

INSPIRING SCIENTIFIC DISCOVERY



BSA



Every program is unique, and we design solutions tailored to your specific needs.

We create inspired solutions that improve lives

46

Years since BSA was founded in 1975

6

Regional Studios
AUSTIN | DENVER | INDIANAPOLIS | RALEIGH |
ST. LOUIS | TAMPA

180

Employees across multiple disciplines

#12

2020 Building Design + Construction Top Architecture, Engineering, and Construction Firms in the Science & Technology Facilities Sector



2020 ISPE Facility of the Year Award in the Category of Operational Excellence (Confidential Client's Innovation Development Center)

NOTABLE CLIENTS

Bayer AG / Boston Scientific / Children's Mercy Kansas City /
Cook Medical / Cook Regentec / Corteva Agriscience (formerly
Dow) / Curium Pharma / Elanco / Eli Lilly & Company /
Endress+Hauser / ICU Medical / Indiana Biosciences Research
Institute / Labcorp (formerly Covance) / MilliporeSigma /
MRIGlobal / PathGroup / PolarityTE / Roche / Thermo Fisher
Scientific (formerly Patheon)



DISCOVERY PRACTICE PROFESSIONAL SERVICES

BSA LifeStructures employs an interdisciplinary approach to design. Moving away from traditional design, decisions are not made in silos. Instead, they are evaluated across multiple disciplines to produce viable solutions that are more easily implemented and supportive of long-term client goals.

PRE-DESIGN

- Feasibility Studies
- Master Planning
- Strategic Facility Planning
- User Requirements Specifications
- Existing Facility Assessment
- Site Selection Analysis
- Space Planning & Programming
- Facility Management (FM) Planning
- Transition & Occupancy Planning
- ROM Cost Estimating

DESIGN

- Basis of Design (BOD) Development
- Architectural Design
- Laboratory Planning
- Process Architecture/cGMP Planning
- Scientific Equipment Planning
- Interior Design
- Mechanical, Plumbing and Electrical Design
- Low Voltage Design
- Value Engineering
- Peer Evaluation
- Scope Definition and Change Management
- Multi-Disciplinary Design Coordination and Oversight
- Life Safety / Code Review
- Renderings and 3d Visual Presentations
- Graphics and Data Support for Fundraising Campaigns
- Wayfinding Design
- Environmental Graphics
- Assistance with Grant Writing and Submission

CONSTRUCTION /
COMMISSIONING

- Construction Administration
- Commissioning
- Factory Acceptance Testing (FAT) Support
- Owner's Technical Representative
- Sustainable Design Coordination
- Post Occupancy Evaluation
- BSL-3 Certification



Design that inspires
what's next.

ENTREPRENEURSHIP & INNOVATION

Incubators, accelerators, and innovation districts are designed to ignite collaboration among innovators and entrepreneurs in life sciences, tech, advanced manufacturing, and engineering fields. Startups and pre-revenue ventures are immersed in a culture of support and speed-to-market acceleration.



- 1 Research labs are semi-transparent with decorative glass patterns that let light filter through while obscuring the research teams and their work.
- 2 Common space serves the building's tenants' needs, creates a venue for hosting events, and meeting colleagues and friends.
- 3 Throughout the building, investigators are immersed in light that filters through the building's facade. This light reminds the staff of the importance of their work and discoveries.

