



BSA LIFESTRUCTURES

HEALTHCARE PLANNING SERVICES

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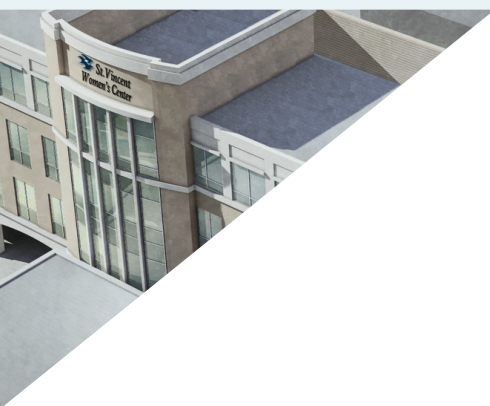
Planning Services

Getting design right without over-or underbuilding requires a meticulous pre-design planning effort. Effective Planning is critical to ensure that the right decisions are made before design and construction begins. The BSA LifeStructures Planning Team helps clients to discover and create a reimagined future. Our planning experts empower clients to think beyond their current state and experiences in order to explore and develop future strategic, operational and infrastructure needs. Based upon rapidly evolving demands in healthcare, academic and research environments, the facility planning studio delivers ideas, technologies and leading practices grounded in Lean methodologies, and industry benchmarks. As a result, planning becomes the owner's roadmap to shaping future success.

Healthcare Master Planning

The increasing complexity and evolution of healthcare means today's design solution may not be relevant tomorrow. BSA LifeStructures addresses this challenge with a multidisciplinary group of healthcare planners who integrate patient care, organizational strategy, finance, technology, and design issues into a long-term solution.

Planning initiatives are enriched through on-staff clinical and operations professionals that challenge efficiencies of existing processes and reinvent future-state processes utilizing Lean methodologies.

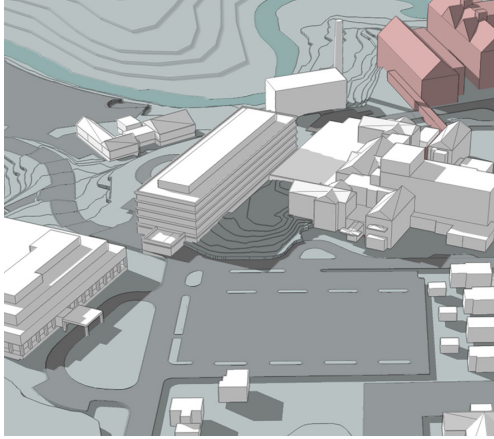


Employing Leading Practices, evidence based design and best-in-class benchmarks helps to identify opportunities for improvement and facility planning directives that will have optimal impact when implemented.

The end result – strategic campus and facility planning initiatives that inform your capital planning strategy and prioritize key facility decisions to promote stability in a healthcare market changing at an incredible pace.

Discover more at bsalifestructures.com/planning

Significant Projects



Bassett Healthcare Campus Master Facility Plan

COOPERSTOWN, NEW YORK

Blending modern improvements and amenities with a historical hospital campus can be challenging. With several buildings nearing a century old, Bassett Healthcare faced this problem. Engaging a team of BSA LifeStructures planners, architects and engineers, a campus master plan was devised to reinforce the historic image while integrating a plan for the future.

KEY FEATURES

- Comprehensive campus plan based on clinical objectives for academic medical center
- Best practices criteria for clinical and outpatient functionally
- Collaborative facility assessment
- Parking analysis drivers
- 185 beds: based on analysis and data
- 1,500 parking spaces
- More than 1,000,000 sf of facilities



Boone Hospital Center Strategic Campus Plan

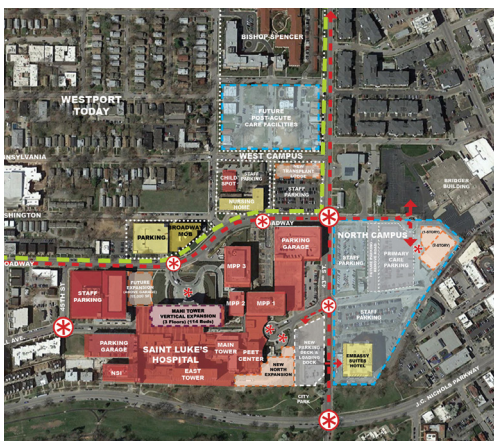
COLUMBIA, MISSOURI

With growing needs for patient care and increasing competition, Boone Hospital Center undertook a Strategic Campus Plan to establish future facility plans for the hospital. Boone Hospital Center is a 397-bed regional referral hospital located in central Missouri.

