

Spotlight

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REGULATORY UPDATES | BEST PRACTICES | NEW TECHNOLOGIES

DECEMBER 2019

Our work touches everyday life.

From the water you drink to the air you breathe to the buildings and communities where you live, work and play.

Spotts, Stevens and McCoy is a family-owned regional engineering, environmental, and surveying firm serving local and global clients. We engineer solutions for a better world. Our work touches everyday life; from the water you drink, to the air you breathe, to the buildings and communities where you live, work and play.

EXPERTISE

- Building Engineering
- Site and Civil Engineering
- Survey, Data Capture and Modeling
- Water and Wastewater Engineering
- Construction Phase Services

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SSM Welcomes Ralph Johnson, PE

Spotts, Stevens and McCoy welcomes Ralph Johnson, PE to the team as the Vice President Water and Wastewater Engineering and Operations.



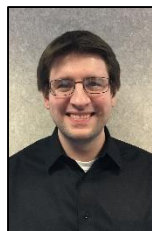
Ralph will direct the water and wastewater engineering and operations services for the firm including all aspects of water and wastewater engineering, municipal and authority representation, water and wastewater treatment operations, treatment plant design, construction phase engineering, water resources, and regulatory compliance assistance.

Previously with the City of Reading as the Public Works Director and City Engineer, Johnson brings more than 35 years of experience in the industry to the firm. His experience includes Consent Decree Compliance, Dam Safety Issues, MS4 regulatory compliance, emergency response planning, capital improvement project planning and implementation, grant writing, bridge inspection and maintenance, and wastewater plant upgrades and construction.

He holds an AS in Chemical Engineering Technology from the Pennsylvania State University and a BA in Business Management and Administration from Alvernia College. Johnson is a licensed engineer in Pennsylvania, a certified PA DEP Wastewater Systems Operator and a certified PA DEP Water Systems Operator. Ralph is active in various industry associations including American Public Works Association, Berks County Public Works Association, PA American Water Works Association, Water Environment Federation, Eastern PA Water Pollution Control Operators Association, Central PA Water Quality Association, and Western PA Water Pollution Control Association and has been recognized by these agencies with numerous individual and facilities awards over the course of his career.



SSM also welcomes Graduate Engineer [Sydney Jernigan](#) to our Water and Wastewater Engineering Department. Sydney is a graduate of Temple University with a BS in Civil Engineering. She will be involved with all aspects of water and wastewater infrastructure planning, design, construction and treatment, including pumping and piping systems for both new construction and rehabilitation/replacement projects.



Congratulations to [Alex Nawotka, GIT](#) for earning his Geoscientist in Training (GIT) designation from the National Association of State Boards of Geology. Alex holds a BS in Geology from Millersville University and a MS in Geology from Temple University. He is an Environmental Scientist in our Water Resources Department.

The Buildings Around Us

Pride | Teamwork | Quality | Integrity

Have you noticed the buildings around you today? Really, have you stopped and noticed them? Have you thought about how and why the building stood through our weather changes? Have you questioned how the lighting fixtures are perfectly spaced to provide exactly enough light at every angle of the room you're in? What about the plumbing? Do you have any idea how the piping might run through the building to maintain the perfect amount of water pressure at all times? Or how strategically the sprinklers are set up- making sure no tiny space is missed in the event of an emergency. Have you noticed it?

We're at the time of year when we find ourselves in and out of shopping malls, staying for a few extra hours at work, visiting shopping centers, or enjoying holiday meals at large-scale restaurants. As you and your family embark on travelling, visiting, shopping, or whatever your holiday season may be filled with- we'd like to challenge you to take a closer look at the buildings around you. Take a moment and notice them.

We take pride in the success of our clients and the buildings around us. Whether it's a specific mechanical or electrical project within an existing structure, or a dream and vision for a new building- we start by understanding the challenge. Owners, architects, agents, and process engineers- we do a lot of listening to appreciate the needs, the budgets, and the goals. We take pride in making those dreams a reality.

