Leaders In Design

Professional Systems Engineering, LLC (PSE) is a national leader in providing consulting, design, engineering, and construction services for justice, corrections, detention centers and jails. With hundreds of projects completed and $5 billion in design currently underway nationally and worldwide, our client base of Owners, Architects, and Design-Build teams have counted on us to deliver detailed construction documents and specifications within budget and no change orders. We provide critical systems design, engineering, consulting services, and planning critically matched to operations in a safe and secure environment for security, life safety, communications, detention operations and lighting control.

Client Focused Expertise

We offer state-of-the-art designs in perimeter fencing and detection, modern control centers, IP video surveillance, touch screen control systems, and wireless communications to maintain the highest levels of safety and security on each of our client’s sites. We provide detention hardware specifications and schedules following ANSI 863-04 for detention security openings. By combining our design and hardware expertise, PSE is the only independent firm to specialize in providing specifications, drawings, and consulting in the fields of security, perimeter design, life safety, communications, and lighting for detention operations. PSE provides our clients the decision making skills required to ensure a successful design, from understanding detention vs. corrections functions to behavioral needs. We offer a complete solution to design teams and owners.

PSE is committed to providing the tools and building designs for our clients to function safely, securely, and successfully. We have the capability of providing emergency planning, policies, procedures, and training tailored to the individual needs of each client. This allows our team to work one-on-one with all involved parties to develop systems and practices that aid in the ultimate success of every project and every team.

Innovative Leaders in Staffing, Procedures, and Training

Going beyond critical systems commissioning, our team prepares life safety plans, evacuation planning instructions, and detailed exit maps. For security we establish post orders and incident response procedures, master keying system design, and on-site training for security operations and evacuation exercises. Opening a $100+ million facility requires a transition team with irrefutable experience. PSE delivers solid recommendations and site specific practice manuals/training.

PSE strongly believes in providing the highest level of service to each client. This allows us to focus one-on-one on each task making our client the first priority. This enables our team to guarantee a successful outcome regardless of the size of the project.
Consulting, Analysis, and Design

- Master Planning
- Security Architecture
- United Nations Compliance
- Programming and Security Narratives
- Staff, Visitor, Inmate Workflow
- Reception/Intake Analysis and Recommendations
- Low, Medium, Maximum, Super-Max, Segregation, Forensic, Geriatric, and Isolation Design Experience
- Risk Analysis
- Threat Assessment
- Perimeter Security, Detection, and Response

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
- Unique ‘Capture Zone’ Designs
- Physical Security Analysis
- Hard/Soft Secure Site Design

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
- Video Visitation
- Tele/Data Communications
- Master Television/MATV Distribution
- Satellite Reception/Distribution
- Trunked 800 MHz Public Safety
- WAN/LAN/WIFI Design

Fencing/Perimeter Security

- Site Layout/Planning
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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
- Integrated Monitoring/Control
- Wireless Personal Alarms
- Wireless Tracking

Life Safety

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

PSE has been providing justice operations, hardware consulting, fencing, detention applications, and safety of staff, visitors, and those in secure detention for over 30 years. Rarely does a firm integrate physical and electronic applications so seamlessly.
Our security and wireless duress alarm designs were recently featured on National Geographic’s “MegaStructures” television program as the “most advanced security in the United States” as well as in “Maxim” magazine.

Our high security fencing and perimeter design is considered the “Best-Practice” model throughout the world.

Professional Systems Engineering, LLC provided corrections planning services, systems design for support services/site connectivity study and schematics; construction documents, administration, management; as well as certification testing/inspection and commissioning services for this 60-acre site. PSE spent 7 months meticulously reviewing and verifying/testing system and device functionality.

The security and communications systems are integrated with redundant computers and programmable logic control systems. This allows flexible operation through multiple local and central consoles that may be activated as needed.

Life safety monitoring and evacuations system are fiber connected and computer controlled for meeting Maryland State Fire Marshal and NFPS regulations.

Operator interfacing is through touch control terminals and graphic control panels. Site-wide communication is provided through multi-mode and single-mode fiber optic networks. Communication within buildings is through structured category and specialized cabling.

### Site-wide Design
- High security fencing and gates
- Wireless RF duress/panic alarm
- Site-wide control/fire alarm monitoring
- Satellite television distribution system
- Maximum security design
- Detention door and gate control
- All site lighting designs

### Integrated Systems
- Lighting control
- Video surveillance and digital recording
- Intercom/paging/nurse call
- Multiple perimeter intrusion systems
- Sophisticated Perimeter detection with RF mobile maps
- Communication systems for various buildings
Professional Systems Engineering (PSE) was engaged by Travis County to provide for replacement and upgrades to existing control systems and detention hardware at the Travis County Correctional Complex and Jail. PSE provided design and engineering services to deliver cutting edge results on which all future control system work throughout Travis County is now being based.

These projects included multiple facilities housing maximum security male and female inmates and medium security inmates. Services for these facilities required the upgrade and replacement of master control centers, local control stations, intercom and paging systems, and detention hardware. Our design services enabled the Travis County to save over $200,000 and receive state-of-the-art control system that are non-proprietary, easy to maintain, and provided a safe and secure environment at each facility.