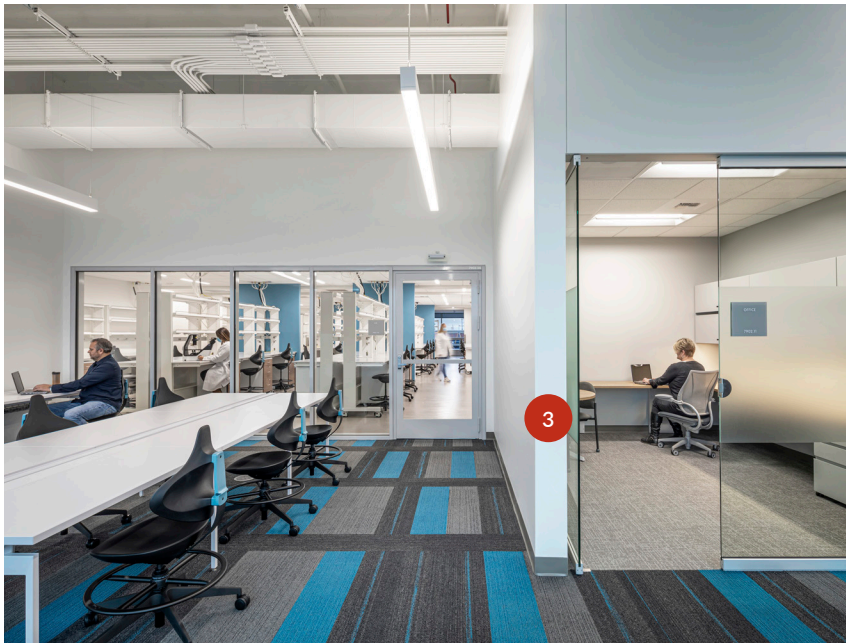
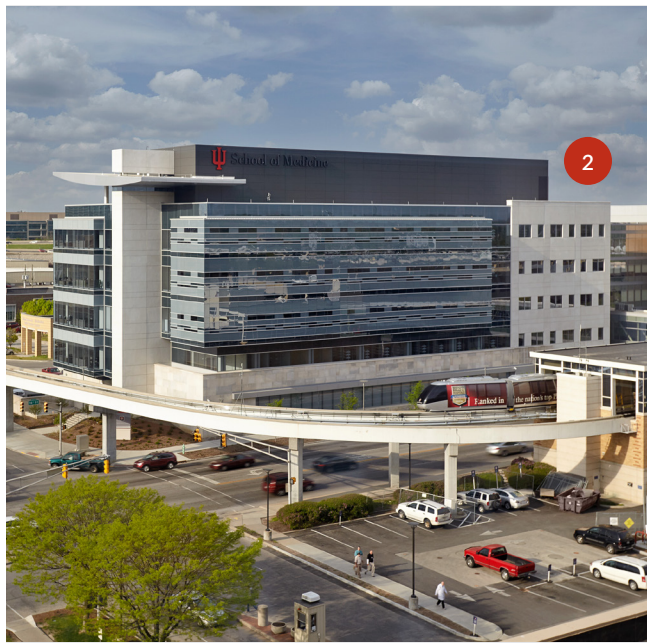


TRANSLATIONAL RESEARCH

Focusing on translating discoveries into readily available medical solutions requires world-class researchers as well as facilities. Spanning the entire medical spectrum, facilities enable collaboration and a fluid exchange of information across discovery, clinical development, and practice.



- 1 Bright and reflective surfaces create an uplifting environment while intentionally placed pops of color highlight areas for collaboration.
- 2 The structure links directly to clinical space to easily offer bench-to-bedside collaborative research and technical support.
- 3 The researcher's workstations needed to be adjacent to the lab. The connectivity allows them to stay part of the research while completing focused work nearby.



DIAGNOSTICS

Clinical laboratories have an immediate impact on the health and safety of patients. The importance of designing labs that optimize testing capacities, speed, and accuracy cannot be understated. Lean laboratory planning, Six Sigma process tools, in-depth knowledge of equipment, and experience with Clinical Laboratory Improvement Amendments (CLIA) are essential to achieving optimal lab design.



- 1 The state-of-the-art biorepository collects, processes, stores, and distributes biospecimens that assist researchers in standardizing specimen preservation in accordance with best practices.
- 2 Determining the appropriate square footage required for a department can be a complex task and should be done by evaluating several criteria such as specimen receiving, accessioning, and processing.
- 3 Mobile casework and benches with plug-and-play utilities allow for quick reconfiguration to accommodate changing diagnostic approaches.