The buildings around us take teamwork. Our survey teams provide accurate and precise measurements- setting a framework for our engineers to produce great work. Our structural engineers work closely with our electrical and mechanical engineers- ensuring not only that the walls stand strong, but that the systems inside of them are just as solid. We are a team with our co-workers, and we are a team with our clients.

The quality of the work that goes into the buildings around us provides value outlasting just the time spent designing and developing. We work hard to make sure that you don't have to worry- because roofing frames should just be strong, and boilers should just be installed safely. We work hard because you shouldn't have to worry about structural irregularities, or effectively designed emergency systems. Because parking lots should be designed correctly, and plumbing systems shouldn't overflow. We work hard to keep people safe. And we work hard to do it well.

We have integrity in the work that we provide. Because both your local small businesses and your large-scale companies deserve that respect. The buildings around us and the people that dream of them deserve trust and confidence in the team supporting them. We are honest and straightforward- because that's the foundation our buildings need.

Our company core values- pride, teamwork, quality, and integrity. They are just the beginning of what goes into the buildings around us. Enjoy your holiday season and take comfort in the systems and the strength that allow you to stay safe and happy.



The Data Around Us

Online shopping. How does the information you type travel to the computer of the stores your shop? And then how does the confirmation travel back to your email inbox? And the shipping label- how does it generate through wires to print at a store somewhere and tell them what to pack in your box?

Servers. Servers are the way in which online and telecommunications data is stored and transmitted throughout our cyber world. Servers also do exactly what their name describes- serve. They serve information to other computers. They pass and deliver data as well as process requests. Servers are the hub of power and knowledge that make things happen. They are pretty important. Some companies have entire server rooms- devoted to the operating and functioning of their computer servers. Some entire companies are devoted just to effectively operating computer servers.

But what happens if server rooms become too hot? Think about your iPhone- what happens when it overheats? It moves slower. It doesn't work as well. It doesn't get the job done. Sometimes it even completely shuts down and tells you to try again when it's cooler. The same is true for servers. Think about humidity- what do you think happens if computer servers are in a too-humid room? Remember, humidity = moisture. Moisture + electronics = bad.

We can't control the weather. But we can control how we deal with it. Our mechanical engineers and designers work really hard to develop master plans, conduct studies, create designs, and troubleshoot solutions to navigate heating, ventilation, and air conditioning systems for the most important spaces.

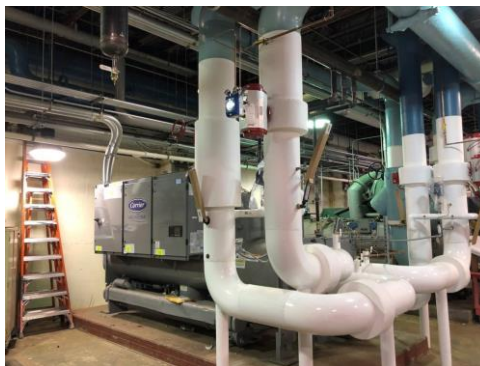
We're proud of our resume, we work with 2 Fortune 100 technology companies, supporting their sites and facilities that bring research and great ideas to life. Because when it comes to the data around us- it should just work.

Chiller Plant Study & Design Corporate Offices & Data Center

SSM developed a plan to convert a chilled water plant consisting of two independent chilled water systems comprised of 2 – 600 ton chillers (N+1) and associated pumps and 2 – 250 ton chillers (N+1) and associated pumps to a single system consisting of 3 – 400 ton chillers and associated pumps. The project goal was to create a single central chilled water plant providing N+1 redundancy and development of a new sequence of operation allowing for automatic operation of the plant including automatic energizing of redundant equipment in the event of failure and rotation of equipment to equalize runtime.

The project also included reconfiguration of power supplies to the equipment to reduce single points of failure.