**Control System**
- Door and gates control/monitoring with PLC integration
- Cell control/monitoring
- Redundant monitoring stations
- Touchscreen control system in each housing unit
- Touchscreen control in each master control for emergency take-over
- Redundant programmable logic controller (PLC) systems
- Self healing fiber optic network
- New security intercom and paging head-end system
- Housing unit console replacement
- UPS back up for equipment

**Detention Hardware**
- Replacement of malfunctioning electro-mechanical locks
- New electro-mechanical locks
- Detail hardware evaluation, coordination, and specifications

**Video Surveillance**
- IP upgrade and integration
Professional Systems Engineering, LLC provided security consulting and engineering services, including systems studies, design, and construction administration for this new $40 million, 94,000 SF design-build expansion of the Middlesex County, SDM Billerica House of Corrections.

The 2-story, addition includes four medium security housing pods of 64 cells each for a total of 256 cells, including program and support space. The systems designed included door and gate control, lighting control, video surveillance, intercom, paging, wired and wireless RF duress/panic alarm, and other functions.

Updating the existing control systems was provided during this project to ensure the existing and new expansion was compatible for command and control. A new design was provided for the electronic security control systems within the existing Central Control Center and new Local Control Stations to for the new expansion building to be added while updating all of the existing PLC based control systems. This created the capability for the existing and new systems to command and control both the old and the new.

**Security**
- Video surveillance systems
- Security intercom and paging
- Wireless and wired duress/panic alarm systems
- Door/gate control and monitoring
- Touch screen control stations
- Security lighting control
Professional Systems Engineering, LLC provided security consulting, hardware consulting, and engineering services as prime consultant to the city of Philadelphia, including systems studies, master planning, design, bid, and construction administration for this 946 bed, 13 housing unit facility.

Planning services included site analysis, program of user requirements, locking systems study, communication systems, and Security System Master Planning (SSMP). The SSMP included consoles, electronics, communications, control, life safety, operations, scheduling, phasing and cost estimates. The most recent phase expanded the scope of the project to include a complete facility wide video surveillance and communication system replacement.

The scope of services included phasing of multiple projects to allow renovation of entire facility while maintaining maximum occupation levels. Currently housing units F1, G1, H1, F2, G2, H2, J and K and their associated auxiliary control consoles and facility control consoles are completed.

**Cell Locking and Life Safety Upgrades**
- PLC cell locking controls
- PC touch screen graphical maps
- Door Hardware
- UPS back-up power
- Upgrades and control slider doors
- Life Safety Code 101 Compliance
- Detention Hardware
- Duress System
- IP Video Surveillance
- Intercom

**Information Technology**
- Inside/outside plant
- Communication distribution
- Universal cable distribution system
- Network infrastructure
- IP telephone system
- Site-wide networks
The new Van Cise-Simonet Detention Center serves pre-sentenced inmates remanded to custody by the courts. PSE provided security and communication design and consulting services for the new four-story, 461,000 SF, $160 million facility with a 1,500 bed capacity. The Van Cise-Simonet Detention Center achieved LEED Silver certification.

Professional Systems Engineering, LLC provided security control system design and consulting services for this new state-of-the-art detention center project. The security system for the detention center will be comprised of control and monitoring of inmate movement, doors and gates, video, intercom and paging, duress, lighting, and other functions as required by the institution. PSE’s responsibilities included planning, design, and ushering in standards of practice relating to the state-of-the-art detention facility’s control and security system. Our services included design and consulting on the following systems:

- Control systems including the interface computers and programmable logic control system graphical user interface for floor control, housing units, intake/booking, medical, and central courthouse holding
- Control system design consisting of multi-tier design of network PLC and touchscreen work station computers for local and floor controls networked to multi-generator central control system-based ground dual-core Raid servers
- Graphical User Interface (GUI) touch screen designs
- IP video surveillance system design including recording, virtual switching, network storage arrays, and analytics
- CCTV, intercom/paging, and control systems
- Design and construction documentation including system and integration diagrams, GUI screens, console layouts, and selected specification sections
- Operational sequence documents for all computer systems
Professional Systems Engineering, LLC provided security engineering, design, consulting, and construction administration services for this security upgrade project for the existing 1,247 bed, SCI Chester facility for the Commonwealth of Pennsylvania Department of General Services (DGS). The project will provide a new perimeter detection system located with the rooftop security fencing for the facility. The existing reporting system for the other existing perimeter systems will be upgraded and integrated with the existing video surveillance system.

**Perimeter Security**
- Provided design services for electronic intrusion detection systems at the perimeter of the facility
- Designed new wall mounted Detekion sensor coil to extend existing installation
- Provide new mobile map system to update existing systems with new perimeter zones being added

**Control System**
- Custom touch screens with capacitive touch and liquid crystal display
- Integrated new intrusion detection systems with existing intrusion detection systems
- Integrated new intrusion detection system with existing
- Video surveillance system
Wireless Data/Voice Systems
- Wi-Fi
- WiMAX
- Cellular Data
- Microwave Systems
- 700/800/900 MHz

Wireless Network Applications
- Mesh Networks
- Point-to-Point
- Wireless Backhaul
- Wireless LAN/WAN
- Hot Spots
- Wireless Network Infrastructure Planning

