

YOUTH DETENTION ASSESSMENT AND SHELTER FACILITIES

SECURITY • LIFE SAFETY • COMMUNICATIONS



STRATEGY + SPECIFICATIONS + TECHNOLOGY

Security



Security Solutions

Professional Systems Engineering, an NV5 Company, has over three decades of professional experience in providing consulting and engineering services for security and communication systems in juvenile and adult avocated settings. Our expertise is in security planning and development, comprehensive security surveys, risk and needs assessments, security operations and procedures evaluation and program development, systems design and engineering, as well as a full complement of services for project delivery.

Balanced Programs

We offer a balanced team approach by combining the expertise of professionals representing physical hardware and systems, operations, policies, and procedures. Our team is comprised of security management specialists, security risk experts and planners, communication specialists, engineers, and CAD/BIM designers. Backed with the resources of a multi-disciplined team, Our firm provides our clients with well-coordinated security programs that fully integrate physical security hardware components with procedures and operational aspects.

Qualified Staff

Led by nationally recognized security, communications, and fire protection experts, we employ a uniquely qualified and technically diverse team. Continually meeting the challenges of sensitive projects, we have earned a national reputation for supplying advanced technologies and maintaining strict project cost and schedule requirements.

Rhode Island Youth Detention Center and Youth Assessment Facility

Security, Communications & Tele/Data Design Services

 Cranston, Rhode Island



Our firm provided these systems for the state-of-the-art 96,000 SF, 96-bed Youth Development Facility (YDF) which serves as a treatment center for boys and the 33,000 sq. ft., 52-bed Youth Assessment Facility (YAF) a detention center for the Department of Children, Youth and Families (DCYF).

Professional Systems Engineering, an NV5 Company, provided design, engineering, and construction administrative services for the security systems and tele/data systems for two new youth detention facilities for the State of Rhode Island. Our firm provided these systems for the state-of-the-art 96,000 SF, 96-bed Youth Development Facility (YDF) which serves as a treatment center for boys and the 33,000 sq. ft., 52-bed Youth Assessment Facility (YAF), a detention center for the Department of Children, Youth and Families (DCYF).

The security design consist of a fully integrated state-of-the-art touchscreen control that integrated the intercom and video surveillance systems to the door control system so that central control and local control had video follows audio of all controlled doors. The perimeter security consists of state-of-the-art 15 ft. high levered fencing with anti-clime upper fabric. The fence line had a complete video surveillance system. There is also a 10 ft. high straight chain link outer nuisance fence.

Services Provided

Security

- Door control & monitoring
- Touchscreen and PLC monitoring
- Central control design
- Local control console design
- Video surveillance system
- Intercom with paging systems
- Life safety systems alarms
- Communication infrastructure
- Site and building perimeter access and security
- Security fencing and gates
- Perimeter CCTV system
- UPS systems

Tele/Data Services

- Communications equipment, telephone, data, fax, and modems
- Telecom switching, including digital PBX
- Attendant stations
- IDF/MDF room layouts
- Pay telephone & control
- Tele/data cabling system
- Wide area network coordination
- CATV/MATV system
- Education technology for classrooms with A/V distribution

Essex County Youth Detention Center

Security & Communication Systems Design Services

 Newark, New Jersey



Our firm provided security and communication systems design for this new construction facility. This \$22 million project has systems and technology valued at approximately \$5 million.

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For this 68,000 SF facility housing 200 youths between 9 and 18 years of age, our firm provided design and documentation for the following:

Services Provided

Planning /Design/Life Safety

- Door and gate control systems
- Specialized inmate classification and ID system
- Officer watch tower system
- Digital PBX system
- Door locking and hardware monitoring systems

Communications

- Intercom system
- Integrated voice messaging systems
- Programmable logic control system
- Telecommunication infrastructure and instrument wing
- Data communication system including universal category 5 wiring system, software and all network support systems

Crossroads and Horizon Juvenile Centers

Security Systems Upgrades

 New York, NY



Secure juvenile detention facilities are characterized by locking doors and other hardware designed to restrict the movement of juvenile residents and protect public safety. These facilities and their programs are internationally recognized as models for juvenile detention.