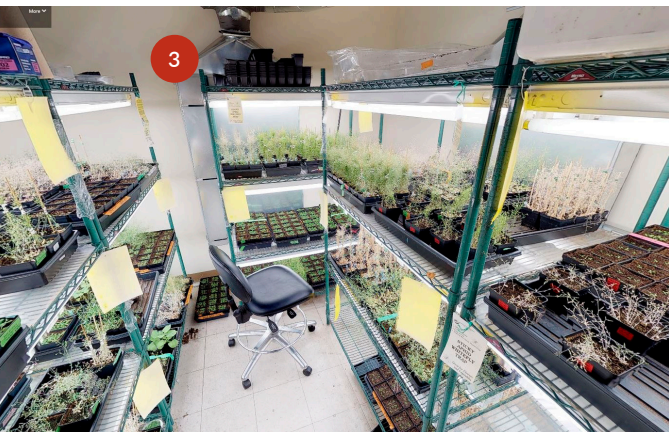


PLANT SCIENCE

As the world population continues to increase, plant science will play an essential role in maintaining the world's food supply and improving the environment through plant-based alternatives to fuels, proteins, and cleaning products.



- 1 MEP services are delivered to the lab spaces utilizing ceiling service panels that contain all the gases, power outlets, and telecom outlets in a consistent grid from the ceiling and a consistent spacing along the perimeter of the labs.
- 2 An efficient seed processing system that is 100% modular to maximize flexibility and designed specifically for modern seed research needs.
- 3 Due to the specialized nature of the plants and seeds being grown, custom exhaust for the ductwork was developed, allowing to maintain humidity control in the plant growth room.



