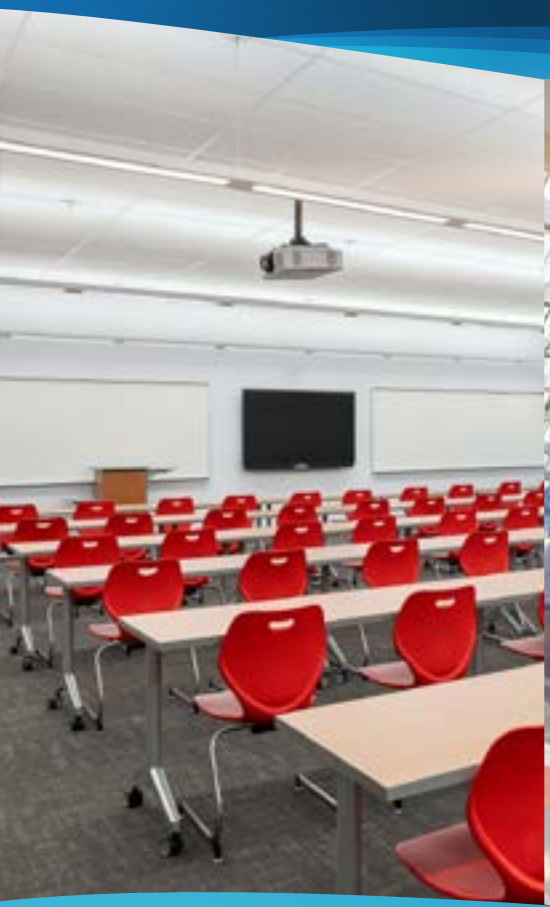
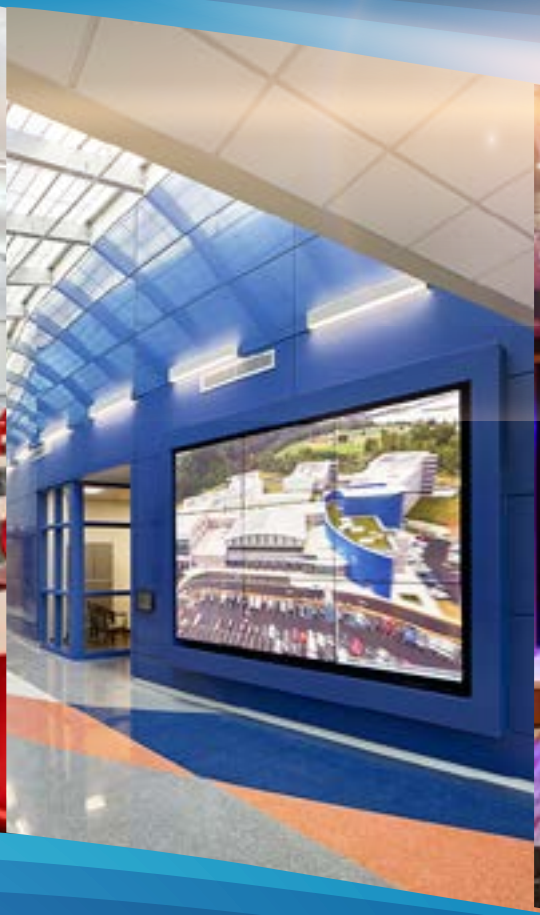
PSE PROFESSIONAL SYSTEMS ENGINEERING AN NV5 COMPANY

PRE K - 12
EDUCATIONAL ENGINEERING

SECURITY • LIFE SAFETY • COMMUNICATIONS • AUDIO/VISUAL/VIDEO





STRATEGY + SPECIFICATIONS + TECHNOLOGY

PROFESSIONAL SYSTEMS ENGINEERING, AN NV5 COMPANY 1-800-839-5060 WWW.PROFSYSENG.COM

EDUCATIONAL TECHNOLOGY

CONSULTING | DESIGN | ENGINEERING

Educational Technology

Professional Systems Engineering, an NV5 Company, principle objective is team collaboration to incorporate the best technical requirements available and partner on its implementation to meet highly competitive budgets. Our firm staff has the experience and skill sets in security, life safety, communications, networking, data management, audio/visual/video, acoustics, and noise and vibration control engineering to manage single classroom or renovations, entire college, and master planning.

