

Gresham Smith

Building Engineering



GreshamSmith.com

Celebrating
51+ Years

950+ Professionals in
25 Offices Worldwide

300+ Firmwide Design Awards

General Rankings

*Building Design +
Construction (2018)*

- #14 Top Architecture/
Engineering Firms

Engineering News-Record (2018)

- #83 Top 500 Design Firms
- #58 Top 100 Pure Designers



We are a global company with well-established roots in each of the communities we serve.

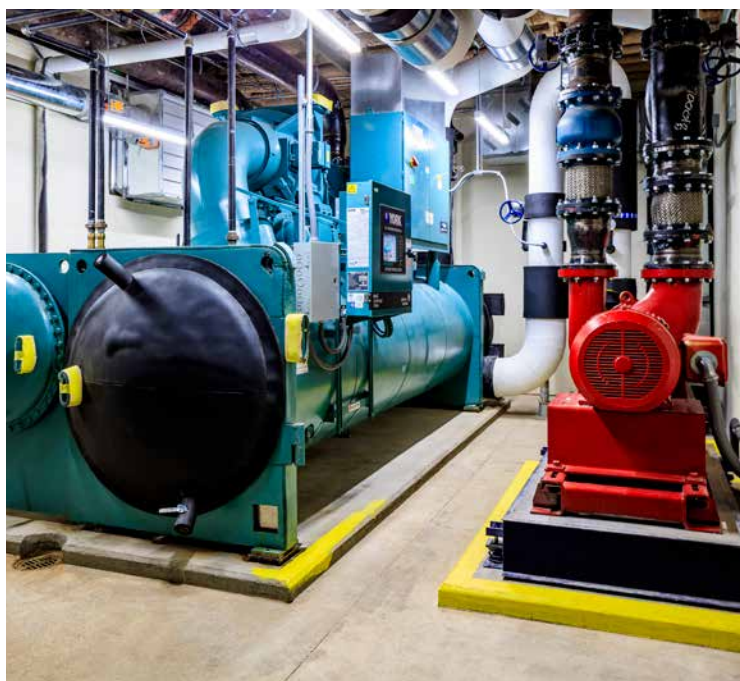
Gresham Smith is an architecture, engineering and design practice that provides creative solutions while genuinely caring for each other, our clients and our communities. With 25 locations throughout the US and Asia, and a home office in Nashville, we offer a global perspective with a local feel. That means we not only bring a broad range of experience to the picture, but we also really get to know our clients, their business and the entire landscape of their project. It's not about our personal accolades or portfolio—we define success by how well we solved the problem and served the greater good of the community.

Markets we specialize in:

- Aviation
- Building Engineering
- Corporate + Urban Design
- Healthcare
- Industrial
- Land Planning
- Transportation
- Water + Environmental

Services we offer:

- Mechanical Engineering
- Electrical Engineering
- Plumbing Design/Fire Protection
- Structural Engineering
- Commissioning
- Threshold Inspection





Building Engineering

Bolstering any architectural execution is thoughtful building engineering. Our mechanical, electrical, plumbing and structural engineers complement our in-house designers and partner well with outside architecture firms. Additionally, our engineering-led solutions extend to postconstruction activities—such as commissioning and inspections—confirming your building systems are safe and efficient. With more than 52 years of experience spanning all major industries, we chalk up our success to a focus on the details and a genuine interest in helping you make sustainable, sound investments.



Metro Nashville

Main Library Parking Garage Nashville, TN



The site where Nashville's Main Library sits has a storied history. Located in the heart of downtown, the city block was once home to Nashville's original synagogue before the Church Street Center, a shopping mall frequented by suburban residents in their Sunday best, opened in 1990. Built before its time, the mall was demolished but the parking garage stayed, and the site became home to Nashville's current public library in 2001.

To keep pace with Music City's booming population growth and tourism demands, Metro Nashville and the Nashville Downtown Partnership called on Gresham Smith to expand parking at the library. Working with Centric Architecture, HWA Parking and Messer Construction, our team designed a three-story vertical expansion to the existing garage, adding 350 additional parking spaces for the growing city.

