



9th Houston Hospital, Outpatient Facilities & Medical Office Buildings Summit  
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# Piloting Healthcare's Road to Recovery

Planning, Real Estate, Design, Construction, and Operation of  
Hospitals | Clinics | ASCs | MOBs | Retail | Telehealth  
Home Health | Non-Clinical | Research Facilities

This Education and Networking Event is Presented by  
Corporate Realty, Design & Management Institute  
Association of Medical Facility Professionals – Houston Chapter  
National, Regional & Local Sponsors

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Corporate Realty, Design & Management Institute, AMFP, and AMFP Houston want to thank these sponsors for making this educational and networking program possible



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## Summit Context & Relevance

*Alan Whitson, President, Corporate Realty, Design & Management Institute opened the sold-out Houston summit with a positive forecast projecting the next ten years.*

- Inpatient volume is growing faster than the number of available rooms.
- The number of days for stay in the hospital will be up 9 percent by 2034 and discharges will rise by 3%. Modest rises in inpatient volumes are expected due to rising patient acuity, according to the Sg2 IP Forecast based on population.
- The hospitals are jam packed and Outpatient is also growing faster because it's cheaper to take care of patients outside of the hospital.
- Outpatient demand will outpace population-based demand projections in the U.S. Market through 2034 rising by 17 per cent.
- Evaluation and management volume will rise to 1.73 billion by 2034, when 23 per cent of all E&M visits will be delivered in a virtual care setting.
- Skilled nursing facility visits will decrease by 2 per cent.
- Home Health (procedures home nurse visits and other home visits) are forecast to rise 22 per cent at a volume of 221 million.

## Revolutionizing Healthcare Investments: Bridging Today's Capital Planning with Tomorrow's Digitally Enabled Care Landscape.

*Carl Fleming, Healthcare Strategy & Digital Transformation, DPR Construction*

- Fleming, a national healthcare strategist for DPR, introduced a new term, **phygital**, meaning a new concept combining the physical and digital world with the purpose of providing a unique interactive experience for the user, that we'll be hearing much more about. This is sometimes called an omnichannel customer experience. He talked about using technology to reduce customer friction, frustration and churn. This bridges the gap between channels and makes it autonomous, allowing you to flow over to physical space.
- Sports has fully embraced the phygital arena. Paul Foster's One Plan where from anywhere in the world, people can feel they are in the venue. The Paris Olympics will be his sixth Olympiad to advise on security, crowd control, transportation and the way people move from one area of the venue to another in non-ticketed areas. Foster suggests the Paris 2024 will be a landmark Olympic and Paralympic Games, driven by innovation and sustainability. From anywhere in the world, users can feel like they are actually in the venues, walking the routes, hearing and seeing the environment as it will be.
- There's an opportunity here with the patient consumer experience because both have episodic relationships to their consumer. Sports analysts have figured out they must interact with consumers between seasons. Similarly in healthcare, there must be interaction between clinical encounters. Easing those interactions will curtail poor experiences, leading to greater client retention. Digiday finds 65% of consumers have cut ties with a brand over a single poor experience. Failing to provide a frictionless experience will cost providers customers. As fans interact with the team and stadium, they are able to personalize their experience – on their journey to the game, at concessions and within the venue.
- If you don't need a patient room, the phygital world can look at alternative venues of care, with the idea that we can leverage technology to decrease provider burnout, taking away need to be tethered to a device. This won't lower FTEs, but it will take non-clinical tasks out of the hands of the clinician. Soon, every physical space will include some digital elements. These changes will happen faster over the next decade than in the previous century. Planners are looking at how does healthcare provide a definitive vision on the future consumer and how is the best way to align with their needs. Healthcare has embraced a new type of leader to implement consumer/technology initiatives. Projects must align capital initiatives and collaborate early with these new leaders. There is an opportunity here where patients will no longer be passive spectators. They are active, vocal, creative and

expressive, sharing content and having a greater influence on healthcare outcomes.

- In Next Generation Healthcare, to successfully construct the next generation of hospitals that enable new patient-centric and clinician-optimized care models, technologies must be interwoven into the fabric of the built environment just as they are in the digital environment.

