moving away from “right-sized” healthcare resources in their respective states and potentially impacting the availability of government support, which could influence patient cost.

As of 2025, there are 22 states that have limited, partially repealed, or fully repealed CON laws. Last year alone, four states’ legislative sessions addressed law modernization or repeal.

02

Challenges in Sustainable Building

*How should sustainable building practices be approached?
What barriers exist, and how can healthcare systems justify the upfront costs?*



Auburn University Recreation and Wellness Center
Auburn, Alabama



Sustainable building can be a complex endeavor, with healthcare systems having to weigh both philosophical and practical considerations. Namely, leadership must decide how to effectively — and appealingly — balance the long-term benefits with the upfront costs.

HKS Vice President and Sustainable Design Leader Sammy Shams observed that the approach to sustainable building in healthcare facilities is now often focused on resilience rather than green building materials and practices. “It makes more sense to reframe sustainability as a resilience topic, where we're not just improving the environment for social conscience, but designing a safer, healthier future built environment that protects people and investments. In doing so, it becomes more sustainable by safeguarding assets and individuals.”

“Resilience and sustainability are complementary,” Shams continued. “Where sustainability focuses on energy efficiency, resilience ensures the building can maintain operations with redundant energy systems.” He added that incorporating sustainability into a broader strategy for creating safer and healthier environments also encourages greater adoption.

For many systems, one of the most challenging elements of integrating sustainable equipment, materials, and practices is navigating regulatory changes at the federal and state levels. Understanding what is required by code versus what is incentivized is nearly impossible without expert guidance. For Shams, that means intentionally setting aside time to meet with his design counterparts to discuss detailed, highly customized solutions for clients. Ideally, those discussions take place early in the project planning process to avoid reworking key design features that may overlap with the initial stages of construction.



“Through early collaboration, we can analyze and integrate sustainable strategies proactively and avoid the stress of juggling these demands alongside other challenges that will inherently arise later in the project,” added Jackie Mustakas, senior sustainability manager at Robins & Morton.

Shams shared Mustakas’ sentiment and acknowledged that proactively distilling the meaning and potential impacts of new regulations can improve a construction and design team’s ability to adapt, even mid project.

“When new regulations come on board, we must meet them and integrate them into the process and understand their intent,” Shams said. “One key regulation in my area is increasing backup power and materials for central facilities. We design solutions that address the problem and backtrack to find the most feasible solution for the project.”

One of the most significant barriers to adopting sustainability as an intentional strategy is balancing the upfront costs with long-term returns on investment, Robins & Morton Chief Financial Officer Ben Leaver explained.

For example, installing solar panels — a seemingly straightforward initiative — requires healthcare leadership to navigate complexities such as high initial costs, tax incentives, aesthetic considerations, utility approvals, and a potentially lengthy return on investment timeline.

The challenge becomes even more significant when faced with large infrastructure projects. “While we excel at smaller sustainability efforts — such as choosing products with no VOCs or vinyl — larger initiatives like adding solar fields or going off the grid come with high upfront costs,” said Cleveland Clinic’s Director of Construction Gina Casalinova.

However, there is hope for expanding the definition of successful future return on investment (ROI). “I believe hospitals see themselves as part of a community and work for its betterment,” said Leaver. “As the world changes, people may be less worried about the immediate ROI. Hopefully, there’s some momentum behind these types of projects where people will pursue sustainability regardless, and then as the technology evolves, the ROI continues to get better and better.”



Medical University of South Carolina
Shawn Jenkins Children's Hospital and
Pearl Tourville Women's Pavilion
Charleston, South Carolina

According to Bill Hercules, president and CEO of WJH Health, some healthcare organizations, such as Kaiser Permanente and Atrium Health, have prioritized sustainability for years by reducing overall resource use and shifting to renewable energy. However, he observed that opinions on sustainability's impact vary widely among healthcare CEOs. "There are other broader societal behaviors, like the immense energy demand from data storage for social media, which complicate efforts to reduce carbon footprints. For example, Microsoft [is working to] repurpose a nuclear plant to power its data servers. This example truly underscores the paradox in energy use: we generate immense digital waste while striving to cut emissions. Addressing sustainable design in healthcare must go hand in hand with rethinking broader societal habits and energy use priorities."

For sustainability experts like Robins & Morton's Mustakas, life-cycle assessments (LCAs) are key to better understanding a facility's potential energy use throughout its projected lifespan. LCAs provide actionable insights from the choices made at every phase of construction, even before breaking ground. Some of these insights may include the energy cost savings between two types of equipment or the total carbon reduction between different types of concrete.

"Most new and innovative technology comes with a higher price tag, reinforcing the value of reliable life-cycle cost assessments. However, even when these assessments show reduced energy costs or a clear return on investment, this technology may take a backseat to short-term financial priorities," Mustakas added. "Additionally, many sustainable outcomes, like improved air quality, reduced carbon emissions, or enhanced occupant comfort, align with healthcare clients' goals but the benefits are difficult to measure financially. As a result, these features often score lower, in comparison to other easily quantifiable elements of a healthcare project."



AdventHealth Director of Design Mohammad Alai noted that proactively investing in sustainable design not only offsets operational and utility costs but also positions facilities to avoid expensive future upgrades due to regulatory changes.