The Strategic Campus Plan anticipates and addresses the future state of healthcare delivery, providing facility strategies to support Boone Hospital Center's vision for growth.

KEY FEATURES

- 17.5-acre hospital campus
- Multiple facilities both on and off campus
- Development of ambulatory care facility strategy
- Financial strategic plan for capital investment



Saint Luke's Health System Master Facility Plan

KANSAS CITY, MISSOURI

The Saint Luke's Master Facility Plan studies all 10 campuses for the Saint Luke's Health System. It includes assessment and proposed "Highest-Best" use of existing assets from functional, financial and facilities perspectives.

KEY FEATURES

- Planning included 10 hospital campuses
- Included total build-out capacity for each campus
- Outlined future land acquisition opportunities and priorities
- 10-year Capital Budget (inclusive of Medical Equipment, Infrastructure and projects)

To learn more about how our Healthcare Master Planning Services can benefit your company, please contact:

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Operations Planning

BSA LifeStructures provides operations planning services to ensure function and form unite. The firm's experienced team of clinicians uses lean principles and tools to maximize operational efficiency and provides performance metrics to enable continuous improvement. Healthcare operations' planning addresses the model of care, staff efficiency, workflow, safety and patient experience from the view of healthcare professionals who have worked and managed in the healthcare environment.

Our operations experts have walked our clients' walk and are thought leaders who stay engaged with the evolving changes in the healthcare industry. Our value is to bring operational and functional solutions to the planning and design process before and during design. In today's world it is critical to create value by maximizing efficient processes in the context of both operations and design.

Discover more at bsalifestructures.com/planning



Operations Planning can be part of a Facility Master Plan Team or an individual study that brings to the table:

- Project organization, leadership and meeting facilitation
- Visioning session facilitation
- Utilization data analysis
- Research and application of leading practices and lessons learned
- Understand current state processes
- Develop innovative solutions for future state process
- Improve throughput and flow of patients and staff
- Identify opportunities for cross-training and transitioning “silo” departments to cross-functional units
- Identify solutions to issues that can improve patient safety and satisfaction
- Improve efficiency

Significant Projects



Grady Memorial Hospital – Women's & Infants' Center ATLANTA, GEORGIA

The new Women's and Infants' Center will provide expectant mothers and their families a warmer, more comforting experience as they welcome their babies into the world. Grady Hospital's transformed Women's and Infants' Center will incorporate the latest technologies and industry best practices and will include a dedicated entrance, modern labor and delivery suites and one of the state's first single family room Neonatal Intensive Care Units.

KEY FEATURES

- 12 New LDR beds, six new GYN ICU beds, six new triage beds
- Complete renovation of the fourth floor South Building to include new patient rooms, nursing units, infrastructure.
- Planning phase included a functional program and operational study



Boone Hospital Center COLUMBIA, MISSOURI

With growing needs for patient care and increasing competition, Boone Hospital Center undertook a Strategic Campus Plan to establish future facility plans for the hospital. Boone Hospital Center is a 397-bed regional referral hospital located in central Missouri.

The master plan included an in-depth operational study of the ED & Surgical Services resulting in suggested improvements in processes to more effectively utilize current space.

KEY FEATURES

- 17.5-acre hospital campus
- Multiple facilities both on and off campus
- Development of ambulatory care facility strategy
- Financial strategic plan for capital investment



Greater Baltimore Medical Center BALTIMORE, MARYLAND

BSA LifeStructures was engaged to update the existing Facility Master Plan with a focus on the acute care environment. The planning engagement included a current state assessment of facilities and operations, data analysis, a high level review of medical equipment, and infrastructure upgrades to building systems, and an in-depth study of the ED & Surgical Services which resulted in suggested process improvements.

KEY FEATURES

- Converted all inpatient rooms to private rooms
- Provided increased capacity to the ED to accommodate 1% annual growth
- New private room NICU provided
- Co-location of surgery with all interventional radiology procedure rooms
- Consolidation of imaging department from six locations to four locations

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Transition Planning

BSA LifeStructures provides transition and occupancy planning services to ensure that staff are prepared for the opening of their new facility. The firm's experienced team uses Lean principles to maximize operational efficiency and provides performance metrics to enable continuous improvement. Every aspect of the design, from drawings to operational plans, is "brought to life" for the staff's comprehension. This team-based focus allows our experts to identify and refine critical process flows.

"Operationalization" requires a detailed plan and focus for success. The journey is likely to face obstacles, cultural challenges and workforce implications. We manage these with the end goal of readiness in mind.