The construction documents included instructions for phasing of construction to maintain operation of the existing plant while modifications and interconnection of the various subsystems was accomplished. The reconfiguration maximized the reuse of the existing piping network and power distribution.



SSM recently completed a **Mission Critical Facility Master Plan Update**

outlining the steps and costs to bring a 300,000 sf office and level 3/3+ data center hotel from its present condition based on circa 2005 watt densities to newly established goals. Having performed the existing conditions assessment, the team evaluated and recommended approaches to achieve the company's goals maintaining operation of the site and service to its tenants. The effort considered use of floor space, central utility capacities, infrastructure, equipment End of Life (EoL) replacement, and changes in requirements and guidelines for critical data centers. The deliverable provided a phased approach for upgrading the facility's power distribution, emergency standby power, UPS power distribution, and expansion and upgrading of the central chilled water plant and distribution system. A timeline was established inter-relating the EoL replacement of equipment, increase in power source capacity and distribution, and central cooling capacity and distribution so that growth and modifications were undertaken in steps that were coordinated and manageable. A timeline was established inter-relating the EoL replacement of equipment, increase in power source capacity and distribution, and central cooling capacity and distribution so that growth and modifications were undertaken in steps that were coordinated and manageable.

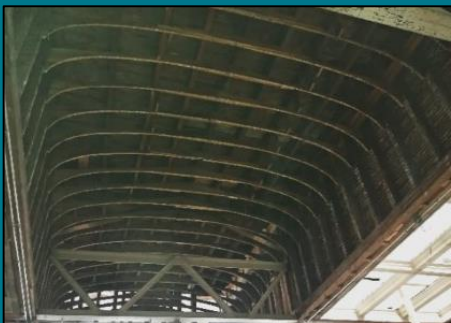
Goals were established that reflected immediate (plans on the books), short term (full fitout at probable densities) and long term (densities thought reasonably achievable within 20 years). The conditions assessment information was used to define the modifications that would be necessary to support those projects to be constructed in the immediate future and develop the timeline and phasing to support the increased watt density and increasing occupancy of the facility established with the client. A long range plan was also developed outlining the steps necessary to support the 20 year vision.



Splitting Edge Axe Throwing

SSM was involved in a renovation project to structurally evaluate the existing roof structure for support of new units for heating and cooling the axe-throwing space. The roof structure is composed of wood framing supported on riveted steel trusses. The roof is original to the building and dates to the late 1800s, when steel was just becoming a common material for roof construction.

When the building owner opted to support the units along the centerline of the building, SSM developed the structural design drawings for a new steel frame to be supported on the existing steel trusses. SSM then verified that the existing trusses were capable of supporting the added weight.



Lincoln University

SSM provided structural engineering for an approximately 15,000 square foot addition to the Student Union and Services Building at Lincoln University. The project included significant upgrades to the existing building area. The existing two-story concrete framed building was expanded on three sides by the addition of a two-story steel framed structure. The upgrades included the addition or modification of a mailroom, bookstore, cinema viewing area, offices, game room, two-story atrium, storage and maintenance areas, and a multi-purpose area. The existing structure was analyzed and reinforced as required for new loads, including new rooftop mechanical equipment. The structural design included design of foundations, ground floor slab, retaining walls, elevated floor slabs, steel framing, and roof deck.

SSM performed construction phase services including structural shop drawing reviews, responding to contractor's Request for Information (RFI), and occasional site visits to review construction.

SSM performed a High Strength Wastes Review of the Lincoln University facilities and its Wastewater Treatment Plant which included a detailed review of potential discharges from disinfectants and cleaning chemicals and materials, boiler blowdown chemicals such as corrosion control inhibitors and Biocides, and other chemicals including the use of Quaternary Ammonia products and their effects and toxicity to the treatment plant biomass. SSM also performed treatment process troubleshooting and developed solutions for mitigating the effects from these harmful and toxic discharges.





Shark Finn Inn and Restaurant | C2 Architects

SSM engineers provided design of the mechanical, electrical, and plumbing systems for the conversion of a former furniture store into the 7,000 square foot restaurant and bar.