“While energy-efficient equipment may be more expensive, it generates significant savings over its lifespan. In addition, investing in sustainable features now can help owners get ahead of the curve and avoid future costs associated with evolving building standards,” said Alai. Fortunately, he said, this approach may not be much of a stretch since many hospitals already include sustainable elements in their base designs.

Alai also explained that material selection and systems selection are other ways to accelerate ROI by limiting downtime for repairs and maintenance.

“Sustainability often gets framed as energy efficiency, but it’s much more than that. Sustainability also refers to the use of durable materials. It’s about reduction of repair and maintenance, especially in 24/7 facilities like hospitals, where downtime for repairs isn’t an option,” said Alai.



Additionally, healthcare leaders should ensure that materials and systems align with the building’s functional lifespan.

“For example, patient rooms, which may not need renovations for 20 to 30 years, should avoid materials that either far exceed or fall short of that time frame,” Alai said. “On the other hand, medical office buildings typically require more frequent updates due to their competitive, commercial environments and evolving trends, making shorter-lifespan finishes — perhaps 10 years or so — more appropriate.”

“There are systems with accelerated paybacks worth considering, and some medical office and ambulatory developers have been ahead of the curve for years, committing to high-performance mechanical systems, energy-efficient glazing, and better building envelope systems,” said Sam Burnette, principal at ESa. With the help of design teams and construction managers, healthcare systems can review detailed cost analyses for advanced systems to ensure financially and operationally sound decisions.

Chris Ressler, regional healthcare director at Page, also encourages healthcare systems to look at the best sustainable solutions for a project’s location, considering geographic, environmental, political, and financial factors. “For instance, solar power may offer better payback in states like Florida due to favorable reimbursements, whereas it may be less feasible in other states. There’s also a trend toward microgrids and onsite power, driven by financial viability as much as environmental goals.” Ressler further explained that early planning is essential to integrate these solutions effectively and avoid costly adjustments later in the design or construction process.

“We always try to implement sustainable designs, especially in our healthcare projects, because these are typically serial builders — systems that will own their buildings for a long time. We have a responsibility to give them efficient long-term solutions to the buildings for up to 50 years. However, it’s not one-size-fits-all,” Ressler continued. “We need to work with the clients to understand their environment in terms of both geography and their natural environment — in addition to their political and grant and reimbursement context.”

The most straightforward way to balance upfront costs for sustainable design with long-term ROI is early alignment and collaboration. By setting clear expectations for sustainable outcomes from the start and fostering ongoing communication among the design team, contractors, and key consultants, healthcare systems can ensure that sustainable solutions are built into the project rather than treated as a la carte extras.



Children's Medical Center Dallas
Dallas, Texas

03 Trends in Healthcare Design

What trends in healthcare design will have a lasting impact on patient and staff satisfaction in 2025 and beyond?



When evaluating healthcare design trends, leaders are often tasked with separating the fleeting from the enduring. As a result, they are seeking facility design solutions that help them navigate high-impact business issues. Recently, staff recruitment and retention, along with increased competition for patients, have topped that list.

Report contributors say that thoughtful design can encourage patients to seek care more regularly, promote healing, enhance staff satisfaction, and boost efficiency. By embracing trends rooted in minimizing employee attrition and improving patient outcomes, healthcare leaders can build facilities that become community touchstones.



Mayo Clinic Mangurian Building
Jacksonville, Florida

CONVENIENCE

For nearly a decade, the term “convenience culture” has been on the rise alongside ever-increasing streaming, shopping, and delivery service options. From boardrooms to living rooms, convenience influences nearly every daily decision.

As a result, it isn't surprising that convenience is finding its way into how the public perceives healthcare and obtaining services. It's certainly driving systems' decision-making when selecting where to build new facilities, explained Cullen Pitts, principal at McMillan Pazdan Smith Architecture. “Most patients decide which outpatient center, hospital, or freestanding emergency department [they will use] based on where is most convenient for them.”

Within hospitals, convenience is also a powerful tool for enhancing staff satisfaction. Sam Burnette, principal at ESa, observed that to better support shift workers, several trending services and design innovations are centered around improving their workplace experience.

“These include concierge services like laundry pickup and retail pharmacy access past normal operating hours,” he stated. “[Other ideas include] ensuring that services typically available during the day, like warm food or coffee options, are accessible during the late shifts — having healthier, fresh food options and cafes or bistros for late-night workers.” Burnette also suggested considering childcare facilities for shift workers, particularly those working second and third shifts. He recognized that arranging evening childcare can be challenging, but some healthcare systems offer programs that allow parents to leave their children in a safe work environment. These programs often run overnight, which is especially beneficial for single parents.

According to AdventHealth Director of Design Mohammad Alai, easy access to other necessities can also make a significant impact. “When supporting multi-shift workers, particularly in healthcare environments, there should be a focus on practical accommodations like ensuring there are enough showers for staff when emergencies like hurricanes occur.”



Technology can also contribute to patient and staff convenience. “Technology will play a greater role in enabling staff to focus more on meaningful interactions with patients by automating menial tasks, further enhancing the care experience,” said McMillan Pazdan Smith’s Pitts. “This trend toward greater control and personalized care is essential for fostering a more patient-centered environment.”

