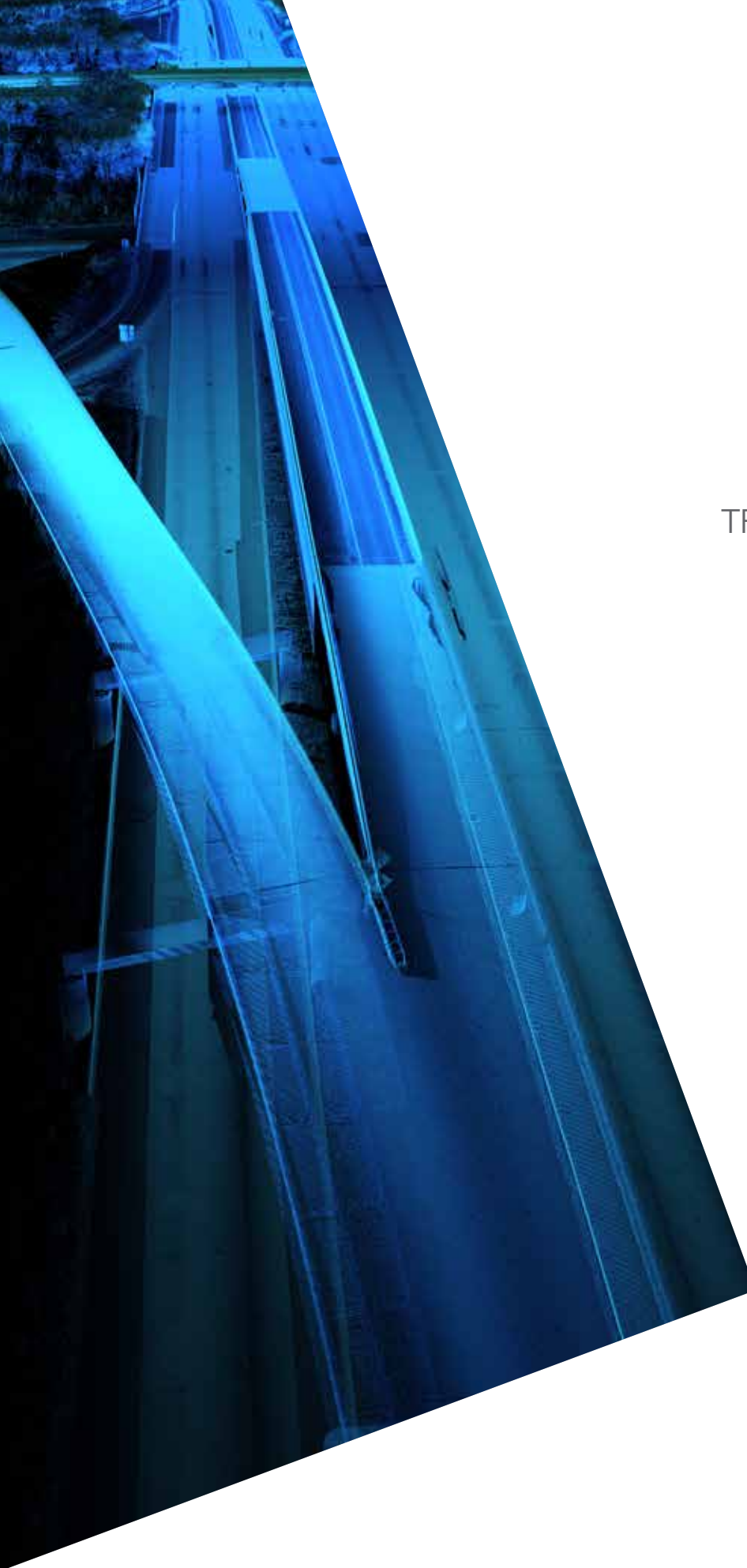




ENGINEERING SERVICES

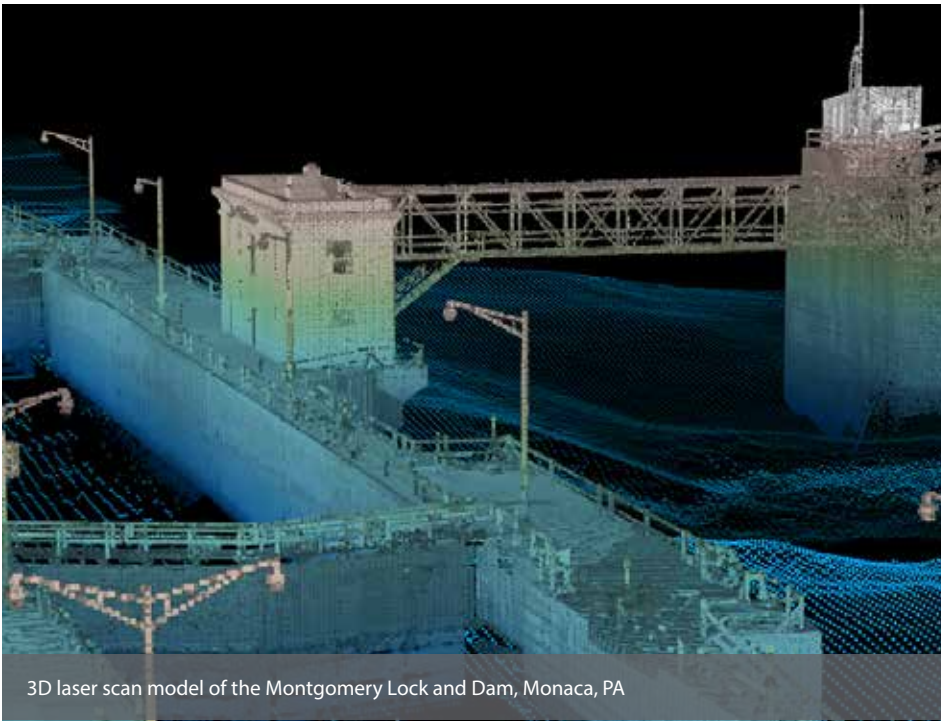
TRADITION MEETS INNOVATION



WOOLPERT

ARCHITECTURE | ENGINEERING | GEOSPATIAL





WOOLPERT BY THE NUMBERS



83+

Licensed professional engineers



1911

Woolpert founded



35+

LEED® Accredited Professionals



25+

Office locations nationwide

Technology

Woolpert has a legacy of embracing and integrating progressive technology into our projects. We use state-of-the-art tools to collect accurate data, generate decision-supporting models and transform inventive conceptual designs into carefully constructed realities. Guided by an in-house research and development team, we continually invest in cutting-edge equipment and industry-leading software. Our engineers have the very best tools at their fingertips, empowering them to develop innovative—yet sound—solutions to every project challenge.

The following tools are a sampling of Woolpert's technology toolkit:

- 3D laser scanning
- Asset inventory software
- Asset management and work order programs
- Building information modeling (BIM)
- IDEAL water modeling software
- SiteOps site engineering software
- Thermal imaging

Applications

We save clients time and money by providing in-house solutions to a wide variety of the following project types:

- Airport runways and terminals
- Asset management
- Commercial, industrial and retail facilities
- Education and medical campuses
- Housing developments
- Military installations
- Parks and recreation
- Roads and bridges
- Utility infrastructure
- Water/sanitary/stormwater systems



Proposed site plan for Gastonia (NC) Technology Park

Civil Engineering

Woolpert provides a full range of civil engineering services, ranging from site selection and conceptual design to construction drawings and construction support services. An industry leader in site evaluation, we know how to optimize site development costs to save our clients time and money. By combining decades of experience with state-of-the-art technology, we deliver innovative, accurate and cost-effective solutions to even the most complex engineering challenges.

Woolpert provides the following civil engineering services:

- Capacity restoration
- Entitlements and zoning
- Flow monitoring
- Hydraulic modeling
- Landscape architecture
- MS4 and NPDES consulting
- Site design and planning
- Site evaluation, investigation and due diligence
- Site lighting design
- Stream/shore restoration design
- Surveying
- Sustainable design
- Transportation engineering
- Water/sanitary/stormwater utility system design, condition assessment and rehabilitation planning



Norris Cut Force Main/Micro Tunnel Miami-Dade County, FL

Crossing from Fisher Island to Virginia Key at 85 feet below sea level, the Norris Cut Force Main/Micro Tunnel design-build project was designed to transport wastewater to the Miami-Dade Water and Sewer Department (MDWASD) Central District Waste Water Treatment Plant. Woolpert provided lead pipe engineering services for the project, which consisted of 5,300 linear feet of 90-inch-diameter precast concrete tunnel (with a 60-inch-diameter HOBAS carrier pipe inside). Approximately 2,700 linear feet of 60-inch-diameter pre-stressed concrete cylinder pipe (PCCP) was used in the open-cut portion of this project and will be connected to an existing 54-inch-diameter PCCP near the plant headworks.