## Integrating Behavioral Health Care & Medical Facilities

Stephen Glazier, FACHE, Vice President, UTHealth Behavioral Sciences Campus

Chandler Self, M.D., Psychiatrist, Self Care Psychiatry

Rhonda Wolfe, Assistant Vice President, Emergency Center, Acute Care and Clinical Support, Texas Children's Hospital

Moderator: David Sass, RA, LEED AP, Lean, Senior VP, Cannon Design

David Sass, Senior Vice President at Cannon Design moderated this panel with Stephen Glazier, VP UT Health Behavioral Science Campus, who shared his excitement over advances in the new 264-bed, 240,000 SF, John B. Dunn Behavioral Science Center. This state-of-the-art facility demonstrates how mental health has moved away from the shadows, exemplifying that more attention is being paid to mental health.

- Glazier said they started with conversations with the doctors about what they needed to accomplish with the patients and how to help get the patients better acclimated to start the process. "It's adjunctive to therapy. We had nurses, therapists involved in the process," Glazier explained.
- The result is a therapeutic environment designed to reduce agitation and support treatment in a dignified, humane space. Social spaces are crafted around the latest science in social interactions. With ample access to daylight and views, primarily into the beautifully landscaped courtyards, patients have the opportunity to maintain a well-balanced circadian rhythm. Carefully tuned acoustics and lighting create an ideal environment for the important work of getting better and beginning the recovery process.
- Dr. Chandler Self, a psychiatrist specializing in Self Care Psychiatry, noted how important it is to have wider openings for rooms to accommodate groups of medical students and interns who may accompany doctors on Grand Rounds. "In terms of giving patients a sense of control over their environment, it's better if visiting personnel can spread out. Small things like this can reduce aggression.
- Glazier said they tried to build in features to provide a sense of peacefulness. There's a rule that you can't spend state money on art, but they found a way to feature calming photographs of nature or scenes from Galveston or the Hill Country on wall coverings that have worked very well. The amount of light in the building has also had a huge impact. "We took a small space and built a hair salon because often with in-patient psychiatry, there is a requirement of 60-to-90-day stays, so we knew we'd have groups who would be here 60 days or longer and need a haircut. We wanted to create an environment so the rest of what we

do will be more effective. You can see the amount of stress reduction it provides.” Glazier found that 250% less likely to re-admit or get arrested after 60 days.

- Two interior courtyards with wandering paths offer labyrinth-like spaces for meditation. Also, there’s one wall in each patient room covered with chalkboard paint. Patients can write or draw to their hearts’ content, and we’ve found those walls to be highly diagnostic.
- Rhonda Wolfe, Assistant Vice President, Emergency Center and Acute Care said they have learned to adapt facilities to create some safe space for the patient, family and staff. We are using barn doors or garage doors to be able to close off areas creating a separate cohort from a design perspective.

## Money-Saving Solutions

*Danny Reynolds, STARC Systems*

*Melanie Wright, Assa Abloy*

**HARD BARRIER TIPS** - STARC Systems' Danny Reynolds says they can build 100 linear feet of a wall system in one hour. The hard barriers, which are built for hundreds of uses, offer compliance with green initiatives and sustainability by reducing construction noise and dust. The materials are airtight and reusable and the stackable wall panels can now provide containment up to 38 feet high. They also bring peace of mind to the patients who are not distracted by these processes. A key pillar of STARC Systems' mission aligns with the American Hospital Association (AHA) course of helping their members – more than 5,000 hospitals and health systems across the country take meaningful actions to improve the health of all people and the environment in which they live by setting a sustainable course for the future.

**DOOR OPENING & FITTINGS TIPS** - In piloting healthcare's road to recovery, Melanie Wright with Assa Abloy explained how door and fitting costs are 1-3 % of the project, but if not planned for properly, retrofitting can be more expensive. Products added by change order or due to lack of performance increase costs. She illustrated how to add access control and flexibility while keeping safety and security at the forefront. Two examples are aiming for security visibility that creates a "Single Pane of Glass and integrating wireless and POE options to offset costs by leveraging existing networks and reducing labor costs. Cost savings are achieved through standardization and it's possible to leverage group buying.



