



BACKGROUND

President Thomas Jefferson signed legislation establishing the United States Military Academy in 1802. The USMA is a four-year coeducational federal service academy located in West Point, New York. Lutz Engineering has provided Building Automation System design for several of the campus buildings.

The campus buildings were experiencing issues with temperature and humidity control and component failures of the Air Handling Units (AHUs) and the Building Automation System (BAS). Lutz Engineering was contracted to survey the existing mechanical equipment, terminal devices and the existing BAS, and to develop a BAS design to coincide with the replacement of the AHUs and the addition of a tertiary chilled water pumping system.

Deliverables for the project included control system schematics (P&ID drawings), point lists, and sequences of operations. Lutz Engineering developed the Building Automation and Commissioning specifications using the USMA standards in SpecsIntact.

ENGINEERING DESIGN SERVICES United States Military Academy West Point, NY



BAS DESIGN PROCESS

The original Building Automation System (BAS) was a combination of several vendors overlaid on an electric control system. Lutz Engineering identified the equipment to be removed, and which of the existing BAS equipment would remain and be integrated into the final design. The new system was also required to be integrated into the campus monitoring system using existing communication protocols.

Lutz Engineering performed the following specific activities for USMA:

- Inspected existing mechanical systems and Building Automation documentation.
- Performed site survey and documented existing conditions and communication pathways.
- Developed a full BAS design package, including sequences of operation, detailed points lists and control drawings, flow diagrams, BAS specifications, and campus notification.
- Attended design review meetings and translated Owner's requirements to the design documents.
- Supported the project as the Engineer of Record for BAS design. Responded to technical questions, participated in progress meetings, and conducted site visits throughout the construction process.

PROJECT CHALLENGES

- Multiple generations of control systems – Lutz reviewed the existing Building Automation Systems and developed a new BAS design that resolved issues with communication and control.
- Existing facility to remain online – Lutz Engineering developed a BAS design that minimized the impact on current operations.
- Integration to donated equipment – Lutz Engineering used data from the donated equipment to develop a BAS design that would leverage the energy efficiency of the donated equipment.



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