Wireless Network Equipment
- Autonomous Access Points
- Lightweight Access Points
- Wireless Network Switching
- Wireless Network Management
- Wireless Network Security Data

Data Network Types LAN
- WAN/MAN
- High-rise Networks
- Multi-Building Campus Networks

Network Communication Applications
- VoIP
- Unified Messaging
- Video Conferencing
- Video Delivery and Storage
- VPN

Network Integrated Building Security
- IP CCTV Systems
- IP Intercom Systems
- Networked Access Control Systems
- Network Integrated Building Security

Infrastructure Planning
- Structured Cabling
- Campus Wide Infrastructure
- City/County Wide Infrastructure
- Wireless Backhaul
- Aerial Cabling Systems
- Ductbank Systems

Telecom Service Planning
- POTS
- ATM
- T-Carrier
- DSL
- ISDN
- Cable Modem
- Multi-Tenant VoIP

Data Centers/Design/Security
- IPS/Threat Management
- Server Architecture
- Storage Networking
- Data Back-up Systems
- Critical Power Systems
- Network Monitoring
- Server Consolidation
- VLAN Coordination
- Legacy Systems Migration
- Virtualization of Servers
PSE acted as the security specialist for Video Surveillance Systems from the Facility Survey phase through development of Bid Documents and Design Modifications including the construction and commissioning phases of the project as requested. PSE also provided coordination of all efforts related to the Video Surveillance Systems.

Professional System Engineering, LLC provided survey, design, and construction administration services for Video Surveillance system upgrades to seven (7) existing NYC DOC facilities, including:

- Otis Bantum Correctional Center (OBCC)
- Eric M. Taylor Center (EMTC)
- Rose M. Singer Center (RMSC)
- North Infirmary Command (NIC)
- Manhattan Detention Complex (MDC)
- Vernon C. Bain Center (VCBC)
- Brooklyn Detention Complex (BKDC)

PSE performed a complete survey of all existing facilities to evaluate existing conditions and location new camera, equipment, and monitoring locations prior to the design of new camera locations and other system upgrades. The project will result in the installation of more than 5,000 new cameras.

**Video Surveillance System**

- Internet protocol (IP) cameras
- Fixed and PTZ cameras
- Interior and exterior camera coverage
- Network Requirements
- Equipment room requirements
- Coordination of power requirements
- Monitoring locations
Professional Systems Engineering, LLC provided design and consulting services for the design and construction of a new, $14 million detention center for the Fort Peck Tribes in Poplar, Montana. PSE designed the electronic security systems including IP video surveillance, intercom, paging, staff duress, perimeter intrusion detection, and access control. These systems were integrated for streamlined control from touchscreen control workstations. Physical security was also included in PSE’s design, encompassing fencing and detention hardware. PSE also designed the tele/data infrastructure for the facility’s enterprise IT network and phone system, including telecom room layouts and structured cabling systems. Design was formulated to work in conjunction with the facility’s architecture and geographical location to promote effective security for the safety of both detainees and staff alike.

Electronic Security
❖ IP video surveillance
❖ Perimeter intrusion detection
❖ Intercom
❖ Paging
❖ Access control
❖ Central control room design
❖ Systems integration and touchscreen control

Physical Security
❖ Perimeter fencing
❖ Gates
❖ Detention locks
❖ Detention door hardware
❖ Door monitoring

Tele/Data Infrastructure
❖ Equipment room (MDF/IDF) layouts
❖ Electrical and heat loads
❖ Structured cabling and conduit
❖ Network switches and other hardware
The Chatham County Detention Center expansion project added total number of inmate beds to 2,300 and added 400,000 SF to the facility. PSE provided security and telecom consulting and construction administration services for this project.

Professional Systems Engineering, LLC provided security and telecommunication consulting and construction administration services for the Chatham County Detention Center. The expansion project added 400,000 SF and bring the total number of inmate beds to 2,300. Major renovations will be done to the administration building, medical, kitchen, laundry and warehouse facilities. A work-release center is planned along with further renovation which will accommodate the need for any possible future expansions.

### Security/Enforcement
- Door and gates control/monitoring with PLC integration
- Cell control/monitoring
- Redundant monitoring stations for central control, support/command personnel and housing unit stations
- Complete security intercom and paging system
- CCTV surveillance
- Access control systems
- Wireless/wired duress systems
- Digital video recorder equipment and networked video servers
- Perimeter security and fencing

### Communications
- Communications infrastructure
- Main point of presence coordination
- Wide area of network interface
- Distribution backbone design
- Consulting for switching and servers
- IDF/MDF tele/data room equipment layout
- Tele/data communications structured cabling system
- MATV/CATV system
- Video visitation
A $60 million facility, built in 18 months, required an entire universal wiring infrastructure. A complete RFP for communications was prepared for the equipment budget of $1.6 million and infrastructure costs of over $400,000.

Professional Systems Engineering, LLC provided systems design and consulting services for control, communications, and infrastructure.

This 400,000 SF facility encompasses multiple county/city jurisdictions in the Lexington, Kentucky area. Because the design/build contracts awarded approached a cost of $60 million, the owner and planners obtained expert fire, tele/data communications, audio, multimedia, and video consulting provided by PSE. The project was lauded as a complete success.