Professional Systems Engineering, an NV5 Company, provided systems analysis, design/bid, and construction administration services. Our services included comprehensive security systems analysis, programming, and systems design to upgrade and modify the existing electronic security systems at the Crossroads (Brooklyn) and the Horizon (Bronx) Juvenile Detention Centers in a multi-phase project.

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Our firm provided additional services to include the expansion of the existing video matrix switcher, CCTV cameras to obtain coverage of the multipurpose rooms, stairs, exits, corridors, cafeteria, evacuation doors and other blind spots as identified; required conduit and cabling infrastructure; digital recorder units; twisted pair video transmission system, and additional CCTV integration for automatic camera call-up.

Services Provided

Electronic Security Systems

- Control center redesign
- Touch screen control system
- Programmable Logic Control (PLC) with remote I/O
- Door locking and control
- Video surveillance
- Digital recording
- Personal duress system
- Perimeter intrusion protection

Perimeter Security

- Sight video surveillance
- Passive infrared/microwave detection
- Sensor cable
- Signal control units
- Alarm reporting systems

Alameda County Juvenile Justice Center

Commissioning & Authority Services

 San Leandro, California



The new 379,000 sq. ft. juvenile justice center was designed to achieve LEED Gold Certification. The commissioning on this project represented the necessity to conform the Owner's original program, the design/builder's solution, and the vendor's integration. Our firm personnel were in full time attendance during peak test and conformance periods.

Professional Systems Engineering, an NV5 Company, provided commissioning and authority services for this new \$130 million juvenile justice center. This facility is comprised of a 360-bed detention center, with 180 Medium Security beds, 90 Maximum Security beds, and 90 Special Population beds, as well as court facilities and administration offices.

In order to verify the functionality of the building security systems, a final testing plan was implemented. The methodology of the plan was based upon standard operational activities that would be expected within the building to assure security systems would respond as designed. The commissioning methodology was focused upon functionality of the security system.

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Functionality Testing Plans included:

- Walk-thru of the facility from exterior entrance through the booking process to placement of a resident in a bedroom
- Verification of CCTV and intercom systems
- Special condition simulations for resident transfer process and system interlocks
- Systems testing performed on wireless and hardwired duress, Watch Tour, video retrieval, uninterruptible power supply (UPS) and alarm reporting systems
- Review of system testing documentation and follow-up on failed test items

Final Court Testing Plans included:

- Simulation of operational requirements from arrival at sallyport for hearing to holding area, and escort to courtrooms
- Simulation of a hearing room duress condition
- Review of critical operational punchlists for commissioning
- Testing for security systems validation

Youth Detention

Consulting, Analysis, and Design

- Master Planning
- Security Architecture
- Fire/Smoke Detection
- Programming and Security Narratives
- Staff, Visitor, Inmate Workflow
- Reception/Intake Analysis and Recommendations
- Low, Medium, Maximum, Super-Max, Segregation, Forensic, Adult Advocated
- Risk Analysis/Areas of Refuge
- Threat Assessment
- Perimeter Security, Detection, and Response

Hardware Consulting

- ASTM Grade 1-4 Detention
- UL Tool-Attack Resistance
- ANSI/BHMA 1-3
- Magnetic Locking
- Strikes/Bolts/Locks
- Hollow Metal Design
- Polycarbonate Evaluation
- Motorized Locking
- Secure Openings Consulting
- Electronic Controls
- Life Safety Operations

Communications

- Intercom and Paging
- Nurse/Patient Communication
- Network Design
- Tele/Data Communications
- Satellite Reception/Distribution
- Trunked 800 MHz Public Safety
- WAN/LAN/WIFI Design
- Distributed Antenna Systems (DAS)

Fencing/Perimeter Security

- Site Layout/Planning
- 3-D Digital Rendering
- 3-D Fly-Overs
- Chain Link/Mini Mesh/Custom
- Welded Mesh/318 Concertina
- High Performance Barriers
- Virtually Impenetrable Design
- Footer Design
- Seismic/EMF/Line/Optical Sensing
- Physical Security Analysis
- Hard/Soft Secure Site Design