Our firm experience includes large digital infrastructures, designs of server rooms, intrusion protection/firewall systems, noise and vibration control, multi-media management, high definition interactive displays, paging, public address, fire alarm, evacuation, and virtual learning. We prepare specifications and detailed contract documents for competitive bid or installation.

Converging Technologies

The convergence of these technologies requires a firm with a wide diversity of talent, as well as a deep level of experience to provide targeted specifications, reports, contract documents, and studies to create a sustainable communication platform across educational, corporate, and agency levels. We have the capacity to provide comprehensive services and complete documentation including single study, report, or schematic design through full documentation and commissioning.

Expanding Personal Communication Environment

The expanding personal communication environment needs to be continuously addressed. The continuous uprooting of bandwidth by social networks and higher technologies on platforms as diverse as web browsers, mobile device applications, messaging, and newer personal communication methods requires meeting a challenge that is a moving target. Centralizing your consulting and design capabilities into our staff provides cost efficiencies and tangible benefits directly to the shareholders' and stakeholders' bottom line.

Physical & Electronic Security Technologies

Security Solutions

Professional Systems Engineering, an NV5 Company, possesses nearly four decades of professional experience in the provision of consulting and engineering services related to security and communication systems. We specialize in extensive projects within campus environments, with particular focus on college campuses, universities, laboratory and high-performance spaces, and corporate business centers. Our areas of expertise encompass the development of security master plans, the execution of comprehensive security surveys, the conduct of risk and needs assessments, and the evaluation and formulation of security operations and procedures. Furthermore, we offer systems design and engineering services, as well as a comprehensive suite of services tailored for individual system components.

Balanced Programs

We adopt a collaborative team approach, integrating the insights and knowledge of professionals who specialize in various domains, such as physical hardware and systems, operational protocols, policies, and procedures. Our team comprises specialists in security management, risk assessment, strategic planning, communication, engineering, and CAD design. Leveraging the capabilities of this multi-disciplinary team, We are dedicated to offering well-coordinated security programs that effectively align physical security hardware components with essential operational procedures.

Experience

Our firm is dedicated to the design and implementation of advanced technologies, encompassing robust mass notification systems, secure locking solutions, and sophisticated digital video alarm systems. These solutions are developed in collaboration with local law enforcement agencies to ensure optimal safety and security. Through the collective expertise of our multi-disciplinary team, our team is capable of delivering meticulously coordinated security systems that effectively integrate physical hardware components with best practices in operational procedures.

Qualified Staff

Our firm is guided by a team of nationally recognized experts in the fields of security, communications, and fire protection. Our organization is composed of individuals possessing a unique combination of qualifications and diverse technical expertise, which enables us to effectively address the complexities inherent in sensitive projects. We have established a strong reputation for delivering cutting-edge technologies while rigorously adhering to project budgets and timelines.

Dayton Avenue Educational Campus

IT/Communications, Security, Education Technology & A/V Design

Passaic, New Jersey

The new $163 million, 448,000 SF school will educate approximately 2,760 students in grades pre-kindergarten through eight.

The Campus consist of four schools: Abraham Lincoln School,Mahatma Gandhi Elementary School, Ellen Ochoa Gifted and Talented Academy, and Muhammad Ali Middle School

Professional Systems Engineering, an NV5 Company, provided engineering consulting services related to IT services, communications, security, education technology, and audio/visual systems for the new Dayton Avenue Educational Campus. The campus consists of four schools: Pre-Kindergarten, Elementary, and Middle School on a 12-acre site. The new $163 million construction, 448,000 SF school educates approximately 2,760 students in grades pre-kindergarten through eight.

This project was completed through the NJSDA program, by design build project delivery. The design build process is using fast tract multi-phase design delivery to meet the NJSDA's project schedule.

Four Schools:

Abraham Lincoln School (pre-K program): 28 classrooms, three specialized rooms and a courtyard play area.

Mahatma Gandhi Elementary School: 33 general classrooms, five self-contained special education classrooms, three science labs, media center, music room and gym.

Ellen Ochoa Gifted and Talented Academy (magnet school program): 28 general clasrooms, three self-contained special educational classrooms, three science labs, art room, dance studio, vocal music room, media center, two Teach to One Learning Areas and cafeteria.