**Communications**
- High speed network design
- Master control center design
- Satellite TVRO facilities
- Data telecommunications design
- Computer architecture design
- Digital TV studio/broadcast design
- Large bandwidth digital data/telecom/video/WAN design for integration to County Government
- Data/telecom/video RFP preparation valued at $2.3 million

**Systems**
- Twenty-four video conference stations with ISDN, H.323 and SONET ring capabilities to city courts
- Advanced tele/data/video and information technologies facilitation and engineering using gigabit layer 3 switching
- Digital studio television and recording systems for site-wide distribution and training
Professional Systems Engineering, LLC was responsible for over $6 million in construction design to physically secure the perimeter. Our solution was a two-fence system constructed of low carbon steel rod for deterrence in combination with non-climbable upper protection for the fence nearest inmates. A second outer fence provided an additional barrier. Both fences use over nine miles of double-barbed, counter-posed spiral stainless steel concertina tape.

The fence barriers use an attached digital signal processing system that can sense any cut, climb or breach while it is virtually immune to the effects of wind, snow and ice. Custom, covert arrays of microwave and passive infrared detectors, mounted in a “plinth arrangement” sense an intruder from a distance of up to 330’. These “plinths” are virtually immune to wind, rain, snow and fog and their detection characteristics/aiming is hidden from all views—providing the perfect covert coverage.

Central Control
- Security grade control consoles
- Ceiling mounted 27” multiplexed CCTV monitors
- Touchscreen control (TSC) monitor and computer
- Call-up and record/playback stations
- Ergonomically designed control room and workstations

Main Vehicle Sallyport
- CCTV Video Surveillance System (VSS)
- Infrared detection
- Interlocking of vehicle and pedestrian gates

Perimeter Fencing
- High speed, high impact vehicle crash barriers
- Virtually impenetrable “No-Mans” Land
- Dual barrier 16’-0” straight fencing system with precision installed concertina razor coils

PSE’s unique perimeter system effectively protects the community and public with more than two miles of fencing and nine miles of piercing barbed tape for the State of Maryland Department of Corrections.
Cyber-Security/Network Technology

**Cyber Forensics**
- Unauthorized Connections
- Firewall Rules Verification
- Access Privilege Verification
- Security Audit

**Threat Management**
- Firewall Configuration
- Intrusion Prevention (IPS)
- Denial-of-Service (DoS)
- Spam Filtering
- Anti-virus
- Internet Content Control
- Firmware Upgrades/Patches

**Telecom Service Security**
- POTS
- ATM
- T-Carrier
- DSL
- ISDN
- Cable/Fiber Modem
- Multi-Tenant VoIP

**Remote Access Security**
- Virtual Private Network
- Remote Access Gateways
- Secure Sockets Layer (SSL)
- Remote Desktop
- Terminal (Servers)
- Virtual Machine Controllers
- Hardware Virtualization

**Data Center Security**
- Storage Networking
- Data Back-up Systems
- Critical Power Systems
- Network Monitoring
- Server Consolidation
- VLAN Coordination
- Legacy Systems Migration
- Virtualization of Servers

**Infrastructure Security**
- Cable Monitoring
- Structured Cabling
- Campus Wide Infrastructure
- City/County Wide Infrastructure
- Microwave Links
- Aerial Cabling Systems
- Ductbank Systems

**Data Network Types**
- LAN
- WAN/MAN
- High-rise Fiber Networks
- Multi-Building Campus Nodes

**Network Communication Security**
- VoIP
- Unified Messaging
- Video Conferencing
- Video Delivery and Storage

**Wireless Network Security**
- Autonomous Access Points
- Lightweight Access Points
- Wireless Network Switching
- Wireless Network Management
- Rogue Access Point Client Detection

**Wireless Data/Voice Systems**
- Wi-Fi
- WiMAX
- Cellular Data
- Microwave Systems
- 700/800/900 MHz

**Wireless Network Applications**
- Mesh Networks
- Point-to-Point
- Wireless Backhaul
- Wireless LAN/WAN
- Hot Spots
- Wireless Network Infrastructure

PSE has extensive experience providing complete Tele/Datacom infrastructure and information technology assessments, systems planning, design and engineering services. Our cyber security team is composed of high tier certified professionals with outstanding customer service.
SCI Phoenix East and West
Bridging Document, Security & Technology Services
Skippack, Pennsylvania

SCI Phoenix East and West is a replacement project for one of the largest state correctional facilities. The expansion is the keystone to a major statewide rehabilitation and enlargement to handle a growing incarceration trend in Pennsylvania. Over $40 million in systems were specified by PSE for the proposed $431 million site allocation.

Professional System Engineering, LLC serves as the physical security, perimeter security, security electronics, detention hardware, technology, life safety, and communications consultant for the preparation of Bridging Documents for the new SCI Phoenix facilities for the Commonwealth of Pennsylvania Department of General Services (DGS). The two facilities will be constructed in a design/build effort at the site of the existing SCI Graterford with a proposed capacity of 4,100 beds. The two facilities will share a secure perimeter and support services building, but will have their own master control rooms and integrated security systems. The 1 million gross SF SCI Phoenix facility is a replacement project for the largest state prison. PSE also assisted PA DOC in developing specifications for the implementation of an IP video system with more than 1,000 cameras, centralized recording, network switches, and redundant fiber optic infrastructure.