Detention Control

- Industrial Grade Central and Distributed Processing Design
- Programmable Logic Control
- Mirror-Processing
- Redundant PLC Control
- Graphic Membrane Displays
- Operational Flow/Control Strategies
- Control Consoles, Cabinets, and Enclosures
- Custom Wood/Stainless Millwork

Monitoring

- Touch Control Systems
- Voice Message Systems
- Video Surveillance/CCTV Systems
- Perimeter Security Systems
- Fire Alarm
- Wireless Personal Alarms
- Smoke Detection

Life Safety

- I-3 Condition IV Specialties
- Shelter-in-Place
- Fiber Optic Fire Alarm
- Safety Program Development

Cheltenham Youth Detention Center

Fencing, Security Systems & Perimeter Security

📍 Cheltenham, Maryland



Two key philosophies will be applied in the design of all security systems for the Cheltenham Youth Detention Center. The first is the concept of simple operational security. The second key philosophy is the design of integrated systems using the latest and most dependable technologies.

Professional System Engineering, LLC provided consulting, design, and engineering services for the construction of a new 72-bed state-of-the-art detention facility to house male juvenile offenders in need of secure care. Two key philosophies were applied in the design of all security systems for the Cheltenham Youth Detention Center. The first is the concept of simple operational security. The second key philosophy is the design of integrated systems using the latest and most dependable technologies.

The new 92,122 SF, \$48.3 million facility contains housing, administration, admissions/release, somatic/behavioral health, food service, education, recreation, and visitation areas. Our firm designed a perimeter security fencing system consisting of climb resistant fencing and perimeter detection system augmented by exterior video surveillance monitoring, door/gate control system, interior video surveillance/recording system, paging/intercom system, wired duress system, access control/card reader system, guard watch tour system, and a Master Control Center.

Services Provided

Security Systems

- Master control design
- Housing unit door control and monitoring
- Programmable Logic Control (PLC) networking
- Touch screen control system
- Access control system
- Intercom/paging system
- Wired duress system
- Watch Tour System
- Uninterruptible power supply (UPS)

Video Surveillance System

- Video Surveillance, PTZ, and fixed cameras
- Video switching, recording, and controls
- Video monitoring

Perimeter Security

- Entry gates/security vestibules
- Fixed cameras
- Security fencing
- Perimeter intrusion
- Detection system (PIDS)
- Vehicle sallyport

Bridgeport Superior Court & Center for Juvenile Matters

Court Security Consulting & Engineering Services

📍 Bridgeport, Connecticut



The new court's administrative and juvenile facility's design and construction include about 89,000 SF of courtroom, housing, and program space. The new facility is fully self-contained and designed to be state-of-the-art. The program budget is approximately \$36 million.

Professional Systems Engineering, an NV5 Company, applied two key philosophies in the design of the security systems. The first was the concept of simple operational security. The system design focused on not only providing the best level of security but also stresses a "simple to operate" and "easy to maintain system." Our firm believes that if systems are not easy to operate, these systems will not be fully implemented. The end result of a complex security system could be a breakdown in a facility's overall level of security.

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Our second key philosophy was the design of integrated systems. Modern security systems incorporate a collection of subsystems. Traditionally, these systems would each be an independent standalone system. The system provided for in this project will call for each subsystem to be interfaced in a manner that will allow the system to share information and automatically respond to events.

Services Provided

Technologies

- IP security system
- PLC system control in holding cells, segregated from courthouse access control system
- Monitoring and controlled access systems
- Card access protection
- Elevator and secure corridor protection
- Digital television surveillance
- Weapons detection and package screening
- Interior building security for door monitoring and control, power backup, interior communications, and duress monitoring stations
- Security intercom system
- Monitoring of critical support systems, such as uninterruptible power supplies (UPS) and fire alarms
- Physical security control and monitoring of exterior access to secure parking and sallyport entrances

Hartford Juvenile Detention Center

Security System & Construction Administration

 Hartford, Connecticut



The Hartford JDC was a newly constructed, state-of-the-art juvenile detention center that was integrated to the existing Family Court building.