Part of enhancing the interpersonal experience is reducing potentially cumbersome tasks for patients and staff, making the activities faster and easier. “With electronic check-ins, even older populations in Florida are adapting, though we provide volunteers to assist with the transition,” said Gina Casalinova, director of construction at Cleveland Clinic.

According to Chris Ressler, regional healthcare director at Page, technology, especially telemedicine, will drive future healthcare models, with significant growth expected in the behavioral health sector. However, he noted that hospital systems should not replace meaningful human interactions with technology alone, and that in-person visits will remain crucial for specific patient needs. “People, especially the younger generations, want more technology, but they also want their human interactions to be more meaningful — we’ve seen that [young people] will pay more for the same service if they think the person they are talking to cares.”



UHealth Doral Medical Center
Doral, Florida

CAREGIVER- FOCUSED DESIGN ELEMENTS

Integrating sufficient and organized caregiver working and respite spaces is another trend that aims to reduce burnout among staff. In a survey conducted by JLL, the firm discovered that approximately [74% of healthcare staff considered leaving their current roles and cited inadequacies in their facilities as a contributing factor.](#)

ESa's Sam Burnette noted that while caregiver respite spaces are increasingly important, facilities often fall short of fully supporting staff needs.

“These spaces provide a private, quiet area for staff to de-escalate stress and emotions, away from patient interactions,” said Burnette. “They are designed to be calming, with low lighting and no technology, ensuring a therapeutic environment. Feedback from healthcare workers is overwhelmingly positive, with many appreciating the space as a sign that their employers care about their well-being. Often as small as 80 square feet, these rooms serve as crucial retreats for various healthcare staff, including nurses, doctors, and social workers, offering a quick, restorative break during their shifts.”

He continued, “Although respite spaces for staff may not directly generate revenue, they do play an important role in supporting activities that generate revenue. These spaces should be included in the essential program for every nursing unit since they are just as important as other areas like the med room or clean storage.”

In the same vein, architects and healthcare system leaders are also taking a second look at how to design caregiver working spaces, such as nurse stations, to limit frustration and improve productivity.

“In the early 2000s, large nursing stations created long travel distances and separated staff from patients. We then moved to smaller stations between patient rooms, which improved staff-patient connections,” said AdventHealth’s Mohammad Alai. “However, the challenge became balancing nurse workloads and improving communication, as nurses were spread across the unit and often far from doctors. The current trend is to group patient rooms into sections of 10 to 12, improving efficiency and communication.”

For Bill Hercules, president and CEO of WJH Health, the key is to strike a delicate balance between connection and privacy. [“A recent study by Drs. Shabboo Valipoor and Sheila Bosch](#) highlights the importance of sufficient workspace for nurses — it doesn’t need to be oversized, but it should be spacious enough to prevent crowding,” Hercules said. “Privacy is also essential for focus; constant activity can make concentration nearly impossible.”

“We have to be caregivers to the caregivers,” added Cleveland Clinic’s Gina Casalinova. “When we create spaces that make them happy, they can focus on making patients happy. At Cleveland Clinic, our goal is always to put patients first. If we provide a poor design that frustrates caregivers, it impacts their ability to focus on their patients. Thoughtful design helps them do their jobs better, easing their stress and improving their day.”



AdventHealth Winter Haven ER
Winter Haven, Florida

SENSORY ELEMENTS

Innate to their function, medical facilities often heighten stress, a phenomenon sometimes characterized by the term “white coat syndrome.” When individuals are under high stress, sensory processing becomes more challenging, and loud, visually inharmonious spaces can result in a negative care experience. As facilities are being built or renovated, project delivery teams work together to create spaces that improve the sights and sounds of traditional care environments, incorporating sensory elements, such as strategic acoustics and lighting, in design.



Bob Wall, vice president of Robins & Morton's Texas division, weighed in on this trend, noting its significant influence on patient outcomes. “We have seen that natural lighting has benefits, and outside views enhance calmness.” He added, “Studies indicate that certain design elements can reduce patient aggression. Color choices can also create comfort and a sense of security. These factors can reduce stress, helping patients feel more relaxed and improving outcomes.”

Wall's experience with these elements has grown alongside his team's expertise in building behavioral health projects, such as the recently completed [Rusk State Hospital](#), and the ongoing [Permian Basin Behavioral Health Center](#) and [Terrell State Hospital](#). In addition to building what is designed, Wall and his teams engage in detailed collaboration with their healthcare clients and design partners to choose the best materials and approaches to improve key outcomes.

TRAUMA-INFORMED DESIGN

The core philosophy of trauma-informed design is to create environments rooted in empathy, acknowledging the stress and grief of individuals in their most vulnerable moments. By prioritizing safety, dignity, and emotional well-being, these spaces foster care, healing, and recovery.

According to Rachael Rome, studio practice leader and mental behavioral health and vice president at HKS, it is no longer a consideration for her practice — it's an important standard. "Trauma-informed design is a philosophy we integrate into all our projects. We approach each space with empathy, considering the experiences of patients, staff, and loved ones," she said.





