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PROVIDING SUSTAINABLE TECHNICAL  
AND BUSINESS SOLUTIONS

## CASE STUDY

U.S. Department of Defense - Washington, D.C.

### FAST FACTS

- The Pentagon was constructed in 16 months at the cost of \$83 million
- Office space at the Pentagon occupies 3,705,793 square feet
- 23,000 employees work at the Pentagon
- The Pentagon houses 17.5 miles of corridors
- The Pentagon Renovation & Construction Program is the first major renovation since its original construction in 1943

### PENTAGON RENOVATION & CONSTRUCTION PROJECT

The Defense Authorization Act of Fiscal Year 1991 transferred control of the Pentagon Reservation from the Administrator of General Services to the Secretary of Defense. Under the same Act, Congress established the Pentagon Reservation Maintenance Revolving Fund for the expressed intent of renovating the Pentagon.

The Pentagon Renovation & Construction Program is the first major renovation since its original construction in 1943.

Sebesta Blomberg is serving as the Commissioning Agent for the Pentagon Renovation & Construction Program. This is a complete but phased renovation of the 6 million square-foot Pentagon building. Scheduled for completion in 2010, this renovation effort includes replacement of all mechanical, electrical and life safety systems serving the facility. Through careful and sustainable building designs, the U.S. Department of Defense intends to achieve LEED® Silver certification for the Pentagon facility through the United States Green Building Council. Sebesta Blomberg has been the successful Commissioning Agent in multiple initiatives at the Pentagon and continues to provide on-going commissioning services through the Pentagon Renovation & Construction Project.

### PENTAGON METRO ENTRANCE FACILITY



A 35,000 square-foot addition to the Pentagon, the Metro Entrance Facility (MEF) carefully balances the need for security while coordinating the arrival and departure of more than 34,000 employees and visitors each day. The \$37 million MEF is the final phase of a congressionally mandated project to improve Pentagon security.

This project included Sebesta Blomberg's total building commissioning process which included the mechanical and electrical systems as well as the building materials. Sebesta Blomberg was also an active member of the LEED® certification team that provided the commissioning services for the additional commissioning credit.

The MEF project included a relocation and expansion of the Pentagon Metro Station bus transit facility. This transit facility opened in late 2001, and is fully operational. During the relocation and construction process, the Pentagon Renovation Program conducted recycling of existing site materials (asphalt, concrete and soil) and recycling of construction waste.

The MEF eliminates direct entry from the Metro tunnel into the Pentagon and provides a secure screening facility outside the perimeter of the building. The facility is also the new location for the Pentagon Tour Office and the building's Pass Office.

### PENTAGON ATHLETIC CENTER

Completed in 2004, this 160,000 square-foot facility contains a range of gyms and athletic spaces, including a pool, running track, cardiovascular equipment area and volleyball, racquetball, squash and basketball courts. As part of the commissioning effort at the Pentagon Athletic Center, Sebesta Blomberg was responsible for the evaluation of all mechanical, electrical, plumbing and life safety systems serving this specialized area of the Pentagon.

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## PENTAGON MOTOR POOL CLINIC

Completed in 2000, this 65,000 square-foot medical clinic facility houses specialized departments, including a pharmacy, radiology, optometry, audiology, physical therapy, minor surgery, trauma center, dental, podiatry and other clinics. As Commissioning Agent, Sebesta Blomberg was responsible for commissioning the mechanical systems, including VAV air handling, exhaust, fire protection, medical gas and dental evacuation. Sebesta Blomberg also commissioned the electrical systems, including primary power distribution (13.8 kV and 480 V), lighting, DDC Energy Management and Control System, life safety and fire alarm systems.



## PENTAGON WEDGE 1

Pentagon Wedge 1 was completed in 2003 and was the first 1 million square-foot segment of the Pentagon to be renovated. Commissioning activities began after the construction contract was awarded and continued through the warranty period. Sebesta Blomberg commissioned multiple systems, including VAV air handling, exhaust, chilled water, steam, condensate, plumbing, fire protection, steam-to-hot water conversion and pumping, atrium smoke control, primary power distribution (13.8 kV and 480 V), lighting, DDC Energy Management and Control System, emergency power generator, life safety and fire alarm systems.

## PENTAGON REMOTE DELIVERY FACILITY

As Commissioning Agent, Sebesta Blomberg was responsible for commissioning this 250,000 square-foot facility. Completed in 2002, the Remote Delivery Facility's commissioning scope included constant volume air handling, exhaust, chilled water, condenser water, steam condensate, plumbing, fire protection, steam-to-hot water conversion, pumping, normal and standby power distribution (13.8 kV, 4160 V and 480 V), lighting, DDC Energy Management and Control System, standby generators, Supervisory Control and Data Acquisition (SCADA), emergency generator, life safety and fire alarm systems.

## PENTAGON WEDGES 2-5

Sebesta Blomberg provided data retrieval and a facility condition index assessment of Pentagon Wedges 2-5, completed in 2005. The project included the collection of field data on each major component and piece of equipment within Wedges 2-5. Sebesta Blomberg also provided a professional assessment of the equipment and components based on good engineering practices and equipment service life expectancies. Cost estimating was provided by Sebesta Blomberg relative to on-going maintenance and service cost for all equipment included in the assessment.