The two facilities will share a secure perimeter and support services building, but will have their own master control rooms and integrated security systems.

### Physical Security
- Security zoning
- Impact/attack ratings
- Hardening analysis
- Control center design

### Security Electronics
- PLC control systems
- Touchscreen control
- Digital video
- Intercom/paging
- Wireless duress
- Watch tour

### Detention Hardware
- Pneumatic locking system
- Swing door detention locks
- Sliding door detention locks
- Gate locks

### Life Safety
- Shelter-in-place scenarios
- IBC conditional use group IV
- NFPA life safety I-3 analysis
- Integration requirements

### Perimeter Security
- Security fencing
- Multiple detection systems
- Vehicle sallyport
- Site digital video
- Security lighting/controls

### Communications
- Data communications
- Voice communications
- Satellite TV distribution
- Inmate phone infrastructure
- Video conferencing
Professional Systems Engineering, LLC provided program and engineering services to the Delaware County George W. Hill Correctional Facility for expansion of the video teleconference areas to develop a state-of-the-art teleconference center. This area currently handles 1,200 arraignments per year. Due to added judicial staff and continuing trend of increasing the number of video arraignments, the current facility is unable to handle arraignments in a timely fashion. Expectations are to increase to nine simultaneous conference rooms to manage a workload of 2,000 hearings and arrangements per year.

Tasks included:

❖ Design a video arraignment center meeting acoustical requirements for defendant/attorney/client confidentiality
❖ Noise, vibration, and sound control for soundproofing accommodations
❖ Video conference infrastructure for Comcast cable based broadcast quality and 2-way conferencing
❖ Phased implementation to allow unimpeded and continuous use of facilities during construction
❖ Provided a complete and operational “Video Surveillance and Digital Recording System”
❖ Video DVMR and archiving media
❖ System programming and setup
❖ Security-controlled access additions to touchscreens
❖ HVAC addition, new electrical system infrastructure
❖ Holding cell facilities
❖ Construction bid and project management services
Merrimack County House of Corrections
Security & Communications Systems Design
Boscawen, New Hampshire

The Merrimack County House of Corrections project consisted of 240 beds and 80,000 sq. ft. of new construction, plus 20,000 SF of renovations, for a total of $25 million in construction. It was a Design Build project completed on time and within budget, resulting in a state-of-the-art county jail.

Professional Systems Engineering, LLC as part of the Owner’s team, provided RFP documents to establish quality guidelines, design and program data, operational narratives and space program input/room data schedule coordination for Merrimack County New House of Corrections.

PSE provided specialized consulting services for:

Security Systems
- Central control room design and console design
- Security equipment room layout and rack requirements
- Door, gate control system requirements through PLC/graphical user interface computer system
- Miscellaneous control requirements including inmate telephone, lighting, and utilities control
- Video surveillance system requirements, including digital video recording
- Intercom/paging fully integrated with control video surveillance, access control system
- Wired/wireless duress system requirements

Telephone and Data Communication System
- Telecommunication digital PBX system
- Infrastructure for tele/data/fax/video distribution system
- Telephone instruments
- Coordination for Virtual Private Network (VPN)
- All data switches and hubs networked to Owner’s T-1 channel bank
- Video visitation/conferencing system
- Video arraignment
- Inmate telephone system coordination
- UPS coordination
PSE provides a wide range of services for life safety and property protection including consulting, engineering, system design, construction administration, inspections and testing, and other related services.

PSE designs fire and life safety systems that protect our clients from loss from fire, security issues, and other emergency situations.

**Code Compliance/Evaluation**
- IBC Architectural Evaluation
- Building Fire Code Analysis
- Fire and Life Safety Analysis
- JCAHO Standards Compliance Including Statement of Conditions
- Life Safety Plans
- Intellectual Property and Patent Claims
- Product Proof-of-Performance Evaluations and Claim Management

**Life Safety**
- High-Rise Compliance
- Fire Alarm
- Mass Evacuation
- Biological Hazards
- Chemical Agents
- Command Centers
- Stair Pressurization
- Smoke Containment
- Smoke Evacuation
- Smoke Detection
- Addressable Monitoring
- Evacuation Plans
- Brigade Manuals
- Commissioning and Testing

**Alarm/Evacuation**
- Audio Evacuation
- Wireless Mass Notification
- Bio/Chem Hazard
- LEL/LFL Alarms
- Nuclear Alert
- Audio Messaging
- Pager Integration
- Synthesized Response

**Detection Systems**
- Pharma and Electronics Fabrication
- Process Gas/Detection and Alarm Systems
- Bio/Chemical Introduction
- Organic/Inorganic Gases
- Smoke/Heat/Fire/Incipient
- Explosion Inerting

**Fire Protection**
- Wet Sprinkler
- Dry Sprinkler
- Standpipes
- Fire Pumps
- “Green” Inerting Gases
- Carbon Dioxide
- Purge Control
- Pre-Action/Single and Double Interlock
- Deluge

**Systems Management**
- Systems Integration
- Egress Plans Production
- Proprietary Monitoring
- Radio Control/Transmission
- Dispatch/Control Center
- Door Control
- Digital CCTV
- Card Access
- Environmental Monitoring
- Intrusion Detection
- Hardware Compliance
- Correctional Systems
- Parking Controls
- Fencing Systems
- Motion Detection
- Elevator Control
- Systems Testing
The James River Correctional Center is located on 1,202 acres in State Farm, Goochland County, Virginia. Professional Systems Engineering, LLC provided life systems upgrades to Buildings 66, 67, and 74.