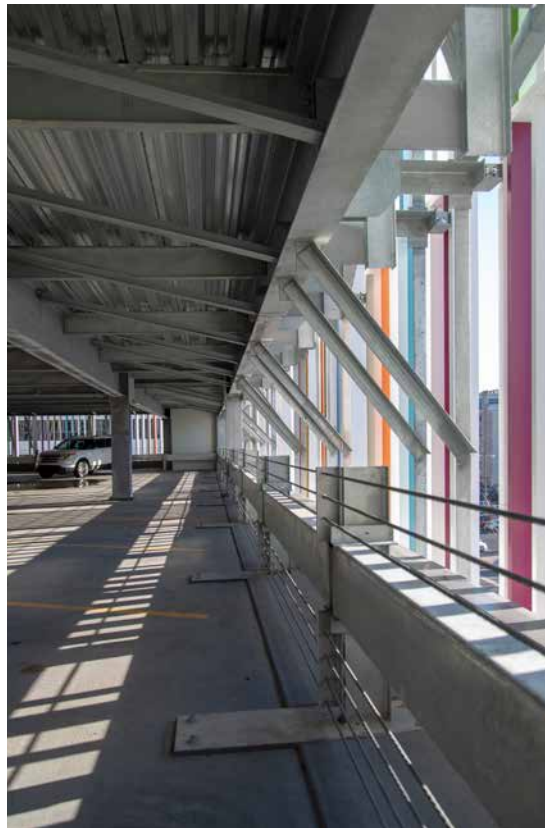
We used steel, rather than concrete, to frame the garage expansion. As a lighter weight material, steel didn't require as

much support from the foundation, and it also allowed us to work faster without the need for concrete formwork. While we did have to block traffic lanes with a crane, we were able to lift steel to the top floor of the garage and move out of the way relatively quickly. Steel also allowed us to use a state-of-the-art steel frame connection technology, rather than traditional welding to construct the additional levels efficiently.

Gresham Smith also improved the garage's overall lighting and circulation and installed new signage and wayfinding on the upper floors. Additionally, our team of structural engineers worked with the project architect to install large panels with angled fins on the exterior of the garage, blending the new steel structure and the existing concrete garage together seamlessly. The brightly colored panels create an identifiable and iconic structure, making it virtually impossible to forget where you parked.



Services Provided
Structural Engineering



Schwan Cosmetics

Headquarters and Flagship Production Facility Murfreesboro, TN

When a German manufacturer of FDA regulated products began looking to consolidate operations from an existing US office and separate manufacturing plant into a single, high-tech location, the company selected Gresham Smith to provide complete design services for the new, 174,000-square-foot flagship production facility.

The overall product flow from raw materials to finished product was a major consideration in the facility as the manufacturing area layout was optimized to promote maximum efficiency, both in product flow and employee travel.

Our building engineering team provided layout and design services for new equipment and systems to serve the manufacturing operations including process

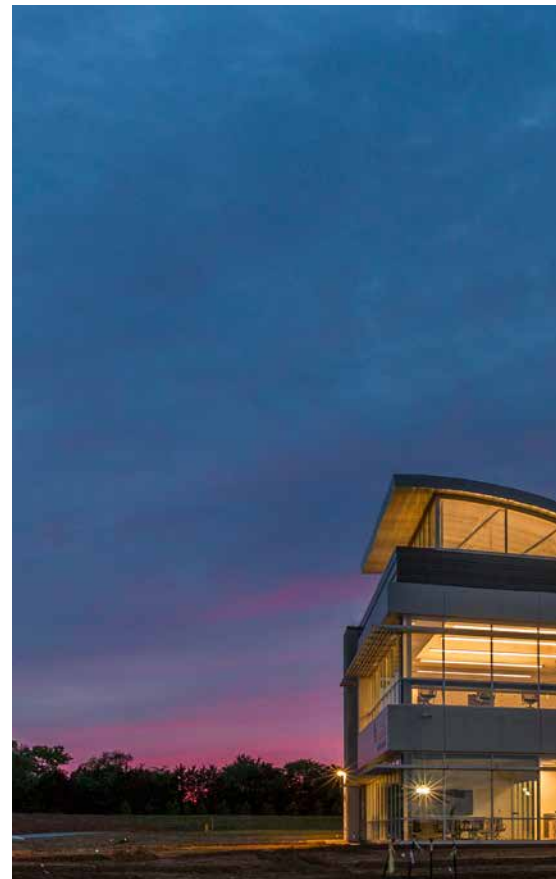
steam, cooling water, high-purity water, compressed air, and dust collection. All new process support equipment was specified and chosen to maximize energy efficiency and system reliability.

Several upgrades were made to relocated equipment ensuring compliance with the latest code revisions and regulations, and a new state of the art wastewater treatment system was also installed in the facility to help minimize environmental impact of the process.