A significant part of that process is considering how vulnerable patients interact with their environment at every stage. “For individuals healing from acute trauma, we identify potential triggers to prevent unintentional harm and further distress. Our team collaborates across diverse sectors — including mental health, education, and senior living — recognizing that trauma is not confined to a single setting or addressed in a one-size-fits-all manner. Drawing on our global experiences and evidence-based best practices, we develop innovative, patient-centered solutions that meet people where they are, including in the workplace. We design intimate, intentional spaces that carefully manage sensory stimulation, such as sensory labs and interactive waiting rooms for pediatric and adolescent patients. These environments are thoughtfully crafted to enhance psychological safety, foster trust, and support emotional healing.”

Rome also stated that incorporating extensions of nature that [emphasize biophilia](#) into the building can significantly impact patient welfare and outcomes. “One of my favorite examples is from a project at Rusk State Hospital in East Texas. Originally built in the late 1800s, the hospital was set amongst beautiful pines and had incredibly caring staff, but the facilities had aged significantly, and the surrounding natural beauty was not fully accessible to patients. In our redesign, we introduced courtyards featuring both active spaces, like a basketball court, and quieter, meditative areas for reflection. Recognizing the region’s extreme temperatures, we carved shaded porches out of the exterior where possible, which allowed patients to enjoy the outdoors comfortably. A year after occupancy, feedback revealed that patients used the porches daily, and patients were routinely heard singing as staff left to go home for the day. This highlight may seem small, but it underscores the profound emotional benefit of connecting with nature during treatment, reinforcing our commitment to integrating natural elements into our designs and doing what we can to advocate for more moments to bask in the present.”



THOUGHTFUL DESIGN AND FUTURE- PROOFING

Buildings are constructed to meet their occupants' needs while achieving high standards for functionality. Trying to balance requirements and optional features can muddle priorities. Losing a project's true north can be devastating for key outcomes, and thoughtful design can be critical for restoring its path.

"Thoughtful design involves understanding each service line's unique needs and workflows, such as tailoring exam rooms for specialties," said Cleveland Clinic's Gina Casalinova. "We enhance overall functionality by reducing unnecessary steps and improving space efficiency."

Casalinova explained that thoughtful design also lends itself to futureproofing healthcare facilities — a process that, in her view, should focus on adaptability and standardization.

"We focus on adaptability and standardization when futureproofing our healthcare designs. For example, our standard exam rooms, which are 10 by 12 with a sink and have plenty of natural light, can accommodate various service lines by adding specialty equipment on carts without major modifications. We also design flexible spaces, like check-in areas, using electronic systems like iPads for faster patient processing and smaller waiting rooms. Our building infrastructure, including IT, HVAC, and control systems, is robust and designed to easily support changes to different service lines in the future."

According to Ben Leaver, chief financial officer at Robins & Morton, additional futureproofing strategies center on creating flexible spaces that can quickly become segregated areas for infectious diseases. “Flexibility in healthcare spaces now centers on preparing for future pandemics and accommodating changes like telehealth,” he explained. “While entire shifts to telehealth-focused facilities aren’t yet prevalent, there’s a push toward creating adaptable ‘swing’ or ‘flex’ spaces that can pivot based on evolving healthcare needs.”

By incorporating some — or all — of these trends, healthcare systems can create spaces that improve patient outcomes and attract expert staff.



Cone Health MedCenter Asheboro
Asheboro, North Carolina

04 Technology and Connected Infrastructure

How is the Internet of Things changing the approach to adding new services to buildings? What protocols or design strategies are experts implementing to safeguard patient data?



Decatur Morgan Hospital
Decatur, Alabama

According to Chris Ressler, regional healthcare director at Page, the Internet of Things (IoT) continues to grow in healthcare environments, driven by the shift toward value-based and continuum-of-care models. When constructing and renovating hospitals, this enhanced connectivity — and the vulnerabilities it introduces for patients and staff — is top of mind for many industry professionals.

“You will likely see some nostalgia for the past, but at the end of the day, everything will become more connected. We are reaching the point where wearable technology can gather much more information than you might have gotten at a physical 20 to 30 years ago.”

Ressler also explained that wearable technology can detect health issues before symptoms appear, highlighting the increasing digital adoption in healthcare.



Nemours Children's Hospital
Orlando, Florida

“We’re seeing a real evolution in how healthcare facilities adopt technology, and we are tracing it back to the staffing shortages of nurses and physicians,” Ressler said. AI and machine learning are becoming integral to how healthcare facilities operate, as they help maximize staff efficiency, reduce mundane tasks, and create actionable insights. For example, security innovations, such as voice detection and weapon detection cameras, are improving campus safety and empowering security personnel.

The approach to adding new services and technology to healthcare buildings focuses on connectivity and efficiency, noted Patrick Duke, the Americas healthcare solutions lead with Turner & Townsend. Instead of slowing down interconnectivity, the long-term vision is to accelerate it, and for facilities to be fully connected and capable of operating autonomously in some areas. For facilities maintenance, this could include tasks such as adjusting air exchanges or heating systems. “The goal is to use technology to complement human labor — especially considering the ongoing workforce shortages in healthcare — via robotics, automated vehicles, and AI. Planning and infrastructure will need to support these advancements,” said Duke.

In Ressler’s view, this goal highlights a critical need for flexibility in healthcare spaces as technology and healthcare processes evolve rapidly.

“Flexibility is key right now as technology radically transforms healthcare processes and staffing,” Ressler said. “However, we can’t get to the point where a space designed for everything is, in reality, designed for nothing.”