PSE provided multidisciplinary project coordination of architecture and engineering including new topographic surveys, underground utility assessment, soil testing and geotech analysis, stair structural requirements, and life safety determination/recommendations meeting strict requirements of the National Fire Code, State Fire Marshall, and BCOM A/E Practice Manual.

The following were design responsibilities of the firm:

- Determine new secondary fire exits
- Document new Egress openings
- Provide new subterranean fire exit
- New campus fire alarm systems
- New smoke detection in all inmate spaces
- Audible/Visual Notification Appliances.
- “SMART” addressable fire alarm
- New exit path lighting
- Proprietary monitoring meeting NFPA 72
Plaquemines Parish Detention Center
Security, Communications & Fire Alarm Services

Davant, Louisiana

Plaquemines Parish previous 800-bed jail was destroyed by Hurricane Katrina in 2005. This replacement project was funded by FEMA and features 16 male and 3 female housing units.

Professional Systems Engineering, LLC provided complete construction administration services, including shop drawing review, RFI response, punch list site visits, 11-month warranty walkthrough, and project coordination for this new $89 million facility. PSE’s scope included electronic security, perimeter security, fencing and gates, tele/data communications, CATV/audio/visual, and fire alarm. The 207,000 SF facility will have the capacity to house 871 adult inmates, and the entire building is elevated 19’ on columns to protect against flooding.

Security
❖ PL door control systems
❖ IP video surveillance system
❖ Security intercom and paging systems
❖ Biometric card access
❖ Duress control
❖ Control stations
❖ Equipment rooms
❖ Elevator control

Fire Alarm
❖ Correctional pull stations
❖ Smoke detection
❖ Notification devices
❖ Duct detectors
❖ Door hold open devices
❖ Fire alarm control panels
❖ Area of refuge remote rescue assistance panels

Communications
❖ Incoming services
❖ Equipment rooms
❖ Structured cabling system
❖ Tele/data outlets
❖ Emergency telephone
❖ Cable TV
❖ Video projection
❖ Distribution antenna system
❖ Telephone system
❖ Ethernet switches

Perimeter Security
❖ Fencing
❖ Perimeter detection system
❖ Vehicle gates
❖ Pedestrian gates
❖ Site video surveillance
The Ocean County Jail is representative of over 100 corrections and jail projects engineered by PSE. The architect chose PSE because of the first systems designs successfully completed with them in 1993.

Professional Systems Engineering, LLC is providing electronic security, master control center, communications, and fire protection/fire alarm/life safety services, consulting, design, engineering, construction administration and commissioning services. Renovations including the existing medium and maximum three-story structures. The new addition will add additional housing to include 400+ beds plus numerous workplace and program space upgrades. Communication infrastructure will provide proper distribution of voice/data/video/fax service, MATV, and video visitation systems.

**Security/Enforcement**
- Door and gates control/monitoring with PLC integration
- Detail hardware evaluation, coordination, and specifications
- Cell control/monitoring
- Redundant monitoring stations for central control, support/command personnel and housing unit stations
- Complete security intercom and paging system
- CCTV surveillance
- Wireless/wired duress systems
- Digital video recorder equipment and networked video servers
- Perimeter security and fencing
- Roof sensors/detection systems

**Communications**
- Communications infrastructure
- Main point of presence coordination
- Wide area of network interface
- Distribution backbone design
- Consulting for switching and servers
- IDF/MDF tele/data room equipment layout
- Tele/data communications structured cabling system
- MATV/CATV system
- Video hearing/arraignment

**Fire Protection/Fire Alarm/Life Safety**
- Architectural review and documentation of life safety requirements
- Complete addressable fire alarm system
- Building review/analysis/evaluation/design of fire suppression systems
- Water supply analysis

**Radio**
- RF survey
- Analysis and coverage calculations
- Design of distributed antenna system
- Procurement assistance with State contract
- Construction troubleshooting
The firm has been providing Plan and Code Review since 1980s, having served the Philadelphia High Rise Fire Board and Licensing and Inspection. Our cross training of engineering disciplines allows a thorough platform for protection and continuity of operations even under the most serious natural or man-made events.

**Life and Property Safety**

- Fire and smoke detection, containment, and suppression systems are the first line of defense in today’s building codes. No era in history has so remarkably changed the expectations and actions demanded of our fire protection, smoke and fire alarm systems, water pumps, emergency lighting, and exiting signage systems. Demands of code enforcement require a thorough and practical knowledge of systems, operation, and human interaction to demonstrate full compliance with legislative acts that bind a community with safe construction practices.

- Electrical systems and subsystems, power generation, grounding, and lightning protection systems now present enormous undertakings for the typical agency or department that has the knowledge, but lacks the manpower, to thoroughly inspect for unpredictable emergency events. It is just these events that challenge chances of blackouts and power losses at a site where personal safety is of utmost importance.