Muhammad Ali Middle School: 27 general classrooms, six self-contained special education classrooms, three science labs, four project labs, three Teach to One Learning Areas, gym, cafeteria and classrooms dedicated to the arts.

This project received Honorable Mention for 2022-2023 "Outstanding Engineering Achievement" by the Pennsylvania Society of Professional Engineers.

Services Provided

Audio/Video

- Classroom presentation
- Sound system
- Interactive monitors
- Control System
- Digital signage
- Paging system
- Digital clock system
- Coaxial distribution

Security

- Access control system
- Intrusion detection system
- Video surveillance
- Emergency call box system
- Parking access
- Door release
- Intercom
- Emergency control center
- Backup emergency control center

IT/ Communications

- MDF/IDF rooms
- Structural cabling
- Fiber optic cabling
- Cat 6A cabling
- Tele/data service

Auditorium/Multipurpose Rooms

- Video presentation
- Sound system
- Cabling
- Control system
- Lighting system

Blackbox Theater

- Video presentation
- Sound system
- Cabling
- Control system
- Lighting syste

Kennedy Elementary School

Audio/Visual Systems & Tele/Data Communications Design Services

Harrison, New Jersey

Our firm staff has experience at Penn in academic housing, research, auditoria, high rises, museum, and Penn Towers engineering including security, fire protection, acoustics, A/V, noise & vibration control, mass evacuation, and networks throughout the campus.

Professional Systems Engineering, an NV5 Company, provided audio/visual and telecom/data communications design services for New Jersey Schools Development Authority for the new Kennedy Elementary School in Harrison, NJ. The $36 million project consisted of a new academic three story building for pre-kindergarten, kindergarten, and first grade. The structure contains typical classrooms, several specialty classrooms, staff offices, a music room, a gymnasium, and a cafetorium that includes a stage. The new 65,500 SF, three story Kennedy Elementary School is designed to educate 392 students in grades Pre-K to first grade.

This communications infrastructure supports systems that will be state-of-the-art at the opening with the ability to continue to support newer systems as technology advances.

Services Provided

Audio/Visual Systems

- TV and video distribution system
- Large format displays
- Ceiling mounted speakers
- Audio Amplifier
- Speech enhancement system with lanyard-worn wireless microphones for teachers
- HD video camera
- Local music playback
- Paging, clock, and bell scheduling

Gymnasium

- Large format projector
- Music playback system
- Audio processing and amplification equipment
- Wired and Wireless Microphones
- Assistive Listening System
- Wireless Touchscreen Control System

Cafetorium

- Large format projector
- Music playback system
- Audio processing and amplification equipment
- Wired and Wireless microphones
- Assistive Listening System

Science Lab

- Demonstration video camera with large format display and wireless controls

Plainfield School District

Multiple Schools & District-Wide Security Standards

Plainfield, New Jersey

The Plainfield School District Administration and Our firm provided unique and valuable solutions to important District Technology issues that transgress ordinary limitations of technology.

Professional Systems Engineering, an NV5 Company, was entrusted to program District Wide Standards. The Plainfield School District Administration and our firm provided unique and valuable solutions to important District Technology issues that transgress ordinary limitations of technology. Our firm provided expert consulting services for the design, bid, and construction administration of technologies for the following:

- Clinton Elementary School
- Emerson Elementary School
- Clinton Temporary School Phase 1 & 2
- Cook Elementary School
- Plainfield Middle School

District-Wide Access Control: Foresight and planning dictated that a single, centralized access control system incorporating a one-card proximity solution, centralized database, and data sharing would best serve the District. We organized a “shootout” between premier security manufacturers to choose the one that best suited the operations and needs of the District.

Services Provided

Educational Technology Systems

- Classroom monitors and projectors
- Smart Boards
- Audio/video/visual portable carts

Tele/Data Communication Systems

- PBX and telephone requirements
- Fiber optic and cabling requirements
- Data networks–wired and wireless
- Switches and hubs

Data Communication Systems

- PBX and telephone requirements
- Fiber optic and cabling requirements
- Data network–wired and wireless
- Switches and hubs
- Outlet plate types and locations

Security Systems

- Access control systems
- Video surveillance/digital recording
- Door locking/control and parking lot gate control
- Security monitoring/integration
- Operator console and equipment room design and layout

Fire Protection / Life Safety

Professional Systems Engineering, an NV5 Company, provides consulting engineering and design services for complete fire detection, suppression, and life safety systems. Our services encompass signaling, sprinklers, monitoring, proprietary command centers, NFPA code requirements, and related components.