## What's in the Cards for Healthcare Real Estate: 2024 and Beyond

*David Perryman, Asst. VP for Facilities Planning and Development & Real Estate Services at Texas Children's Hospital*

*Kristen Kupperman, VP of Design, Construction + Facilities Texas Medical Center*

*Coy Davidson, Senior VP at Colliers*

*Moderator: Alan Whitson, RPA, President, Corporate Realty, Design & Management Institute*

- Coy Davidson confirmed that the cost of real estate in healthcare side continues to escalate and said construction costs are out of sight. He's seeing bigger hubs with surgery centers being put together in Sugar Land, The Woodlands. Some systems are building their own buildings rather than leasing. The cost curve for facilities is on a higher slope than the reimbursement curve. He's seen a shift in the government payer mix which decreases margins.
- Perryman says, "We have to be very thoughtful about expansion because the cost of expansion is almost prohibitive.
- The gap between what the owner thinks a property is worth and what the leaser will pay.
- Kupperman, VP Design, Construction and Facilities at TMC, reiterated that Houston is very excited about life sciences, as evidenced by the enthusiastic reception of the new Helix Park. She believes that after November, the market will start to self-regulate. She sees manufacturing trickling up.
- Davidson noted that his clients are thinking more like retailers and he thinks this will continue and change for the better based on better data.

## Solving the Parking Puzzle

*Kristyn Gibson, Director of Operations, LAZ Healthcare Services*

*Chris Munoz, Vice President, Central Region, FLASH Parking*

*Abbey Roberson, Vice President, Campus Planning, Texas Medical Center*

*Jaime Snyder, Senior Parking Consultant for Walter P. Moore*

*Moderator: Alan Whitson, RPA, President, Corporate Realty, Design & Management Institute*

- The panel considered improvements in the inventory of 60,000 parking spots in 30 garages with many types of users at the Texas Medical Center.
- Abbey Roberson says some of the newer parking garages will soon feature the red and green lights similar to what's found at the airport. There are different parking locales for staff and patients. Many of the aging parking garages have more antiquated technology. There are shuttles to bring patients in from more far-flung parking locales. People are stressed as to how to get from point to point. Parking is the first and last impression when visiting the Texas Medical Center. She says at present, she has 3 million SF under construction and another 7-9 million SF under design.
- Jaime Snyder reiterated that they recommend not sharing parking with employees and patients within the Texas Medical Center. That is not the case as much in the suburbs. She also recommends having ample pick up and drop off lanes.
- Chris Munoz with FLASH mentioned that often, parking is the last phase of the design and parking consultants rarely get any say in the design. License Plate Recognition (LPR) takes technology and improves the parking experience. They are looking at ways to reserve spots. FLASH was the first one in the cloud and they are looking at again including QR codes that were useful during Covid. FLASH has a partnership with Google Maps and WAZE that make recommendations on where to park so patients can be confident that there will be a space. He's also looking at best way to request a vehicle in advance.
- Kristyn Gibson suggested that valet parking offers the best experience for the patient because it gets them in and out at the front door.

## Using Cleanroom Technology to Improve Critical Elements in Healthcare

*Cliff Yahnke, PhD, Chief Science Officer with SLD Technologies*

Yahnke shared ways to alleviate associated infections in the healthcare environment. Now, one in 20 patients acquire an infection while in a U.S. hospital, resulting in 99,000 deaths a year. They are looking at how prior room occupants pose a risk that makes it 3 times more likely for new occupant to get an infection.

- Part of the solution lies in better HVAC duct work, ducted diffusion and improvements in the ceiling grid, bringing clean room airflow into the operating room. Laminar air flow has better performance than materials that would allow for turbulent air flow.
- Yahnke focused on the need to reduce healthcare harm and the role of the environment in healthcare-associated infections. Performance and constructability improvements from the use of cleanroom technology will cut down on the associated risks.
- The typically accepted cost is \$23,000 per infection, though estimates vary widely depending upon what is considered costs. The facts point to infections consuming more health care dollars each year.
- The five most common hospital infections are central-line associated bloodstream infections, ventilator-associated pneumonia, surgical site infections, Clostridium difficile infections and catheter-associated urinary tract infections, together which cost the United States \$9.8B annually.
- Single large diffusers provide superior airflow as compared to multiple diffuser arrays.
- Visible Light Disinfection provides safe, continuous and automatic whole room disinfection which may easily be integrated into the ceiling structure.
- Christus Children's Hospital in San Antonio is a good example of how cleanroom technology, using SLD Technology's AirFrame and IndigoClean system makes them the first of their kind in Texas. AirFrame is a fully integrated modular ceiling system containing Zonal Pressure Control to reduce contamination and keep surgical suites sterile. The ceiling system works with Indigo-Clean system to disinfect the environment automatically and continuously by showing safe and visible light that kills bacteria in the air and on hard and soft surfaces.