BIOTECHNOLOGY

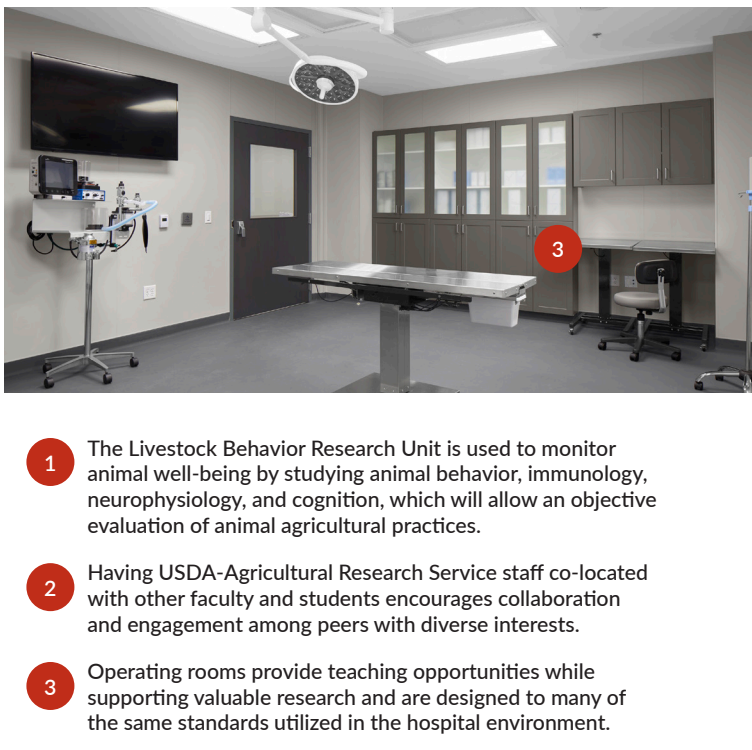
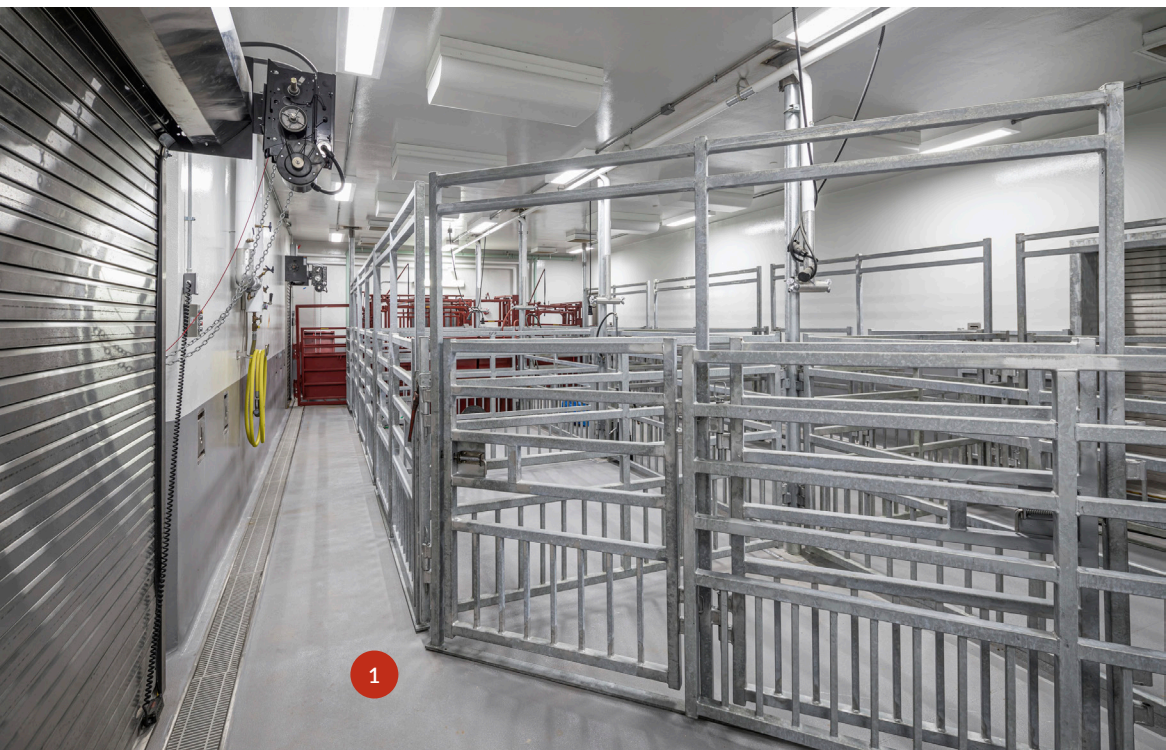
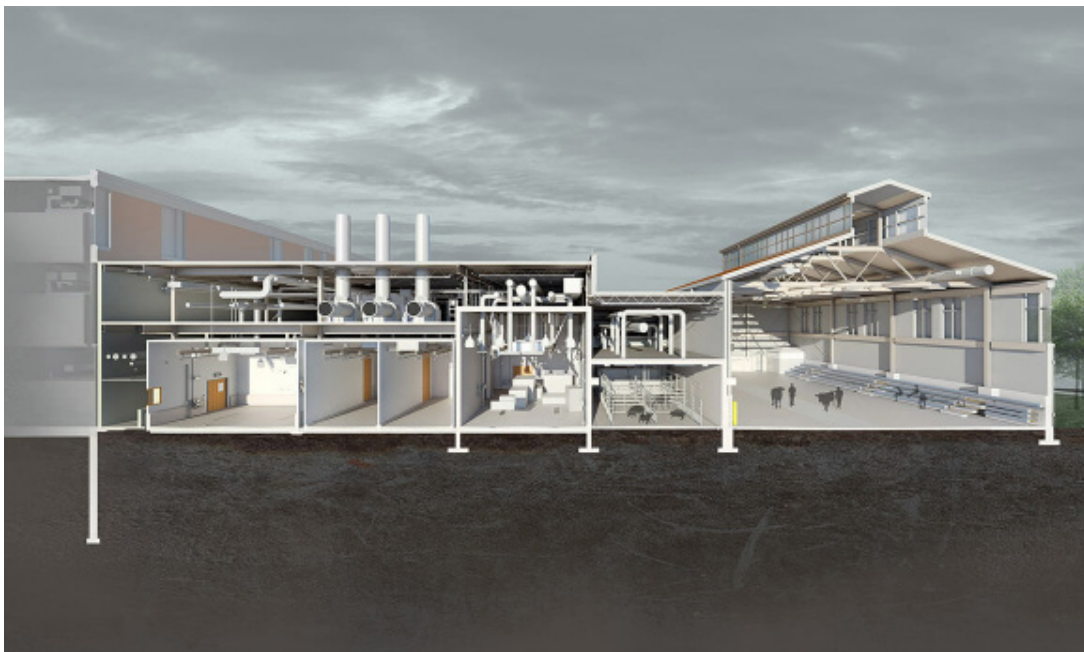
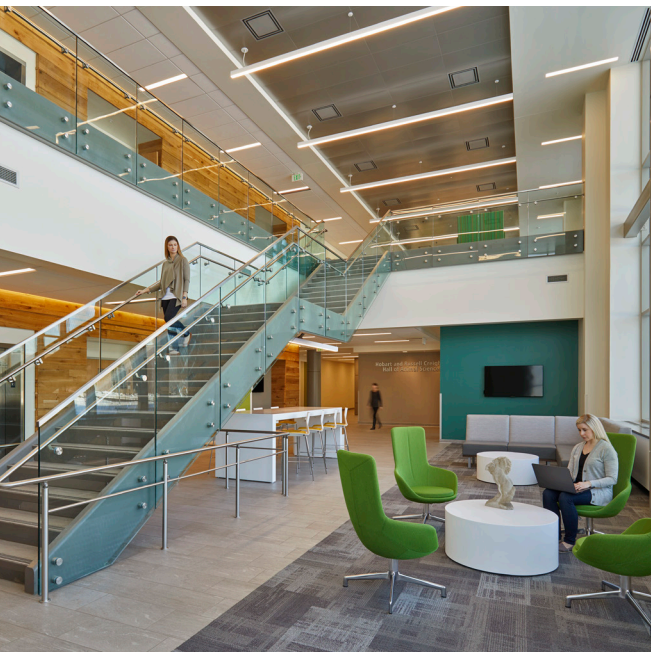
Through advancements in areas such as mRNA and cell and gene therapy, start-up companies continue to emerge from academic and medical research settings while established pharmaceutical companies prepare to develop and manufacture new and evolving drug modalities. Multi-modal facilities that are agile and adaptable to these evolving modalities are key in meeting demands and speed to market expectations.