Led by nationally recognized fire protection experts, our firm employs a uniquely qualified and technically diverse team. Collectively, our staff has more than two centuries of excellence on hundreds of projects. Our specialties include both new and renovated systems, multi-system integration, infrastructure design, and centralized control systems. Our firm does not sell, supply, or represent any equipment manufacturer or vendor.

We specialize in systems design for major building campuses, high-rises, and unique building envelopes. Our team has considerable experience in educational campus facilities, performing arts centers, corrections and justice facilities, corporate campuses, and government facilities. We have nearly four decades of providing solutions for:

- Large-scale, networked fire detection system renovations
- Fire alarm specifications that meet or exceed NFPA codes
- Proper phasing of large-scale fire alarm/fire suppression projects
- Seamless phased replacement of existing systems to new systems
- Construction administration expertise
- Thorough surveys encompassing all systems and requirements

Hudson County Schools of Technology (HCST) High Tech High School

IT/Communications, Security, Education Technology, Acoustics & A/V Design

Secaucus, New Jersey

This project provided a new facility for the HCST – High Tech High School to merge existing North Bergen and Jersey City campuses and provides a school for 2,000 students and 200 administration and staff members, with a gross building area of approximately 335,000 SF. It is to be the first "Fully Digital" high school in the nation.

This project provided a new facility for the HCST – High Tech High School to merge existing North Bergen and Jersey City campuses and provides a school for 2,000 students and 200 administration and staff members, with a gross building area of approximately 335,000 SF. It is the first "Fully Digital" high school in the nation.

Professional Systems Engineering, an NV5 Company, prepared bridging documents and provided consulting and review services for the Owner during the design build phase for IT, communications, security, education technology, and audio/visual systems for the new $175 million Hudson County Schools of Technology (HCST). The school spaces support the curriculum of Project Based Learning for various Career Academies, providing state of the art education and career paths for students. The building houses the School of Vocation Trades, School of Architecture/Engineering, School of Applied Sciences, and School of Performing Arts. Classrooms provide flexible teaching environments, along with spaces for remote learning and group collaboration.

Receiving LEED® Gold certification, HCST achieved the high standards and requirements for sustainability. It has been recognized as the green project of the year for schools in the State of NewJersey by the U.S. Green Building Council.

Services Provided

Audio Visual
- Classroom presentation
- Sound system
- Interactive monitors
- Control system
- Digital signage
- Paging system
- Digital clock system
- Coaxial distribution

Security
- Access control system
- Intrusion detection system
- Video surveillance
- Emergency call box system
- Parking access
- Door release
- Intercom
- Emergency control center
- Backup emergency control center

Auditorium/Theater
- Video presentation
- Sound system
- Cabling
- Control system
- Lighting system
- Rigging system

Blackbox Theater
- Video presentation
- Sound system
- Cabling
- Control system
- Lighting system

IT/Communications
- MDF/IDF rooms
- Structural cabling
- Fiber optic cabling
- Cat 6A cabling
- Tele/data service

Newark Central High School

Tele/Data, Communications & A/V Design Services

Newark, New Jersey

Science Park High School sets a new standard of technical excellence for high schools across the nation, featuring state-of-the-art methods and equipment with accommodation for future technologies including direct connectivity to Internet2 services.

Professional Systems Engineering, an NV5 Company, supplied digital data design, educational technology, consulting, and engineering services for this state-of-the-art $70 million, 250,000 SF high school with student capacity of 1,200 students.

Our firm supplied tele/data design services included all network, server, data center, and digital design to meet the advanced technology requirements of the Central High School mission. The network is capable of backbone speeds of 10 gigabit and provides 1 gigabit Ethernet to each desktop. A dedicated network connection provides direct access to the resources of several local universities. The network offers wireless access throughout the building.

Our firm modified the project bid documents to coordinate with project's E-rate requirements. We also ensured the cabling system design meet the Newark Public School's District Standards. A custom tailored A/V system infrastructure design was included to meet the specific needs of the subject matter to be presented. Systems included video projector, flat panel display, computer interface, Smart Boards, digital overheads, and other video services.