Process system piping, ductwork, and electrical systems were routed above ceiling to allow for easy wash down of the manufacturing areas.

Services Provided

Electrical Engineering
Mechanical Engineering
Plumbing Engineering
Structural Engineering





“Simply looking at the facility – either from the exterior or within – I am proud to say that our dream has come true. By means of this state-of-the-art building, we are showcasing pride in our products and positioning the company for a strong future. The new space supports highly efficient production, ease of maintenance and environmental responsibility. This is the beginning of a new chapter in what will be Schwan’s long and successful U.S. history.”

*—Dr. Joerg Karas,
CEO, Schwan Cosmetics*



Rutherford County

Judicial Center

Murfreesboro, TN

The Rutherford County Judicial Center is a 7 level high-rise multi- use municipal facility housing county clerk, county court functions, Sheriff 's areas, transportation and holding for detainees and secured judicial parking.

The building engineered systems were selected to provide exceptional return on investment for the public funds invested. Early in the project energy models were generated to simulate building operation and select the most cost effective Mechanical, Electrical and Plumbing systems. Computer simulations accounted for the diverse utilization of the building, identifying opportunities for cost savings in energy, operation and maintenance, allowing them to be seamlessly incorporated in the facility design.

MEP/S Services

- High Efficiency natural gas heat, boiler efficiency up to 94%, to provide flexible and low cost heating.
- Energy recovery from building exhaust to pre-condition ventilation air, improving humidity control and reducing energy costs.
- Efficient Chilled water cooling system with integrated free cooling, reducing energy cost and minimizing the building area required for HVAC.
- Unique Return air plenum transfer system to eliminate costly return duct while assuring confidentiality and noise control in sound sensitive public courts.
- Building Automation System to manage the HVAC systems, improving occupant comfort with lower utility costs.



- LED lighting systems to reduce energy use and provide high levels of control for lighting levels and integrating into the building management system.
- Addressable fire alarm system with integrated High-rise smoke control to improve system life-safety response and eliminate duplicated control systems.
- Low flow plumbing fixtures to reduce water consumption and cost.
- High efficiency natural gas water heating system zoned for building use to provide flexibility, reduce energy use and control operating costs.
- Sideplate connections for the steel moment resisting frames, collaborating with the design partner utilizing their proprietary design to minimize structural depth while saving significant money and steel tonnage over conventional framing solutions.



Miami Valley Hospital South

**Facility Master Plan, Women's Services
Renovation and Patient Tower Addition**
Centerville, OH



Following Gresham Smith's master plan update, our team was asked to complete Miami Valley Hospital's new 220,000-square-foot addition. The new five-story South Bed Expansion project is the product of successful collaboration and teamwork between the owner, designers and construction group utilizing design-assist and prefabrication. The plumbing systems included domestic cold and hot water, potable water disinfection, natural gas, a complete automatic wet fire protection system, medical gases, sanitary and vent, and internal primary and secondary roof drainage for the new patient tower. All of the new systems successfully interfaced with the systems in the existing building as well as the site.

MEP/S Services

- Employed a full-team approach to implementing integrated project delivery (IPD), gained operational efficiency through a single platform approach, and were able to deliver the project more quickly because the entire team was on board earlier in the process.
- On-board involvement of the owner, contractor and design team allowed management of the project scope and budget throughout design and construction, while meeting an aggressive total project schedule (15 months from team's notice to proceed with design, to project occupancy for bed tower and central energy plant).
- Selected and scheduled chillers and cooling systems to expand in order to meet the campus master plan, which anticipated growth. Chiller selections were made to allow efficient, flexible operation.
- Design took advantage of existing heating capacity by separating the domestic hot water system from the heating system, improving the efficiency of both systems and reducing the project cost.



In the warehouse: MEP corridor racks



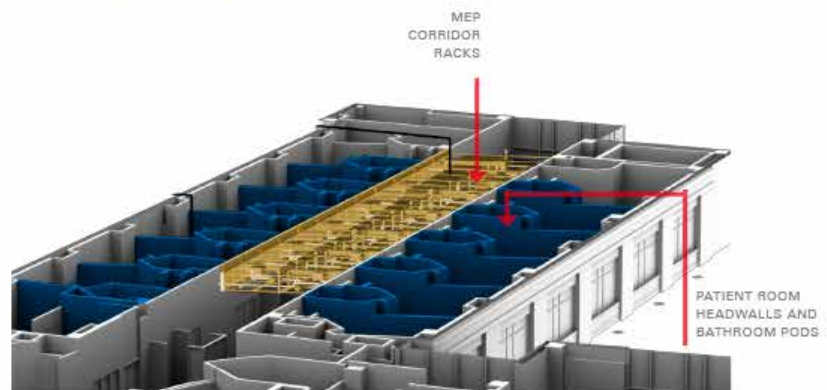
In the warehouse: Patient room headwalls and bathroom pods