- 1 A cGMP facility supports phase one and two clinical trial for cell and gene therapy products.
- 2 The cryo-electron microscope is a modern marvel of a machine that allows scientists to look at how proteins and viruses are built atom by atom.
- 3 World-class facilities, including BSL-3 laboratories and large insectary complexes, provide an outstanding scientific environment for researchers.

ANIMAL HEALTH

Rapid technological advances in animal health match the rise in companion animal ownership and the growth of the livestock industry. These advances are led by medicinal feed additives, preventative pharmaceuticals and biologics, food safety, and advanced care for pets.



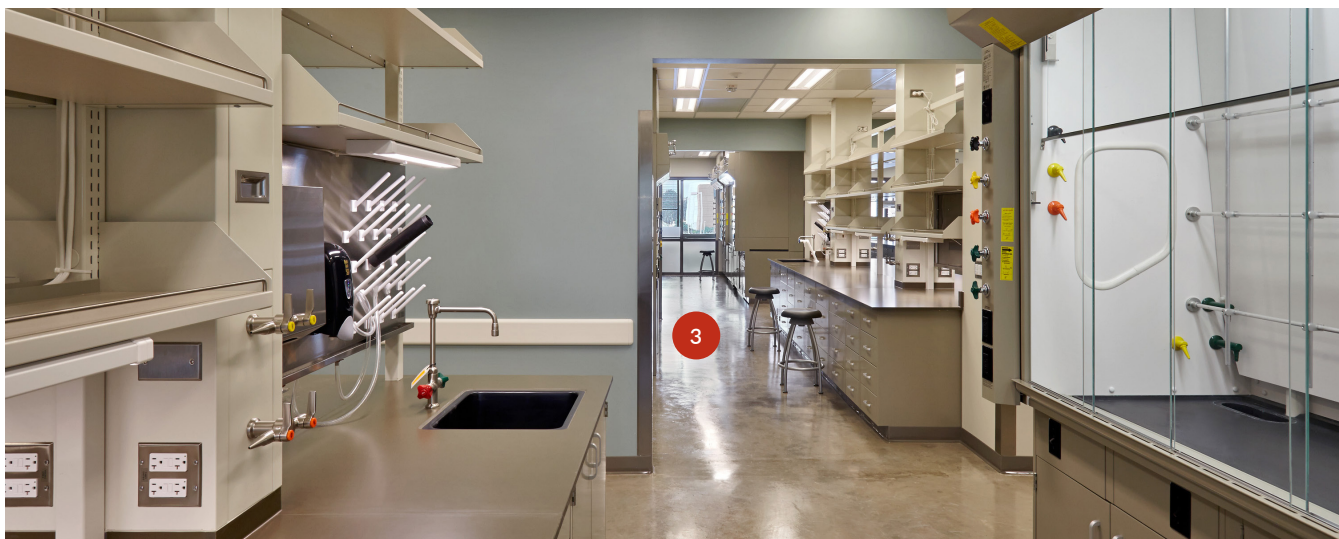
- 1 The Livestock Behavior Research Unit is used to monitor animal well-being by studying animal behavior, immunology, neurophysiology, and cognition, which will allow an objective evaluation of animal agricultural practices.
- 2 Having USDA-Agricultural Research Service staff co-located with other faculty and students encourages collaboration and engagement among peers with diverse interests.
- 3 Operating rooms provide teaching opportunities while supporting valuable research and are designed to many of the same standards utilized in the hospital environment.

PHARMACEUTICAL DISCOVERY

Research in chemistry and biochemistry requires a level of flexibility that keeps pace with the rapid advancement of discovery. “Plug and play” has moved beyond the bench to include mobile fume hoods and entirely convertible laboratories. Workplace design principles such as biophilia and daylight are critical to recruitment and retention.



- 1 A research lab core surrounded by offices and support spaces maximizes convenience, comfort, and safety.
- 2 Using pre-assembled modules (PAM) with integrated MEP systems and mobile instrument carts allow for easy change and reconfiguration of the labs.
- 3 Labs are designed to either be continuous and connected or separated into smaller clusters, creating flexibility and adaptability.



ROBOTICS

These centers and institutes explore the next generation of robotics by bringing together researchers from industry, government, and academia to collaborate around emerging fields. New paradigms are emerging which align design, machine learning, materials, software, cognitive science, and security to serve society. Strategic partnerships are critical to accelerating innovations from research labs to the real world.



- 1 One-of-a-kind flight simulator with adjustable wind speed that allows the locust to fly in place.
- 2 This lab features integrative technologies such as manual and robotic assembly, material handling, and storage systems.
- 3 The interior features large openings and glazed walls to allow viewing of the labs and utilize materials appropriate for robotic movement throughout the building. The idea that the entire building is a lab.



MEDICAL DEVICE

Advancements in technology, such as robotics, 3D printing, and smart devices, are driving the development of new medical devices and revolutionizing the way these products are made. Planning for new facilities or adapting existing facilities to accommodate these new products and manufacturing processes is a critical step in optimizing speed to market and establishing or maintaining a competitive advantage.



- 1 ISO 6 laboratory with full-height glass windows so visitors can tour the facility without impeding on the clean room space.
- 2 Medical device facilities incorporate some of the most demanding and stringent regulations in the industry.
- 3 Stem cell therapies, or DNA mapping from the research performed inside, informed the architectural language for the exterior with a special message incorporated on the front facade.



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