**Mechanical Standards and Regulations**

- Compliance with ASHRAE, NSA, local codes, and health standards predicates planning, evaluation, and support for smooth construction compliance. Especially difficult to analyze are control systems that can promote harmful or even fatal bacteriological or environmental conditions in buildings that had too little inspection by knowledgeable, trained technicians. Individual team members apply best practices to minimize the probability of conditions leading to restricted occupancy or closure.
Professional Systems Engineering, LLC. provided analysis and recommendations to the Bristol County Sheriff’s Department concerning the three (3) facilities located in North Dartmouth, MA which included the House of Correction and Jail, Women’s Center, and the C. Carlos Carreiro Immigration Detention Center. The county houses approximately 1,300 inmates in the three facilities, which cover over 200,000 SF of space. A survey and assessment of the existing electronic security systems was performed, including the current operational condition of all control systems, CCTV surveillance systems, security intercom and paging systems, and detention locking systems being utilized at the facility. Included with the survey and assessment report were recommendations for future upgrades based upon existing conditions, preventative maintenance recommendations, and cost estimates for the recommended upgrades.

- CCTV surveillance systems
- Door control systems (touch screens and hard graphic panels)
- Security intercom and paging systems
- Detention door locking systems (sliding and swing doors)
- Door and sallyport Interlocking systems
- Uninterruptible power supplies
- Fire alarm system separation
- Master control centers
- Master control equipment rooms
- Local control stations (ie. intake/release, visiting, medical, etc.)
- Local control equipment rooms
- Housing unit control stations
- Unit equipment rooms
- Field devices (cameras, intercom sub-stations, detention hardware, paging, etc)
- Opinion of probable cost
Bland Correctional Center
Perimeter Intrusion Detection System & Fencing
Bland, Virginia

Situated in one of the most beautiful settings in Virginia, this low key complex just north of the Tennessee line represents the approach PSE takes to keeping designs simple. And of attention to detail--with “low maintenance” as the outward goal while achieving the level of safety needed.

Bland Correctional Center is located on approximately 2,100 acres near the town of Bland, Bland County, Virginia. The Virginia Department of Corrections required strict upgrades to security the enhanced the deterrence capabilities of an attempt at escape. Professional Systems Engineering resolved the difficulties of existing older fence and large compound requiring surveillance with multiple electronic detention systems using both cable sensing technology and embedded sensor coils housed in barred tape mounted on structures.

The requirements could only be met after analysis and determination of repairs to the existing fence addressed with PSE’s 15 years of perimeter barrier experience.

Project specifics included:

The project was a success for a number of factors, but especially because of the pace which allowed this facility to go online months before another sister facility installation--even though the other designer had well over a six month head start.
Leesburg, New Jersey

A more secure and dependable system was required to minimize the possibility of a security breach, or escape while improving correctional officer safety. PSE was selected over a field of nine qualified firms for outstanding experience in renovations for justice facilities.

Professional Systems Engineering, LLC provided expert security and electrical design services for the removal and replacement of 40-year old cell doors, locks, and cell locking systems in Housing Units A-F at Bayside State Prison (total of 504 cells.)

Special phasing requirements and lead-based paint abatement procedures were implemented to minimize the effect the renovations had on prison operations. PSE performed all surveying and documentation of existing conditions, consulting, design, cost estimating, construction administration, commissioning, and close-out services.

**Locking System Replacement**
- Replacement of existing hollow-metal steel sliders
- Replacement of existing cover box system
- New full travel pneumatic door locking
- Pneumatic emergency release system
- Compressed air system including compressors, storage, tanks, manifolds, rigid and flexible piping

**Control System**
- Touchscreen control system in each housing unit
- Touchscreen control in central control for emergency take-over
- Redundant programmable logic controller (PLC) systems
- Self healing fiber optic network
- Housing unit console replacement
- Secure console enclosure for correctional officer protection during operations
- UPS back up for equipment

**Project Management Services**
- Bi-weekly construction meetings
- Reviewed all contractor submittals and schedules
- Reviewed all contractor invoices and change-order request
- Commissioning of contractor
Representative Client List

AGENCIES

Courts / Law Enforcement, Corrections, Youth / Juvenile Facilities, and Agencies

- City of Baltimore, MD
- City of Elizabeth, NJ
- City of Hoboken, NJ
- City of Perth Amboy, NJ
- City of Philadelphia, PA
- County of Bergen, NJ
- County of Carbon, PA
- County of Caroline, MD
- County of Delaware, OH
- County of Delaware, PA
- County of Eaton, MI
- County of Essex, NJ
- County of Franklin, OH
- County of Hudson, NJ
- County of Luzerne, PA
- County of Montgomery, MD
  Dept. of Public Works & Transportation
- County of Orange, CA
- DC Department of Mental Health
- District of Columbia
- Federal Aviation Administration
- General Services Administration
- Hancock County, WV
- Internal Revenue Service (IRS)
- Lexington-Fayette Urban Co. Gov’t, KY
- Maryland Dept. of Public Safety and Correctional Services (DPSCS)
- Merrimack County, NH
- National Cancer Institute
- National Fish and Wildlife Foundation
- NJ Dept. of Corrections
- NJ Division of Property Management and Construction (DPMC)
- NJ Economic Development Authority
- New York Department of Corrections
- New York City Dept. Design & Construction
- New York Juvenile Administration
- Patapsco Waste Water Treatment Plant
- Pennsylvania Dept. of General Services
- Social Security Administration
- South Brunswick Township, NJ
- The State of New Jersey
- US Agency for International Development
- US Army Corps of Engineers

AGENCIES cont.