- Data center, TDF, MPOP, and fiber channel designs
- Full network/firewall/server/computer architecture
- Multiple incoming fiber service
- Tele/data structured cabling systems
- Equipment racks
- Fiber and UTP patch panels
- CAT6 distribution cabling
- Wireless access point enclosures
- Uninterruptible power supplies
- CATV system with IP networked video feeds
- IP based media retrieval system
- Classroom A/V presentation systems for smart classrooms
- Audio/video input/output outlets and cabling

Middlesex County Magnet Schools

IT/Communications, Security, Education Technology & A/V Design

Edison, New Jersey

The project scope comprises the construction of two adjoined buildings with an overall budget of approximately $41 million.

The educational and supporting spaces will include a large presentation space, studio gallery, cafeteria, conference rooms, faculty workrooms, faculty offices, building support rooms, and 20 classrooms, laboratories, and shops.

Professional Systems Engineering, an NV5 Company, is providing consulting, design, engineering, and construction services for the Middlesex County Magnet Schools new Edison Magnet School project. Previously known as Middlesex County Vocational and Technical Schools (MCVTS), this institution is entering a new chapter in its more than 100-year history. The new STEAM Magnet School will provide training for high school students that aligns with programs at Middlesex College, improving connections between the college community and local industries.

The project scope comprises the construction of two adjoined buildings with an overall budget of approximately $41 million. The two buildings together will total approximately 85,000 square feet, including the approximately 5,000 square feet 2nd floor walkable green roof area.

The educational spaces will include typical 24-student classrooms, small group instruction rooms, science labs, industry technology shops, cybersecurity shop, collaboration studio, studio gallery space, and an art room. Faculty support spaces include faculty work rooms and prep rooms. Administration spaces include Principals' offices, support offices, and meeting rooms. Additional spaces include a cafeteria, a large-group presentation area, MDF, IDF's, emergency communication centers, and additional building support areas.

Services Provided

Security

- Video surveillance system
- Card Access control system
- Wired and wireless controlled locks
- Visitor entrance video intercom system
- Alyssa's Law emergency alert system
- Monitoring & Control from Administration offices & Emergency Communications Centers

Security

- Standards updates and integration with district-wide control and monitoring
- Emergency control center
- Backup emergency control center

Audio/Video

- Wired and wireless classroom presentation systems
- Video wall large video displays

Audio/Video

- Video projector displays
- Program audio playback systems
- HDBaseT and AVoIP video distribution systems
- Voice lift systems
- ADA Assistive listening systems
- Touch screen and button panel control systems
- Meeting rooms with local presentation and remote conferencing
- Architectural integration

Communications

- MDF/IDF rooms
- Structured cabling pathways
- Backbone fiber optic cabling
- Horizontal Cat-6a cabling
- Computer and device connection outlets
- Synchronized clock and bell system
- Paging system
- Data network hardware consultation
- Wi-Fi wireless access points infrastructure

Communications Audio / Visual / Video Networks

Communications Expertise

Professional Systems Engineering, an NV5 Company, has provided advanced systems for communications, educational technologies, multi-media, acoustics, and related building systems since 1986.

We have extensive experience providing complete tele/data communications infrastructure, wireless networks, information technology systems through expert planning, design, and engineering services.

Experience

We specialize in site-wide communications systems in special environments that include academic, performing arts, theaters, museums, justice, conference centers, and diverse government and corporate clients nationwide. Our services include network information technologies, classroom, multi-purpose space, teleconferencing, multimedia systems, integrated voice/recording, and processing systems.

Client-to-Cloud Solutions

Complete client-to-cloud solutions were delivered to a national museum in the eastern U.S. and court systems across the country the south. Both solutions included client needs studies, broadband services, Citrix connectivity as-well-as legacy adoption and all new computers, fiber switching, and network operations/server room designs.

Cutting-edge solutions were included in New Jersey K-12 school projects which are designed to fulfill a Department of Education (DOE) mission to build technologically-rich learning environments for all students across the State. Our firm was selected as tele/data communications infrastructure and technologies experts for several projects notably a new magnet technology high school, a cooperative effort with New Jersey Institute of Technology (NJIT). Schools and Sciene applications inlcude, Quorum Conference Center for UCSC, Princeton University, Stevens Institute of Technology, and other institutions.