## Money Saving Solutions

*Tom Barnard, Allegion Healthcare*

*Dave Blackwell, Camfil*

**SLIDING DOOR TIPS** -Tom Barnard with AD Solutions/Allegion shared how sliding doors can save more than 30 SF of space and how their lead lined doors have been highly effective in X-Ray rooms. The doors also go beyond satisfying safety and security compliance. The doors reduce seepage of airborne particles and demonstrate both high acoustic and visual performance. They offer standardization of doors and group purchasing agreements. They have telescoping doors for wider openings and improved service lifts. Sliding doors eliminated the traditional door swing path, maximizing square footage which allowed for an extra exam room for every 11 that was planned.

**CLEAN AIR TIPS** -Camfil's Dave Blackwell, Healthcare Segment Manager, discussed fine fiber vs. electrostatically charged coarse fibers in air filter performance. He says Camfil is noted for keeping total cost of ownership (TCO) in mind when designing, developing and producing their air filters. Over the lifetime of an air filter, the cost is divided as 20 per cent for filter cost and 70 per cent for energy cost, along with a percent labor cost and 2 per cent disposal cost. They comply with the ASHRAE Epidemic Task Force standard using combinations of filters and air cleaners that achieve MERV 13 or better levels of performance for air recirculated by HVAC systems.

## Energy: Straight Talk on How Healthcare Systems Can Control It

*Josh Ashlock Director of Building Systems, MD Anderson*

*Matt Elliott, Project Executive Healthcare, SpawGlass*

*Khris House, Senior VP, Texas Southwest District Business Line Leader, WSP*

*James Vun Cannon, Healthcare Segment Manager, Scheider Electric*

*Moderator: Candace LeVaughn, Healthcare Strategic Account Executive, Schneider Electric*

- With Energy Power Monitoring Systems, Josh Ashlock says he's able to ascertain the root and cause of outages. With EPMS, it's not a guessing game. As hospitals get more electronics, these will become more important. The EPMS ensures that no fake data goes out. EPMS can help bring critical issues to light. It will be a game changer. This is codification. This is something we have to do. We'll benefit because we are not guessing. The OU Medical Center was the first location that had EPMS installed and the first one where we could see the benefit. Khris says it's very similar to standards established by ASHRAE 90, the gold standard.
- If not tied to a metering system, it won't get all the data. Matt Elliott says it's important to have an understanding of the owner's expectations. If it's put in place during construction, it's better. Cost of operation can be 1-3 % of total costs. The last thing they want to do is schedule a shutdown. Ask the question why – why are you doing it? Understand the why. We can make sure the owners' expectations are maintained, then bring in commissioning agents so they understand the expectation. It's making sure clients' needs are met so that when prices go up and they look for things to cut, make sure this isn't one of them. Without metering, you are blind, said Josh Ashcock. He joked about the way the term value engineering can be misleading if it references taking out something as critical as EPMS.
- Of the 60 locations at the Texas Medical Center, 37 of them have some kind of metering. The associated acronyms read like something from *Back to the Future* - BCPM, HDPM6000, PM5000, EM4200, ION9000 (T). Critical are the loads for the HVAC system, the chillers and power for the MRI, EKG, and treatment machines for radiation.
- The Reliability Centered Maintenance (RCM) varies from Reactive (noncritical, RTF and redundant) to Preventative (wear critical, consumable, known failure pattern and TPM) to Condition-based, showing random failures, wear, vibration, temperature, tolerance and gauging to the most sophisticated, Predictive, which indicated FMEA, Root Cause Analysis, Age Based and Sensor Data.