Fresh City Restaurant | C2 Architects

SSM engineers provided design of the mechanical, electrical, and plumbing systems for 4,200 square foot restaurant in the Livingston Town Center Mall.

Fitness Center | Olympus America Inc.

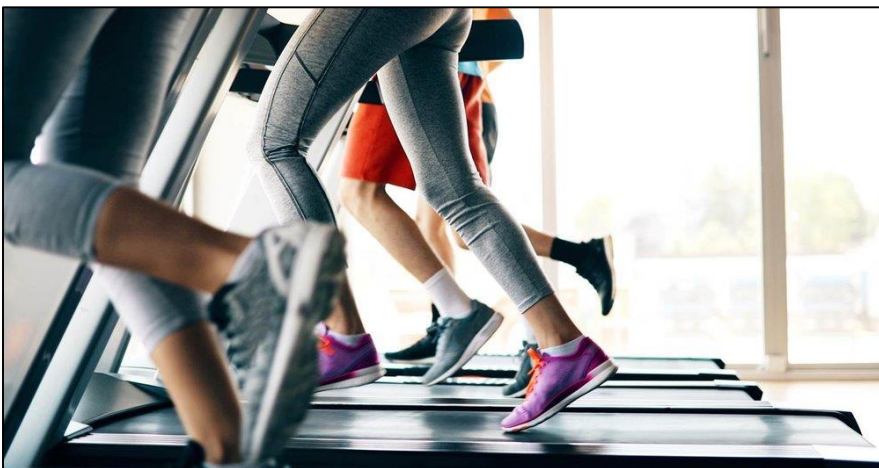
SSM assessed the existing HVAC systems capability to support the renovation of a portion of the first floor of Building D creating a fitness center. We reviewed the existing capacity of the HVAC system serving the area that may become a fitness center including expansion of the toilet room area into a toilet room and shower area and provided a letter summary of the evaluation including description of the work required to adapt the existing HVAC system to serve the fitness area and highlight potential areas of concern.

Performing Arts Center | SMG

Provided structural engineering services to perform an investigation to determine the cause of the mezzanine ceiling failure at the Sovereign Performing Arts Center. SSM services included analysis of a fly bridge over the stage and investigations of a mezzanine and masonry wall.

Structural Capacity | Tait Towers

SSM structural engineers provided services at this musical performance practice facility for large productions. Services included determining maximum hoist loads, studies to determine floor capacities for carts, and structural review analysis for building cranes and roof top units.



Pennsylvania Historic Museum Commission

Pennsylvania Military Museum

SSM provided engineering services to support the installation of two, 14-inch diameter, 53-foot-long gun barrels from the Battleship USS Pennsylvania (BB-38) on a concrete pedestal. Oversaw a geotechnical investigation and prepared structural designs to design pedestal that would approximate the manner in which the guns appeared on the ship, including a 28' diameter disc that replaces the ship's turret.