Discover more at bsalifestructures.com/planning



Throughout the process, our team will:

- Create a road-map for service and departmental leadership to use for staff training and orientation
- Map patient and work processes
- Determine those operational initiatives that can and/or should be implemented in advance of moving into the new facility
- Identify opportunities for cross-training & transitioning "silo" departments to cross-functional units
- Identify barriers and potential obstacles and facilitate resolution
- Our goal is to work with you to identify processes that will or should change due to the new design and to facilitate development of the processes

Significant Projects



Eskenazi Health Transition Planning

INDIANAPOLIS, INDIANA

BSA LifeStructures worked with leadership, departmentally and cross-functionally to move staff from “current state” to “future state”, bring drawings to life documenting all processes and flows, ensure the original intent of the project is carried through to operations and provide Day 1 readiness with patient safety in mind.

KEY FEATURES

- Lean process planning throughout
- Multidisciplinary approach includes 82 departments and services
- Identified and improved over 126 processes
- Developed path of travel for patients, staff, materials and equipment
- Cross training of staff in prep/recovery and acute care



Castle Rock Adventist Health Campus Transition Planning Services

CASTLEROCK, COLORADO

Approximately 18 months in advance of the anticipated opening, BSA LifeStructures was engaged to provide Transition and Occupancy Planning services. The project included operational integration of the existing ED, Lab and Imaging departments, and new operational process development for all services and departments being added.

KEY FEATURES

- 36 Med/Surg, 8 ICU, 4 LDRPs and 2 Post Partum rooms
- 3 ORs, 2 Endoscopy rooms and 1 Interventional Radiology / Cardiac Cath Lab room
- Advised on leadership structure and plan for hiring staff
- Developed “Day-in-the-Life” activation drills to test for operational readiness



NeuroDiagnostic Institute Transition Planning

INDIANAPOLIS, INDIANA

Meeting were held focusing on operational changes based upon the new physical design. It became inherent that care models and patient flows kept with the original design intent of the new hospital as well as inclusive of the leadership’s vision and processes that afforded maximization of the new hospital, admission processes and security practices.

KEY FEATURES

- Development and documentation of key paths of travel within and connecting to the existing facility
- Identification of critical process that needed change by understanding current state and developing and documenting future state process flows.
- Multidisciplinary approach includes 18 departments and services

To learn more about how our Transition Planning Services can benefit your company, please contact:

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Technology Planning

LifeStructures Technology Planning provides the linking pin that connects Stakeholders to Design Architects and Engineers through experience and application of Technology Decisions. The staff implement current functions to future needs through technology and its application to real situations. Our services include:

Assessment Of Current Technology

We provide a detailed assessment of current technology by quantity, condition, age, fair market value and estimated life.

Strategic Capital Planning

The Strategic Capital Plan provides a year to year projection of cost for maintenance of Status Quo, expansion due to volume growth or replacement due to new technology.

Component of Master Facility Planning

The technology component provides the capital planning requirements to achieve the overall goal for the facility, staffing and revision of services provided.



Owner Furnished Equipment Documentation

We work with Architects, Users and MEP Engineers to provide the Owner Furnished Equipment (OFE) Spec book, equipment budget, capital avoidance and relocation costs for the entire project.

Capital Avoidance for Facility Merges & Acquisitions

The value in combination of specific services at one site or duplication of services at multiple sites is a critical determination of the value of combining existing technology. This process often results in unique “Centers of Excellence” for multiple services that select the premium equipment from all facilities to a single site.

Discover more at bsalifestructures.com/planning

Significant Projects



Major Hospital

SHELBYVILLE, INDIANA

The hospital focuses on outpatient services with a small percentage of inpatient services. An Emergency Department, Imaging, Ambulatory Care Center, Surgery, Birthing Center, ICU, Medical / Surgical Unit and Post Surgical Unit are included in the new facility. The entire second floor is designated to physician offices and exam space.

KEY FEATURES

- Bed capacity: 48 and 4 LDRs
- 38 ambulatory care rooms with toilets
- First post Affordable Care Act facilities in the United States
- 100% emergency power
- Flexibility for the future
- Energy Efficiency - 90 or higher "Energy Star" rating



Emory University Midtown Hospital

ATLANTA, GEORGIA

This project is part of a multi-faceted interior renovation project that includes – Lobby Level Beds, Core Lab Renovation/Relocation, and Pharmacy Clean Room Addition – to improve its existing facilities. Each project has its unique program challenge as the facility has very few remaining spaces available for relocation and phasing.