Our firm offers complete engineering and tele/data communications infrastructure consulting services directly to clients, architects and allied design professionals to facilitate project planning, design, inception and completion. The firm does not sell, provide or represent any products, equipment, manufacturers and vendors. We are a non-vested engineering firm providing innovative solutions to challenging projects.

Perth Amboy High School

IT/Communications, Security, Education Technology & A/V Design

Perth Amboy, New Jersey

Perth Amboy High School is a cutting-edge educational facility that focuses on STEAM education.

Our firm provided engineering consulting services for IT, communications, security, education technology, and audio/visual systems for the new $283.8 million, 576,000-square-foot, three-story high school.

Perth Amboy High School is a STEAM-based, state-of-the-art educational facility. The three-story building was constructed on an expansive 11.63-acre covering an impressive 576,000 square feet, making it one of the largest schools in the region. This project was completed through the NJSDA program by design-build project delivery using a fast track multi-phase design delivery meeting NJSDA's project schedule. Professional Systems Engineering, an NV5 Company, provided engineering consulting services related to IT services, communications, security, education technology, and audio/visual systems for the new high school.

The school opened in 2024, catering to approximately 3,300 students in grades 9 through 12. The school features a wide range of facilities including contemporary classrooms, advanced science labs, a black box theatre, art rooms, digital/graphics studios, a dance studio, a communications/broadcasting lab, state-of-the-art gymnasium, a performing arts center, a media center, main and auxiliary gymnasiums, an auditorium, and other educational classrooms.

Overall, Perth Amboy provides a comprehensive facility in a secure environment. Its security design includes card access, intrusion detection, video cameras, emergency call systems, door monitoring switches, electronic locks, gate controls, security controls, and an emergency one-button alarm system to summon law enforcement.

Services Provided

Audio/Video

- Classroom presentation
- Sound system
- Interactive monitors
- Control ystem
- Digital signage
- Paging system
- Digital clock system
- Coaxial distribution

Security

- Access control system
- Intrusion detection system
- Video surveillance
- Emergency call box system
- Parking access
- Door release
- Intercom
- Emergency control center
- Backup emergency control center

Auditorium/Multipurpose Rooms

- Video presentation
- Sound system
- Cabling
- Control system
- Lighting system

Blackbox Theater

- Video presentation
- Sound system
- Cabling
- Control system
- Lighting system

IT/Communications

- MDF/IDF rooms
- Structural cabling
- Fiber optic cabling
- Cat 6A cabling
- Tele/data service

Central High School

Security Systems & Tele/Data/Communications

Philadelphia, Pennsylvania

The new $45 million Performing Arts Center building will feature a new 400-seat performance hall, and it includes classrooms, rehearsal spaces, workshops, and other performance support spaces.

Central High School is a four-year university preparatory magnet school in the School District of Philadelphia, and it is the second oldest continuous public high school in the country. Working on the team led by MGA Partners Architects, Professional Systems Engineering, an NV5 Company, provided Security and Tele/Data engineering consulting, design, and construction administration services for this approximately $45 million multi-phase project to upgrade the existing school building and construct a new Performing Arts Center.

The highlight of the new Performing Arts Center (PAC) building is a new 400-seat performance hall. The PAC also includes classrooms, rehearsal spaces, workshops, and other performance support spaces. The PAC will connect to the existing school building via a new bridge and add to the STEAM education curriculum available to the approximately 2,400 students in grades 9 through 12.

Our firm worked closely with the School, School District, District IT, District Security personnel, and the Architect to design Security and Tele/Data systems that would meet all established standards and be able to seamlessly integrate with the School's and District's existing systems while serving the state-of-the-art new Performing Arts Center.

Services Provided

Security

- Video Surveillance Systems upgrade for the existing building
- Video Surveillance design for the new PAC
- Access Control System
- Intrusion Detection System (burglar alarm)
- Intercom
- Security Network
- Integration with new on-site and existing off-site monitoring stations

Tele/Data/Communications

- Telephone and data network outlets
- Wi-Fi Infrastructure
- Structured Cabling System infrastructure
- Equipment Rooms
- Category-6a Cabling
- Fiber Optic Cabling
- Synchronized Clock and Bell System
- Paging System