- US Fish and Wildlife Service
- US Coast Guard
- US Dept. of Health Human Services
- US Postal Service
- Virginia Department of Corrections
- West Virginia State Government

COURTS / LAW ENFORCEMENT

19th Judicial District Court, LA
Administrative Office of the United States Courts (AOUSC)
Alameda Juvenile Courts, CA
Amtrak Police Department
Bergen County Justice Center, NJ
Bergen County Sheriff’s Office, NJ
Bridgeport Superior Courts and Center for Juvenile Matters, CT
Cantonsville District Court, MD
Carbon County Courthouse, PA
Dauphin County Courthouse, PA
Delaware Capitol Police Department, DE
Delaware County Courthouse, PA
Delaware County Domestic Courts, PA
Delaware County Magistrates, PA
Delaware County Sheriff’s Department, PA
Delaware State Police
Denver Sheriff Office, CO
Eaton County Sheriff’s Department, MI
Elizabeth City 9-1-1, NJ
Elizabeth City Police Department, NJ
Essex County Courthouse, NJ
Essex County Sheriff’s Office, NJ
Franklin County Courthouse, OH
Hillsborough County Sheriff’s Office, NH
Hudson County Fire, Police and Training Academy, NJ
Hudson County Sheriff’s Office, NJ
Jefferson County Courthouse, NY
Kent County Courthouse, DE
Lehigh County Courthouse, PA
Lexington County Sheriff’s Department, KY
Luzerne County Sheriff’s Department, PA
Montgomery Co. Criminal Justice Ctr., MD
Niagara Falls Police and Courts, NY
Representative Client List
Courts / Law Enforcement, Corrections, Youth / Juvenile Facilities, and Agencies

COURTS / LAW ENFORCEMENT cont.
Newark Police Department, NJ
Orange County Sheriff Department, CA
Philadelphia Police Department, PA
Philadelphia Sheriff's Office, PA
South Brunswick Police Department, NJ
South Brunswick Township, NJ
Southern Maryland Courthouse, MD
Washington County Courthouse, MD

CORRECTIONS
Bayside State Prison, NJ
Bland Correctional Center, VA
Bergen County Jail and Annex, NJ
Bristol County Carlos Carreiro Immigration Detention Center, MA
Bristol Cnty. House of Correction & Jail, MA
Bristol County Women's Center, MA
Chatham County Correctional Facility, GA
Eaton County Jail, MI
Essex County Correctional Facility, NJ
Fort Peck Detention Center, MT
George Motchan Detention Center, NY
George W. Hill Correctional Facility, PA
James River Correctional Center, VA
Jessup Correctional Institution, MD
Lexington-Fayette County Detention Ctr., KY
Maryland Correctional Training Center, MD
Maryland House of Correction, MD
Maryland Penitentiary, MD
Merrimack County Jail, NH
Middlesex House of Corrections - SDB Billarica, MA
Morris County Correctional, NJ
Muscogee County Jail Complex, GA
New Jersey State Prison, NJ
North Branch Correctional Institution, MD
Northern State Prison, NJ
Ocean County Jail, NJ
Orange County Jail/Theo Lacy Jail, CA
Patuxent Institution, MD
Philadelphia Detention Center, PA

CORRECTIONS cont.
Philadelphia House of Correction, PA
Philadelphia Industrial Corrections Ctr., PA
Plaquemines Parish Det. Center, LA
Powhatan Correctional Center, VA
Rikers Island Correctional Facility, NY
Multiple Projects
San Francisco Jail #3, CA
St. Mary’s County Detention Center, MD
Summit County Jail, OH
SCI Chester, SCI Frackville, SCI Mercer, & SCI Phoenix (SCI Graterford), PA
Sedgwick County Detention Facility, KS
Southern State Correctional Facility, NJ
Travis County Correctional Complex, TX
Travis County Jail, TX
Van Cise-Simonet Detention Center, CO
Virginia Beach Jail, VA
Wake County Detention Center, NC
Western Correctional Institution, MD
Winchester Regional Adult Det. Ctr., VA

YOUTH / JUVENILE FACILITIES
Alameda Juvenile Detention Center, CA
Bergen County Juvenile Complex, NJ
Bridgeport Juvenile Detention Center, CT
Cheltenham Youth Detention Center, MD
Connecticut Juvenile Training School, CT
Crossroads Juvenile Detention Center, NY
Delaware County Juvenile Detention Ctr., PA
Essex County Youth House, NJ
Garden State Youth Correctional Fac., NJ
Hardin County Juvenile Detention Ctr., KY
Hartford Juvenile Detention Center, CT
Horizons Juvenile Detention Center, NY
Marriottsville New Female Det. Ctr., MD
Mercer County Youth Detention Center, NJ
New Jersey Training School (NJTS), NJ
Northern Home for Children, PA
Rhode Island Training School, RI
Rhode Island Youth Assessment Facility
Rhode Island Youth Detention Facility
Union County Juvenile Detention Ctr., NJ