“You cannot completely futureproof any facility, so you have to take calculated risks,” said Turner & Townsend’s Patrick Duke. “Greater building volume, such as increased floor-to-ceiling heights in critical areas, can allow for infrastructure chases that support future upgrades.”

However, he also remarked that these features come at a cost, and the need to manage upfront expenses often limits the ability to incorporate such flexibility. “It ultimately comes down to balancing costs — flexibility is valuable, but it requires investment, and cutting costs often means sacrificing adaptability.”

David Forrestall, CEO of SecurIT360, also weighed in on this critical issue. “The importance of adaptable information infrastructure in healthcare spaces to manage the growing volume of data from sources like smart devices, beds, and wearables cannot be overstated,” he said. “This infrastructure must efficiently collect, store, and process data, even in emergencies or impaired situations [such as natural disasters], to ensure it remains accessible and useful for care providers.”



Incorporating adaptable information infrastructure in healthcare spaces is crucial due to the rapid evolution of health technologies. However, Robins & Morton's Low Voltage Resource Director Steve Culler noted that this poses a unique challenge for hospitals.

"We're seeing hospitals installing infrastructure for technologies that are coming but that they don't yet fully understand. For example, the new hospitals built today are equipping patient rooms with additional network and wireless connection points."

Equipping spaces to integrate emerging technologies more easily is generally considered a best practice, but Forrestall also encourages healthcare systems to add new technology risk assessments to their protocol. Many connected devices inside and outside medical facilities offer great benefits, such as automating tasks and enabling remote adjustments. However, he cautions that even the smallest connected devices have vulnerabilities.

The proliferation of network-connected devices means attackers only need to exploit a weak point to access sensitive systems, noted Forrestall. He explained that this could result in serious threats such as data breaches or ransomware attacks, where attackers covertly remove patient information and demand a ransom. "The increased number of devices in modern facilities creates a larger attack surface, making it critical to safeguard even the smallest points of entry," said Forrestall. For many healthcare systems, addressing that risk will be critical to boosting the connectivity of new and existing facilities and avoiding the cost, downtime, and patient security concerns associated with successful cyberattacks.



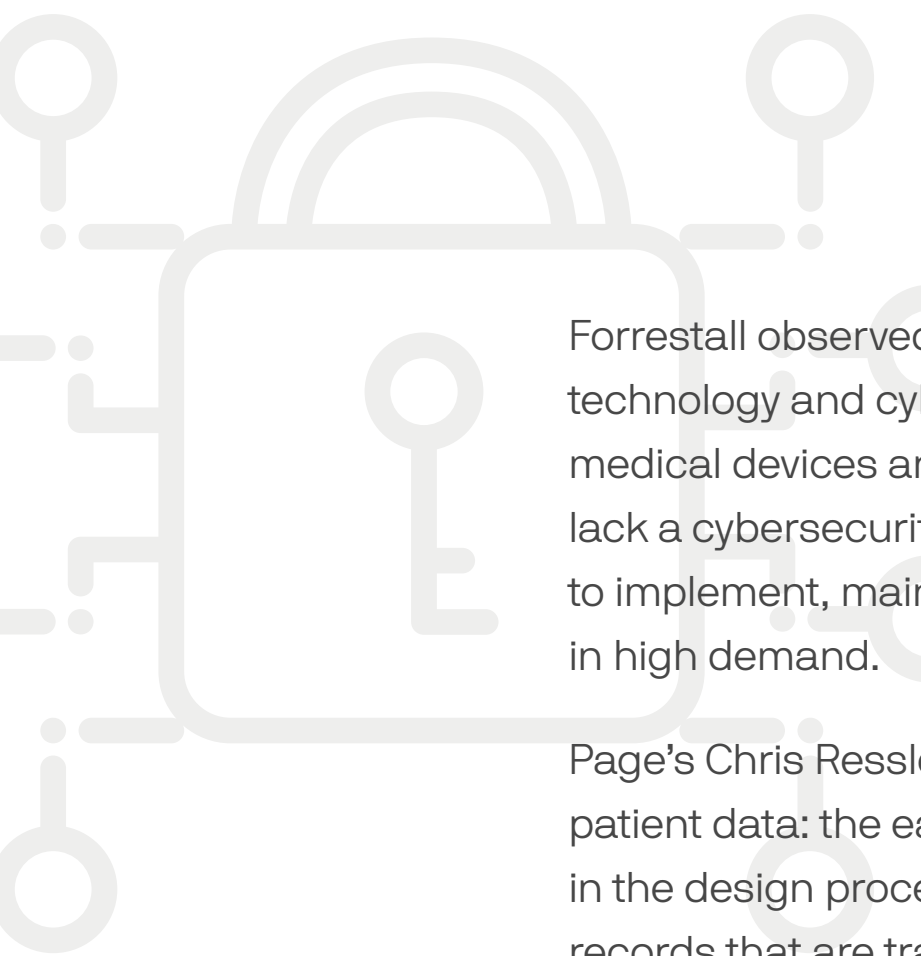
Decatur Morgan Hospital
Decatur, Alabama

SAFEGUARDING PATIENT DATA

Unfortunately, healthcare remains a prime target for cyberattacks, requiring the most robust security measures.