Placed on site



Complete Construction: Caregiver stations and corridor



- Incorporated advanced system control schemes for improved operational efficiency including reset of chilled water temperature, heating water temperature, supply air temperature and fan static pressures.
- Integrated heat recovery for entire patient tower and added heat recovery for existing hospital to improve ventilation effectiveness and reduce energy consumption.
- Pre-fab patient room major components (patient headwalls, patient toilet rooms) and infrastructure including corridor rack system for HVAC, power, medical gasses, technology, and plumbing systems and prefabrication of HVAC system risers for multi-story tower.
- Early coordination and installation of infrastructure systems. Infrastructure was designed and installed concurrently with the building foundations and structure.
- Leveraged existing installed capacity to provide redundancy. Unique chilled water system interface allowed the existing inefficient and space constrained chilled water plant to remain in place to serve as a reserve plant that can be placed in service rapidly.
- Maintained surgical suite operation during the addition of operating rooms.
- Provided low temperature capability for new operating rooms with capacity to expand the surgical area.
- HVAC system as funding becomes available.

MedPace

Mixed-Use Development Cincinnati, OH

Located northeast of downtown Cincinnati, Madison Square is surrounded by some of the region's best neighborhoods and shopping areas. RBM Development is transforming the 22-acre site into a mixed-use development anchored by a new 7-story Class A office building that will be home to Medpace.

MEP/S Services

- Structural systems included a combination of Cast-in-place post-tensioned concrete and structural steel framing for an integrated parking garage, office tower and retail spaces.
- Engineering design included ongoing assessment of lifecycle cost to select the best performing and most cost effective solutions. Additional design requirements including new energy code requirements increased the demand for enhanced coordination across the design team.

Contractor involvement over the course of the project allowed the team to work closely together to monitor the cost impact of each specific design solution.

- The site location revitalizes an abandoned brownfield industrial site to be reborn as a dynamic mixed-use development designed as a place to work, live and play.

Services Provided

Electrical Engineering
Mechanical Engineering
Plumbing Engineering
Structural Engineering







Fort Lauderdale Hollywood International Airport

Terminal 1, Concourse A
Fort Lauderdale, FL

Given its location in populous South Florida and its proximity to Port Everglades and the Port of Miami, the Airport is a popular transportation hub for cruise ship passengers and Florida vacationers. In anticipation of continued growth and expansion, Gresham Smith structural engineering was selected to provide design and consulting services for a new 121,000 square-foot concourse addition to Terminal 1, which supports the operations of Southwest Airlines and JetBlue Airways. The new concourse is designed to provide five gates and a dual taxilane to accommodate 737s, A-320s and other Group III aircraft. A corridor equipped with moving walkways will connect passengers to both ticketing and baggage claim areas. The facility also provides ticket counters, passenger holdrooms, restrooms, concessions and a security screening checkpoint.

Modifications to the existing Terminal 1 area included adding a level above the existing roof. Roof trusses of over 100 ft in length spanned across concessions, security and circulation areas. The mezzanine level housing offices and mechanical space were hung from the roof trusses to avoid reinforcing structure in this area. This saved on construction costs and potential conflict the existing baggage conveyor system. Design solutions, including reinforcement of existing beams and columns, had to work around existing conditions and consider the operational needs of the airport which was required to stay in continual service.

Services Provided
Structural Engineering



We assess the structural, mechanical, electrical and plumbing systems in facilities with an

emphasis
on efficiency
and quality.



Architecture
Commissioning
Engineering
Environmental &
Sustainability Services
Experiential Design
& Wayfinding
Interior Design
Landscape Architecture
Planning
Program Management /
Construction Management /
EPCM / Alternative
Project Delivery
Site Development

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Atlanta, GA
Baton Rouge, LA
Birmingham, AL
Charlotte, NC
Chattanooga, TN
Chicago, IL
Chipley, FL
Cincinnati, OH
Columbus, OH
Dallas, TX
Ft. Lauderdale, FL
Jackson, MS
Jacksonville, FL
Knoxville, TN
Lexington, KY
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Tallahassee, FL
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Gresham Smith

Genuine Ingenuity