The Hartford JDC was a newly constructed, state-of-the-art juvenile detention center that was integrated to the existing Family Court building. Professional Systems Engineering, an NV5 Company, provided security design, project support, and construction administration services for the new 84-bed facility, an addition to the existing Family Courts building. The security system design consisted of touch screen control systems, both wired and wireless duress systems with location ID, access control, and alarm annunciation with video recording and call-up.

Services Provided

Security Systems

- Master control design room layout
- Programmable Logic Controlled (PLC) server computer and touch screen control (TSC) GUI screen integrated control system
- Door/Gate and detainee movement
- Utility and lighting control system
- Video surveillance system with state-of-the-art cameras, matrix switch, monitors, and digital video recording system.
- State-of-the-art intercom/paging system integrated with control and CCTV systems.
- Wired and wireless duress (man-down) system
- Access control system interfaced to existing courthouse systems with card reader access for staff and selected secure doors.

Security Systems Infrastructure

- Cabling and wiring requirements
- Conduit/raceway coordination
- Security equipment room layouts
- UPS and emergency power coordination
- Equipment room master control HVAC coordination requirements
- Communications links to the existing Courthouse's access control system.

Garden State Youth Correctional Facility

Fire Detection & Alarm Systems

📍 Yardville, New Jersey



This project consisted of upgrading the Garden State Youth Correctional Facility fire detention and fire alarm systems to current code compliance. Work included networking the new fire alarm control panels to the main fire alarm panel and the proprietary supervisory graphic fire command station in Central Control through fiber optic links.

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Professional Systems Engineering, an NV5 Company, provided consulting, design, engineering, and services for replacement and upgrade of fire detection and fire alarm systems for the Garden State Youth Correctional Facility. The design consisted of replacing the existing fire alarm panels for 12 different buildings with new computerized Fire Alarm Control Panels (FACP) and new addressable smoke and heat detectors, new pull stations, and strobe horns. It also included upgrading the remote annunciators and master FACP, and all panel networking. The design also included control of door holders, air handling fan shut-down, and fire/smoke damper operations.

The designs were in compliance with all state, federal, and local code requirements, and met NFPA 72, NFPA 101, and IBC standards.

Services Provided

Fire Protection Design Services

- Design new main fire alarm panel
- New proprietary supervisory graphic fire command station in central control
- Demolition of old fire alarm control panel phasing documents
- Replace all existing FACP's for housing units, administration building, gym, auditorium, and support buildings
- Design fiber optic network linking all FACP's to Center Control
- Smoke detectors
- Heat detectors
- Duct smoke detectors
- Audio/Visual notification appliances meeting ADA requirements
- Remote annunciator
- Air handlers shut down and fire/smoke damper control
- Interface to sprinkler system
- Asbestos abatement coordination

Network Technology/AV

Wireless Data/Voice Systems

- Wi-Fi
- WiMAX
- Cellular Data
- Site Radio/RF
- 800 MHz
- Building Distribution Antenna

Audio/Visual

- Display Design
- Access Control
- Conference Room
- HIPAA Conferencing
- Acoustical Control
- Wireless Network Infrastructure

Wireless Network Security

- Automated Fire/Security
- Mobile Alerts
- Wireless Network Switching
- Wireless Network Management

Data Network Types

- LAN
- WAN/MAN
- High-rise Fiber Networks
- Multi-Building Campus Nodes

Network Communication Security

- VoIP
- Secured Detainee Network
- Video Conferencing
- Secure Handheld

Infrastructure

- Cable Monitoring
- Structured Cabling
- Campus Wide Infrastructure
- A/V Distribution
- Broadcast/Streaming
- Fire Monitoring

Monroe County Children's Detention Center

Security System & Security Fencing Design

📍 Monroe County, New York



Monroe County Children's Center was a \$20 million Design/Bid/Build that consists of renovations and future addition.

Monroe County Children's Center is a Design/Bid/Build project that consists of Phase 1 - renovation and Phase 2 - construction for an addition.

Professional Systems Engineering, an NV5 Company, is providing engineering and consulting for security systems and security fencing for the Monroe County Children's Detention Center project for an addition and renovation project, which is adding specialized secure detention (SSD) Housing to the existing JDC building to comply with New York's Raise The Age (RTA) law.