SecurIT360's David Forrestall advocates for new design strategies and other methods to prevent the infiltration of sensitive systems and avoid cyberattacks, which are becoming increasingly frequent. "Facilities must implement robust cybersecurity controls, adhering to frameworks like NIST, while adapting to emerging risks such as robots and expanded data collection," said Forrestall. He further explained that as these technologies evolve, new protocols, privacy legislation, and protective measures will be needed to address vulnerabilities and safeguard patient data effectively.

Turner & Townsend's Patrick Duke explained that implementing robust protocols and partnering with skilled IT and cybersecurity experts to safeguard patient data against cyberattacks is a need that cannot be overstated. "There are alarming statistics from 2023, when over 133 million healthcare records were stolen in the U.S., with individual breaches sometimes affecting millions of records," he said. According to Duke, cyberattacks can severely disrupt healthcare operations, including forcing a switch from electronic medical records to manual processes and halting billing, which impacts cash flow. "Healthcare is a prime target for cybercriminals, as stolen records can fetch around \$645 each to rectify," he stated.



Forrestall observed that healthcare systems must overcome two key technology and cybersecurity challenges to protect patient data. First, medical devices are developed to improve patient outcomes but often lack a cybersecurity-first approach. Second, the expertise required to implement, maintain, and monitor these technologies securely is in high demand.

Page's Chris Ressler suggested an additional method of safeguarding patient data: the early incorporation of information systems (IS) expertise in the design process. As more people have electronic and digital records that are tracked within a single healthcare system and across multiple healthcare systems, the points of attack expand. "Collaboration is essential because everything is so accessible. We need to strike a balance between patients being taken care of and the information being kept safe," said Ressler. He also remarked that while the accessibility of health information improves care, it also creates vulnerabilities, making it crucial to protect patient privacy and security in this interconnected digital environment.

Robins & Morton's Bob Wall shared more insight into how healthcare facilities are adapting to advanced technology and cybersecurity needs by securing access to server rooms and ensuring that tradespeople working on systems — such as building automation and security access — understand cybersecurity protocols.

"Cybersecurity has become a major insurance issue. We frequently integrate it into the hospital's systems, which may constitute building an automation system or integrating security access," said Wall.

He also emphasized the importance of training personnel to handle sensitive infrastructure, which includes adopting procedures for login and logout tracking to allow only authorized individuals to access systems, and ensuring clear visibility into who is accessing data and when. "Essentially, you must keep your people informed and ensure your partners know who's in the system and when."



REPERCUSSIONS OF A CYBER ATTACK

For healthcare systems and their patients, cyberattacks are frequent and sometimes devastating, especially as technology reliance increases the amount of stored data. Unfortunately, the ability to apply lessons learned from attack to attack is limited due to differing objectives and points of entry.



According to Turner & Townsend's Patrick Duke, some hackers seek to profit by selling stolen data on the dark web, while others demand ransom payments. "Major cybercriminal groups from countries like Iran, China, Russia, and North Korea are often behind these attacks on U.S. healthcare and government systems," said Duke.

The repercussions of a cyberattack depend on the nature of the breach, explained Duke. In some cases, hackers simply steal and sell data. This type of breach may be resolved by experts identifying the entry point, closing security gaps, and notifying affected parties. However, he noted that the situation is more complex when ransomware is involved, as hackers may hold the entire system hostage until they are paid. This process can take months and disrupt operations.



According to Duke, despite the existence of cybersecurity insurance and business interruption insurance that includes coverage for cyberattacks, the damage is already done once an attack occurs. Insurance only offers some financial relief.

“Healthcare systems face expectations that far exceed those of any other industry,” said Duke. “First, they’re tasked with caring for the sickest patients, regardless of payment. Second, they must do this under challenging conditions, often with staffing shortages. Additionally, they must ensure their cybersecurity is on par with government and military standards.” He explained that these extraordinary challenges develop a level of stress and complexity far more significant than in other industries.

Duke emphasized that cybersecurity professionals must consider this reality when designing and implementing security protocols to defend against cyberattacks and their costly repercussions.

05 Contributors

MOHAMMAD ALAI, AIA, ACHA

*Director of Design with the Office of Design and Construction
AdventHealth*



Mohammad Alai is a licensed architect and a Board-Certified Healthcare Architect with more than 40 years of experience in healthcare planning, design, and project

management. He is currently the director of design with the Office of Design and Construction at AdventHealth, Central Florida Division. Alai is responsible for the development of design and project management guidelines as well as the organization's approach to medical and master planning. He has been involved with the design and management of projects of various sizes and scopes and has spoken at various national conferences, such as the Healthcare Design Conference, and at events for organizations such as American Medical Facilities Professionals (AMFP). He is also past president of AMFP's Florida Chapter. Alai holds a Bachelor of Design from the University of Illinois and a Master of Architecture from the Georgia Institute of Technology.