KEY FEATURES

- Conversion of existing business office into an 18-bed intensive care unit
- Conversion of existing employee lounge and incident command center into a new laboratory
- Addition of approx. 1,200 sf clean room



Centegra Health System – Huntley Hospital

HUNTLEY, ILLINOIS

Centegra Huntley Hospital is the third Centegra hospital that is serving McHenry County, IL. This completely new hospital compliments existing hospitals in McHenry and Woodstock. While it is all new, it was coordinated and standardized with the existing facilities for economy, flexibility and backup support for equipment and staff.

KEY FEATURES

- 384,135 SF Hospital
- 128 beds with 10 operating rooms, cath lab, large Family Birth Center, full radiology, laboratory, GI Lab, emergency department and expansion features for the future

To learn more about how our Technology Planning Services can benefit your company, please contact:

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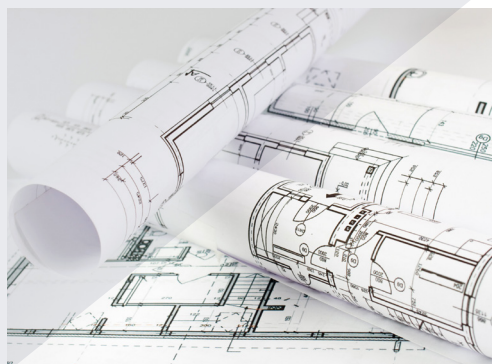
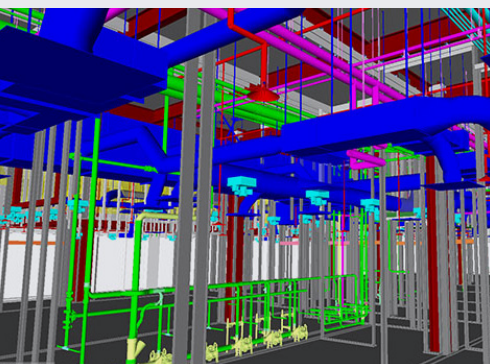
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Facilities Management

Effective facility management is a byproduct of good information gathering and planning throughout the life-cycle of a building. Every building has a complexity of needs depending on age, infrastructure, systems, budgets, safety compliance and other regulations. Facilities Management is a critical, strategic business discipline, using emerging technologies along with current and historic building and infrastructure data to enhance facility operations. BSA LifeStructures' facilities management team will identify the tools and processes needed to plan, maintain, acquire and optimize your facility. Professional facilities management can help organizations respond to cost pressures, compliance auditing, adaptability and sustainability.

Discover more at bsalifestructures.com/planning



Services

Facility Drawings

Creating and maintaining current facility drawings for Architectural and MEP plans

Regulatory Compliance Drawings

Life Safety, Air Handler Zones and Dampers, Medical Gas Zones and Valve Locations, Fire Protection Zones, Utility Services, and Main Shutoff Locations

Space Management Documentation

Space Management drawings and reports for department analysis, real estate, and CMS reporting

Building Information Modeling (BIM)

Create master 3D models for new or existing buildings

3D Scanning & Reality Capture

Capture 2D and 3D data to create a complete 3D model of a building

Facility Condition Assessments

On-site assessment to gain a comprehensive understanding of facility, assets, and systems based on age, materials, design, usage, and life expectancy.

Facility Management Process & Deliverables

FACILITY DRAWINGS

Services Provided	Architectural Base Plans MEP Engineering Plans Site Plans
Benefits	<ul style="list-style-type: none">• Current plans are a regulatory requirement.• Assists facilities staff with preventative maintenance & other daily tasks.

SPACE MANAGEMENT

Services Provided	Space Management Drawings Space Management Reports Departmental Color Highlighted Plans
Benefits	<ul style="list-style-type: none">• Space Management Drawings illustrate space usage & allocation.• Data is compiled into reports.

REGULATORY COMPLIANCE

Services Provided	Life Safety Plans Air Handler Zones & Dampers Medical Gas Zones and Valve Locations Fire Protection Zones Utility Service Plans Main Shutoff Locations
Benefits	Regulatory Agency and Code Compliance plans are used for maintenance, JCAHO, DNV and HFAP surveys, and strategic planning.

BUILDING INFORMATION MODELING (BIM)

Services Provided	Create master Revit® models of existing facilities from existing plans Create a master Revit® model by merging models from recent projects Provide annual project updates to master model
Benefits	Current Revit® models can be used for future construction, energy management, detailed asset tracking, and 2D & 3D visual space analysis.