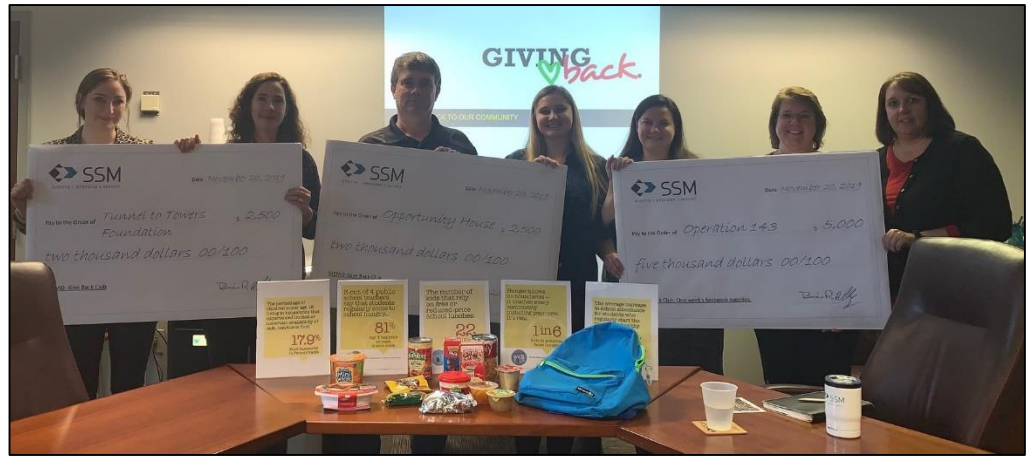
USS Pennsylvania (BB-38) was the lead ship of the Pennsylvania class of United States Navy super-dreadnought battleships. At the time of the Japanese attack on Pearl Harbor on 7 December 1941, Pennsylvania was in drydock in the Pearl Harbor Navy Yard. She was one of the first ships in the harbor to open fire as Japanese dive and torpedo bombers roared out of the high overcast. Repairs were made to enable Pennsylvania to steam to the Marshall Islands where she was used as a target ship in the Operation Crossroads atomic bomb tests at Bikini atoll during July 1946. She was then towed to Kwajalein Lagoon where she decommissioned on 29 August. She remained in Kwajalein Lagoon for radiological and structural studies until 10 February 1948, when she was sunk stern first off Kwajalein. She was struck from the Naval Vessel Register on 19 February. Two of her 14-inch guns are now kept outside the Pennsylvania Military Museum in Boalsburg, Pennsylvania

Opportunities at SSM – join the team!

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Visit ssmgroup.com for more information about these opportunities:

- **Director, Water and Wastewater Engineering** to manage and oversee all teams and projects in the department, ensuring that work is executed on time, on budget, and delivered to client expectations. The team's projects are focused on water distribution, wastewater collection, treatment plant operations, treatment of drinking water, and wastewater management.
- **Structural Engineer** to assist our clients in the industrial, healthcare, higher education, research, and municipal markets.
- **Graduate Civil Engineer** in our Municipal Engineering Department who will work with engineers and perform due diligence, engineering calculations and design, and technical writing.
- **Electrical Engineer** with 5-7 years in the design of electrical system in industrial, commercial, and R&D type facilities.
- **Project Manager** with deep engineering and technical qualifications, combined with a successful, proven track record for running large, multi-discipline projects. The role is responsible for effectively executing multi-discipline projects and managing personnel resources.



Members of the SSM Give Back Club (left to right: Chelsea Carl, Lyn O'Hare, Mike Donlan, Sydney Jernigan, Michelle Hohl, Michele Eidle, and Kim Ernst) display checks representing the firm's \$10,000 donations.

Give Back Club donates \$10,000 to Community Initiatives

Spotts, Stevens and McCoy recently made donations totaling \$10,000 to organizations within in the firm's geographic footprint as part of their 2019 Give Back initiative.

A group of SSM volunteers interviewed and surveyed their co-workers to develop an action plan for the giving. As a result the firm donated \$5,000 to [Operation143](#). The organization feeds students in nearby communities by providing backpacks full of food for the weekend. SSM's donation will provide supplies for one weekend's backpack event. The firm is hosting a food drive in their offices during the month of December to provide additional supplies.

SSM supported the [Opportunity House](#) mission, "changing lives by educating, housing, feeding and empowering people to stand on their own feet" with a \$2,500 donation. The firm also supported the [Tunnel to Towers Foundation](#) with a \$2,500 donation. The Stephen Siller Tunnel to Towers Foundation honors the sacrifice of firefighter Stephen Siller who laid down his life to save others on September 11, 2001 and honors our military and first responders who continue to make the supreme sacrifice of life and limb for our country.



Chelsea Carl (right) presents \$2,500 check to Kate Alley, Chief Development Officer at Opportunity House.



Michele Eidle, SSM employee and Operation 143 volunteer explains the backpack contents and distribution.