SAM BURNETTE

*Principal
ESa*

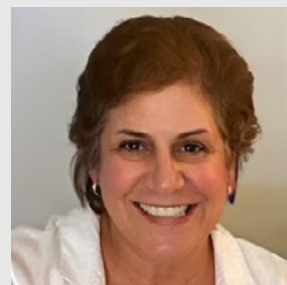


Sam Burnette serves as a principal on the healthcare design team at ESa. He joined the company in 1983 and has since gained experience in land planning, master plan design and design of new hospitals,

hospital expansions and renovations, medical office buildings, outpatient surgery centers, and cancer treatment, nursing, and assisted living facilities. In his role as principal on the healthcare design team, he fosters repeat relationships through the project design process while providing exceptional design outcomes. He has designed numerous projects across the world and has been responsible for programming, master planning, project coordination, and research initiatives with evidence-based design. He believes that design is "for people — their safety, wellness, and enjoyment of the completed facility."

GINA CASALINOVA, CHC

*Director of Construction
Cleveland Clinic*



Gina Casalinova is a solutions-oriented project leader with more than 30 years of experience in construction, planning, and design. She combines her strong technical expertise and interpersonal skills to build teams

with shared goals, mutual respect, and measurable results. In her role, she provides end-to-end leadership of capital projects, including the funding, design, and construction processes for various clinical renovations and infrastructure projects throughout the Florida market.

STEVE CULLER

Low Voltage Resource Director
Robins & Morton



Steve Culler serves as the low voltage resource director at Robins & Morton, bringing more than 30 years of industry experience. His background includes senior-level experience as an electrical and low voltage

trade contractor, providing unique insights and guidance on complex projects. Culler is responsible for overseeing budgets, final pricing, and operational support for all low voltage work, ensuring that project scopes are accurately captured and executed efficiently. He holds a Bachelor of Business Administration from Columbia College, and his professional qualifications are complemented by certifications such as the BICSI Registered Communications Distribution Designer (RCDD), underscoring his commitment to safety and excellence in project execution.

PATRICK DUKE

Healthcare Solutions Lead, Americas
Turner & Townsend



With over 25 years of experience in healthcare facility planning, design, and construction, Patrick Duke is a recognized leader in Human-Centric Project Delivery. His technical expertise includes team building, program execution

planning, design and construction management, and facility activation. Duke is a frequent speaker on topics such as gender equity, healthcare team selection, and collaborative project delivery. He serves on the boards of the Young Caribbean Professional Network and World Pediatrics. He is also a member of the Auburn University Samuel L. Ginn College of Engineering Industry Council (serving on the Diversity, Equity, and Inclusion Committee) and serves on the Steering Committee for the Auburn University National Society of Black Engineers 40th Anniversary Celebration. In Richmond, he is an alumnus of Leadership Metro Richmond, a partner in the MSQShop, and a steering committee member for ChargedupFest. As a certified Genius Spark facilitator, Duke empowers individuals to leverage their talents for stronger communities and better outcomes.

DAVID FORRESTALL

CEO
SecurIT360



David Forrestall is the founder and CEO of SecurIT360, an independent, cyber-only security consulting firm. Over the past three decades, Forrestall has consulted

with many clients on cyber, technology, and compliance issues. He currently leads product development to stay ahead of threats by being active in cyber research, incident response, technology, and privacy issues. He studied physics and taught at the University of Alabama at Birmingham before transitioning into technology in the 1990s. Since then, he has worked in various technical roles, eventually becoming a CIO, and founded SecurIT360 in 2009.

BILL HERCULES

President and CEO
WJH Health



Having planned and/or executed healthcare projects totaling more than 35 million square feet and \$13 billion, Bill Hercules has extensive experience empowering healthcare leadership teams

to shape their future places of care. He is the founder of WJH Health — a global consultancy that resolves the place of care at the nexus of mission, performance, and experience — and he is the only practicing global triple-Fellow in the AIA, ACHA, and ACHE. Additionally, he co-chairs the national AIA/AGC Joint Committee to deepen the link between design and construction, leads an award-winning research team pioneering the intersection of healthcare design and bioethics, serves as a Senator of the World Business Angels Forum, an affiliate of the G20, and is a founder of other startups.

BEN LEAVER

Chief Financial Officer
Robins & Morton



Ben Leaver is the chief financial officer for Robins & Morton and is responsible for corporate accounting, finance, and risk management. He graduated from Auburn University with

a Bachelor of Science in Business Administration followed by a Master of Accountancy. He is a licensed CPA and holds Certified Construction Industry Professional (CCIFP) and Construction Risk and Insurance Specialist (CRIS) accreditations. In 2015, Leaver began his career with Robins & Morton as an assistant controller after an eight-year career at a CPA firm. Since then, he has held positions of controller, director of finance, and vice president of finance before becoming CFO.

RUSSELL MEYERS

President
Permian Basin Behavioral Health Center

Chief Executive Officer
Permian Basin Medical Center dba The Beacon Alliance



After 20 years as CEO of Midland Health, Russell Myers now serves in two new positions. First, he is President of Permian Basin Behavioral Health Center, a comprehensive mental

health facility under development as a joint effort of Midland and Ector County Hospital Districts, projected to open in April 2026. Second, he is CEO of Permian Basin Medical Center, a collaborative effort among multiple regional stakeholders to develop and execute long-range healthcare improvement strategies benefiting the surrounding area. He is a graduate of the Health Services Administration program at the University of Houston Clear Lake, completed undergraduate work at Rice University, and is a Fellow of the American College of Healthcare Executives. He and his wife, Kimberly, raised two children in Midland and have been residents of the area for 22 years.