Phase 1 has been completed and included approximately 3,000 SF of renovation in Buildings 67 to add a 10-Bed Male Adolescent Offender (AO) Unit. It included security hardening renovations in Building 68 for a 5-Bed Female AO Unit. The construction budget for Phase 1 was approximately \$3.5 million.

Phase 2 is ongoing and includes an approximately 37,000 SF addition to Building 67. The addition includes housing units, admissions, medical, visitation, gym, program space, and kitchen/dining. The site modifications include new security fencing. The construction budget for Phase 2 is approximately \$24 million.

Services Provided

Security Electronics

- Door and gates control/monitoring with PLC integration
- Bedroom control/monitoring
- Security intercom and paging system
- Video surveillance
- Access control systems
- Wired duress systems
- Digital video recorder equipment and networked video servers

Perimeter Security

- Site video surveillance
- Fencing
- Gates

Union County Juvenile Detention Center

Security & Security Communications
Design Services

 Linden, New Jersey



This project provides for the design and construction of a new juvenile facility to include about 72,000 SF of housing and program space. It is designed to be a state-of-the-art juvenile detention facility providing much needed rehabilitative care. The young, at-risk population, that has been routinely under served nationally, will be afforded a positive reinforced social environment while in a secure setting.

This project provided for the design and construction of a new juvenile facility, including about 72,000 SF of housing and program space. It was designed to be a state-of-the-art juvenile detention facility providing much needed rehabilitative care. The young, at-risk population that has been routinely under served nationally, is afforded a positive reinforced social environment while in a secure setting.

Professional Systems Engineering, an NV5 Company, provided program design services and construction administration including the design of master control center that was comprised of main touchscreens, server computer system and the headend systems for video surveillance, intercom and paging system.

Our firm provided security, intake fencing, and security communications infrastructure consulting, design and engineering services. We also designed site-wide card access door monitoring and control

Services Provided

Security

- Door control/monitoring of security doors and gates
- Room control/monitoring
- Central control design layout
- Local control stations design and layout
- Networked programmable control (PLC) and touch screen computer system (TSC)
- Indoor and exterior Close Circuit Television (CCTV) system
- Digital video recording of all cameras
- Security intercom and paging system

Access Control/Personnel Safety

- IR/RF wireless duress system
- Access control system proximity card reader access to selected doors and all housing unit cells
- Housing unit utility control
- Watch Tour system

Fencing for Intake Area

- Door/gate control/monitoring for the intake sallyport
- Building-mounted exterior cameras
- Main entry gate control and intercom system

Delaware County Juvenile Detention Center

Master Planning

📍 Lima, Pennsylvania



Gerald Forstater, PE of our firm co-authored an article in Corrections Today Magazine on juvenile detention planning in the issue.

Professional Systems Engineering, an NV5 Company, provided master planning, design, and engineering for fencing, central control, and communications for the Delaware County Juvenile Detention Center.

Multiple projects have involved renovations and additions to the Master Control Center, door control system, and video surveillance system, including new cameras and digital recording with video virtual private network for off-site viewing, new touch screen/PC/PLC system with phased integration into existing door locking system using existing infrastructure.

Gerald Forstater, PE of our firm co-authored an article in Corrections Today Magazine on juvenile detention planning in the April 2005 issue.

Services Provided

Electronic Security

- Custom touch screens with capacitive touch and liquid crystal display
- HMI technologies are used for custom GUI interfaces
- Programmable Logic Controller (PLC) with redundant processors
- Quality video through low-light level cameras

Perimeter Security

- CCTV Video Surveillance System (VSS)
- Fence mounted vibration detection system
- Intrusion/door detection and biometric attendance

Fire Alarm/Fire Protection Systems

- Addressable smoke/heat detectors, pull stations, and monitoring modules
- Combination horn/strobe annunciators
- Combination of dry and wet pipe sprinkler systems

Fencing

- First Defence curved fencing system with mini-mesh on top five feet of fence
- High security sallyports and man-traps
- Custom "Eyebrow" design for building-to-building connections