Lighting safer airfields across the country

MEP Engineering

Energy efficiency is critically important to facility owners and operators, and the health of a facility's mechanical, electrical and plumbing (MEP) utilities is key to its efficiency. Woolpert's MEP design services maximize project values while meeting code requirements. We employ cutting-edge technology and a vast portfolio of experience in infrastructure condition assessments, sustainable design, LEED® design practices and energy modeling to meet our clients' energy efficiency goals.

Woolpert provides the following MEP engineering services:

- Aviation electrical design
- Electrical power distribution
- Heating, ventilating and air conditioning
- Lighting
- Plumbing/fire protection services
- Power coordination studies
- Special systems (fire alarm, security, CATV and communication)



Cummins Ceraline Building Mechanical Systems Renovation *Columbus, IN*

Woolpert designed system renovations for Cummins' historic Ceraline Building, a 30,000-square-foot, six-story building constructed in 1880. Woolpert brought this 19th-century building up to 21st-century functionality with renovations to the HVAC system, electrical upgrades, commissioning services and architectural upgrades to the building envelope. Our innovative designs maintained the historical nature and appearance of the building while allowing for a complete overhaul of the building's critical mechanical systems.



Structural redevelopment of Capers Hall at the Citadel, Charleston, SC

Structural Engineering

Woolpert's structural engineers support construction projects from initial feasibility studies through construction administration and closeout. We use industry-leading modeling applications to improve the constructability of our designs and expedite construction schedules. We also employ alternative delivery methods, such as design-build and fast-track, when projects demand a unique approach.

Woolpert provides the following structural engineering services:

- Blast design
- Facility condition assessments
- Forensic investigations
- Pipe design
- Seismic risk evaluation and retrofit
- Stream/shore restoration design
- Structural analysis and design
- Value engineering
- Vibration studies



Washington Street Bridge Dayton, OH

Woolpert provided the preliminary development and detailed final design for replacing the historic Washington Street Bridge over the Great Miami River. Constructed in 1905, the original structure was a seven-span, earth-filled concrete arch bridge supported by half-height wall-type piers and full-height abutments. The fourth-oldest bridge of its type in Ohio, it gracefully arched over the river in concert with other local bridges. For this reason, Woolpert placed priority on aesthetics and created a design reflective of the original arched shape.



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