JACKIE MUSTAKAS

Senior Sustainability Manager
Robins & Morton

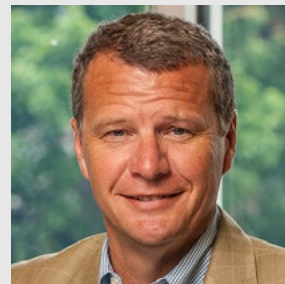


As Robins & Morton's senior sustainability manager, Jackie Mustakas leads the company's sustainability-focused initiatives. She also heads the company's Sustainability Council, analyzes sustainable initiatives, and

assists clients as part of Robins & Morton's Green Building services. Her certifications include LEED AP, Green Globes Professional, Parksmart Advisor, and WELL AP. She holds a Bachelor of Science in Building Construction and a Master's in Sustainable Design and Construction, both from the University of Florida.

CULLEN PITTS

Principal
McMillan Pazdan Smith



Cullen Pitts has guided planning and design for some of McMillan Pazdan Smith's most prestigious healthcare clients. He is a skilled designer with a distinctive ability to create and reinforce a healthcare client's brand and

culture through the built environment, and he is a firm principal in the healthcare practice area with a commanding knowledge of operational strategies for effective acute and non-acute healthcare spaces. In addition to being an architect, he is also a talented watercolor artist, musician, and licensed pilot.

CHRIS RESSLER

*Regional Healthcare Director,
Associate Principal
Page*

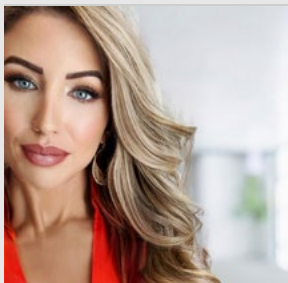


Chris Ressler has worked on acute and ambulatory healthcare projects throughout the South for 18 years and now serves as Director for Healthcare in the Southeast at Page, where he supports healthcare systems

across the country and leads FEMA Hospital Recovery projects in the U.S. Virgin Islands. He has earned several awards, including AIA Associate of the Year for the State of Florida, USGBC SWFL Member of the Year, and Gulf Shore Business' 40 under 40. He served as a founding member and chair of the USGBC SWFL branch for several years and now sits on the board of AMFP Atlanta. He is an expert on trends affecting healthcare design and construction and regularly speaks on the topic at industry events.

RACHAEL ROME

*Studio Practice Leader, Mental
Behavioral Health
HKS Architects Inc.*

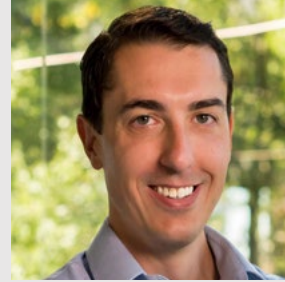


Rachael Rome is an industry leader in programming, campus and facility master planning, and design. She has more than a decade of experience partnering with clients to realize strategic and operational goals,

and she specializes in complex, high-tech healthcare projects. As director of mental behavioral health design at HKS, Rome sets the overall strategy of the practice, developing and maintaining systems to ensure quality and consistency of designs. She holds a Bachelor of Science in Architecture, a Master of Architecture, and a certificate in healthcare facility design from Texas Tech University. She also studied Biblical Counseling at Dallas Theological Seminary to serve women and children in crisis in her community. Further, Rachael has earned a LEED AP BD+C from the U.S. Green Building Council, an Evidence-Based Design Accreditation and Certification from the Center for Health Design, and Lean Six Sigma Green Belt Certification from the Institute of Industrial and Systems Engineers.

SAMMY SHAMS

*Vice President, Sustainable Design
Leader in Health
HKS Architects Inc.*

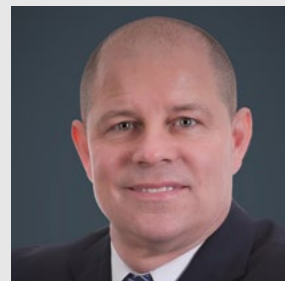


Sammy Shams is vice president and sustainable design leader in health for HKS' DesignGreen team, the company's building performance and sustainability group. In his

role, he assists in developing sustainable, healthy, and resilient building designs and achieving green building certifications for projects. This includes early phase energy modeling, whole-building life cycle assessments (WBLCA), and resilience design strategies. In addition, Shams leads design workshops and is a co-chair of the AIA Global Resilience and Disaster Recovery Advisory Group for 2024 and 2025. He is a registered architect in Florida and Georgia and holds a Master of Architecture with a specialization in healthcare design and a Master of Science in Architecture in High Performance Buildings from the Georgia Institute of Technology.

BOB WALL

*Vice President
Robins & Morton*



As a vice president for Robins & Morton, Bob Wall draws upon nearly 30 years of experience leading and developing high-performing teams. His role includes the executive management

of the company's Texas division. Throughout his career, Wall has served in a variety of field leadership and project management roles, bringing a unique perspective to project delivery. He joined the Robins & Morton team in 1996, and he has since opened the company's first Texas office in Dallas and led more than 130 successful projects. Today he also provides leadership support for Robins & Morton's San Antonio office, which opened in 2020. Wall holds a Bachelor of Science in Construction Management from the University of Nebraska.

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