## Resilient Design: Because Bad Things Happen

*Lea Edwards, Operations Manager, Hensel Phelps*

*Scott Sevigny, Principal, Shah Smith & Associates*

*Tarak Thomas, Associate Vice President, UTMB*

*Moderator: Don Hellem, AIA, Senior Project Manager, CannonDesign.*

- Tarak Thomas spoke about how UTMB was built in 1892, before the Great Storm of 1900 and how events on the island have taught them more about resiliency. “Resiliency is something we push to the forefront,” he says. “We had a big wakeup call in 2008 with Hurricane Ike. It nearly shut us down. We were not prepared. We had to rebuild from the ground up.
- Thomas made a decision to move critical operations off the first floor to the second floor. We chose to go above and beyond and build 20 feet above sea level. We also had a replacement hospital and a women’s hospital. We brought in flood walls. We have to meet wind storm requirements and exceed Miami Dade standards. We put a new façade on John Sealy Tower and we put in terrazzo floors that are more resilient to the possibility of water damage.

## The Art of the Big Healthcare Projects: Managing Scope, Schedule, Cost, Execution, Expectations & Ghosts

*Matt Byman, Vice President, Operations Vaughn Construction*

*Sunita Ganjoo, Senior Project Manager, Harris Health*

*Rick Polvino, AIA, LEED, AP Principal, the S/L/A/M Collaborative*

*Marissa Vasquez, Director, Facilities & Construction Projects, Houston Methodist*

*Moderated by Greg Francis, VP, Layton Construction*

- Matt Byman says he came to healthcare once he realized “I could build things that mattered.”
- Marissa Vasquez, an architect by trade, has overseen construction of Methodist Willowbrook, Baytown, Clear Lake and now, Cypress, the Hospital of the Future. Vasquez said that on these longer projects, it would be most helpful to have a large “No” button from Staples.
- Advantages of the Mega Projects are the longer schedules and grander budgets. “We all have to deal with escalated schedules, the risks of materials that are no longer available and the larger number of “personalities,” the group agreed.
- Rick Polvino mentioned one of the problems is what to do with all the backfill space.
- Harris Health’s Sunita Ganjoo looks at how the new system can be a growth engine and how the community will support that growth.
- Matt Byman says he identifies the leadership group early, creates a charter that may be referenced as people come and go. He believes it’s important to map out all the meetings and what decisions need to be made early on. Also, have the contingency that there will be changes on the organization side and unforeseen events that can happen. It’s important to be prepared by having the basics under control.
- The panel also recommends “The 90-Day Pause” to live in the space, see what’s working and what’s not before close out.

## Master Planning: Fulfilling a Visionary Plan and Avoiding Mistakes

*Sid Sanders, Jacobs Management*

*Liz Schmitz, AIA, EDAC, Director, Facilities Planning, Design & Construction, MD Anderson*

*Curtis Skolnick, Facility & Capital Asset Planning Principal, ECG Management Consultants*

- Sanders quoted the late President Dwight D. Eisenhower saying, “Plans are useless, but planning is indispensable.” and John Lennon who said “Life is what happens while you make other plans.” A masterplan can be far more complicated.
- Should a masterplan go out 5-10 years? Some folks want to look 20 years out. Sanders says they try to do 5-10 year forecasting based on what is expected to occur in the market. For more than five years, it’s a challenge and you have to incorporate a lot of scenario planning. The key here is to build soft space and refrain from building in roadblocks.
- M.D. Anderson goes out past the ten-year mark. “Our TMC campus has so much capacity because our patients come from all over,” says Schmitz. Sanders recalled starting a building back when there were surface parking lots. Since then, parking has all gone vertical. M.D. Anderson takes a broad look at all their facilities. “We like our buildings to send the same message, with the same quality of care,” says Schmitz. “Our suburban locations are ambulatory locations, and we are seeing a shift to the ambulatory side.”
- What happens if you don’t have a masterplan? You can be at risk of using space for the first thing that comes to mind and when the true need comes along, its not available. There’s danger in building to the loudest voice in the room. This risky planning was compared to an M.C. Escher painting or “like having a sink in the middle of the bedroom.”
- What you want is physical alignment. Most of M.D. Andersons’ plans have been in play for 25 years.