FACILITIES CONDITIONS ASSESSMENTS

Services Provided	Standard Assessment – On-site inspection for current condition of building & assets Site Specific Assessment – <ul style="list-style-type: none">• Continuity of Brand: Standardization across facilities• Interior Enhancements Opportunities to improved HCAHPS• Real Estate Survey: Occupancy Assessment and Consolidation Strategy of existing buildings or acquisition targets• Bed Licensure Survey
Benefits	Gain a comprehensive understanding of facility, assets, and systems based on age, materials, design, and life expectancy. Prioritize repairs, replacements, and capital projects.

3D SCANNING & REALITY CAPTURE

Services Provided	Captures 2D photography and 3D data from job sites, and automatically stitches them into a complete 3D model of a real-world job site.
Benefits	Point Clouds can be exported to AutoCAD® or Revit® creating a highly accurate 3D model. Reference point clouds into a 3D model to avoid collisions with a proposed design, avoiding costly rework. Scanning replaces the time consuming and less accurate method of manually recorded field measurements. Especially useful when there are no existing drawings or the information on the drawings is out of date for a project.

To learn more about how our FM Services can benefit your company, please contact:

Chase Miller
Director, Planning

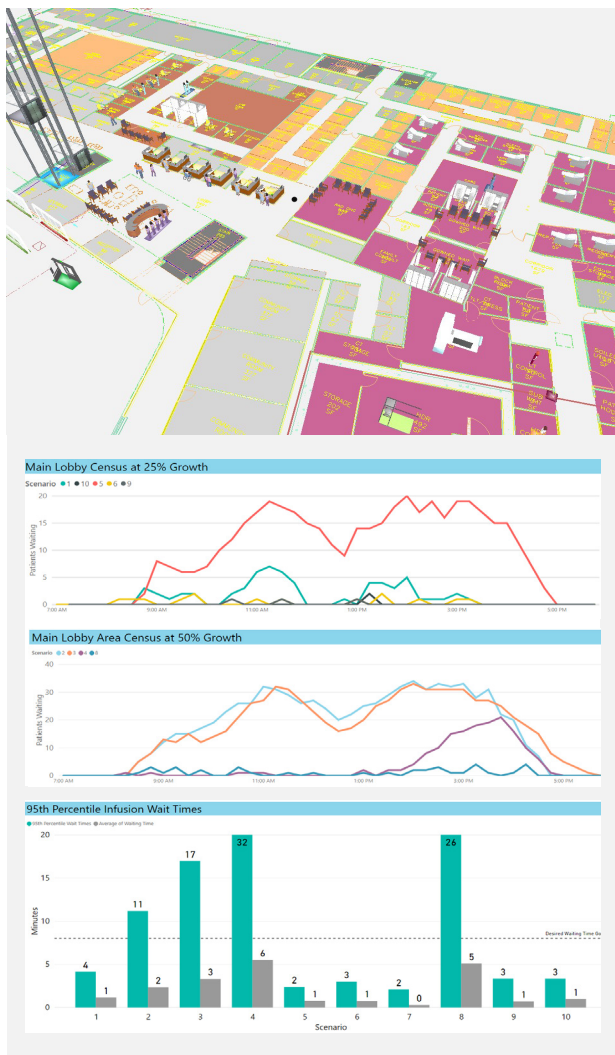
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Simulation Modeling

BSA LifeStructures (BSA) provides simulation modeling services to clients by analyzing how they use and occupy their spaces. The firm's experienced planners and designers utilize simulation modeling software to maximize operational efficiency through a more detailed look into examining healthcare processes and layouts. While traditional planning uses generalized "rules of thumb", this analytical process uses facility specific data to help clients make objective, data-driven decisions. Simulation modeling takes a combination of historical data from the client, data on the physical space, processes and workflows, as well as people-based information (number of staff, type of staff, etc.) to identify the client's current operations. By understanding the current state, it allows our experts to analyze trends and meaningful patterns within the data to identify opportunities for maximizing efficiencies. Some operational efficiencies that can be identified through simulation modeling include increasing workflow efficiency, patient and staff safety, minimizing wait times, and improving the patient and staff experience.



Simulation Modeling is a critical decision making tool that can:

- Test new designs or processes before building them
- Align the process of delivering care with the space that it is delivered in
- Determine the ideal number of key rooms and support spaces for a current or future demand
- Test new treatment models or equipment upgrades for their effect
- Optimize staffing and scheduling, supply chain, transport and medical equipment
- Gain insights into new or unique healthcare processes, where typical planning strategies do not fit

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