Appendix C:
SPC Detention Standards

U.S. Immigration and Customs Enforcement

Service Processing Center
Detention Construction Standards

Part A Background

01 November 2004

HDR

U.S. Department of Homeland Security
425 I Street, NW
Washington, DC 20536

U.S. Immigration and Customs Enforcement

January 28, 2005

Encl.: **US ICE Service processing Center Detention Construction Standards, dated 1 November 2004**

The enclosed binder and compact disk contain the recently developed and approved construction standards that are to be incorporated in construction projects at all Service Processing Centers (SBC). Inside the front cover is a copy of the Approval signed by HQENG and the DRO.

Copies of the enclosed document have been distributed to each SPC, ICE DRO headquarters, National Logistic Centers (NLC) of Customs and Border Protection, and managing and executing elements on the US Army Corps of Engineers (Corps). A copy of the distribution list is included with the Approval document.

All future Capitol Construction projects are to incorporate the requirements reflected in this document. Likewise, Repair and Alteration projects are to incorporate the standards to the extent practicable. NLCs and Corps service providers are to ensure the current standard is included as a reference document in all design requests for proposals.

Periodically, US Immigration and Customs Enforcement will issue updates to this document. A Record of revisions is included. This should be maintained in order to reflect inclusion of any future changes, as a check that the overall document remains current.

Sincerely,

Ricardo Lemus, Director
Headquarters Facilities and Engineering Division

Approval and Implementation
US ICE Service Processing Center
Detention Construction Standards

Approval:

ICE / HQENG and DRO has reviewed the US ICE Service Processing Center Detention Construction Standards dated 1 November 2004 and annotates approval of the document by the signatures below.

11/24/04

Milton Roney, Acting Chief Det Acquisition

/ 2004 11/24/04

Dalton Lilly / DRO

/ 11/18, 2004

Chien Le, RA / HQENG

Implementation:

The US ICE Service Processing Center Detention Construction Standards are to be incorporated in facility projects at all SPCs and all other US ICE facilities as applicable. The concept and design of any new construction, repair, or alteration projects shall reflect the requirements of this document.

Periodically, this document will may need to be revised. The attached list of revisions is to be placed behind the cover sheet and annotated as revised sheets are disseminated. Updates will be in the form of replacement or added pages. Holders of this document shall be responsible to insert new pages or remove and replace pages as directed in each revision. CDs with updates will be periodically distributed.

The distribution list of this document is also attached. If there are any changes to the list, please forward them to Mr. R. Adrian Upshur at r.Adrian.Upshur@dhs.gov.

Service Processing Centers - Number of sets:		
1	**Batavia Federal Detention Center** Officer in Charge – Charles Mule' 4250 Federal Drive Batavia, New York 14020	585-344-5124
1	**Krome Service Processing Center** Officer in Charge – Marion Dillis 18201 SW 12th Street Miami, Florida 33194	305-552-1845
1	**Aquadilla Service Processing Center** Officer in Charge – Linda Renz 505 Gun Road Ramey, Aquadilla, Puerto Rico 00604	787-882-3564
1	**Port Isabel Service Processing Center** Officer in Charge – Aaron Cabrera Buena Vista Road, Route 3, Box 341 Los Fresnos, Texas 78566	956-547-1704
1	**El Paso Service Processing Center** Officer in Charge – Vic Simmons 8915 Montana Street El Paso, Texas 79925	915-881-5604
1	**Florence Service Processing Center** Officer in Charge – Dave Kollus 3250 North Pinal Parkway Avenue Florence, Arizona 85232	520-868-8401
1	**El Centro Service Processing Center** Office in Charge – Carol Thompson 1115 North Imperial Avenue El Centro, California 92243	760-353-2170
1	**San Pedro Service Processing Center** Officer in Charge – Arthur Subia 2001 Seaside Avenue Terminal Island San Pedro, California 90731	310-241-2310

Service Processing Center
Detention Construction Standards

Immigration and Customs Enforcement
US Department of Homeland Security

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EXECUTIVE SUMMARY

These Standards were produced to provide technical design requirements and selected construction details for the design and construction of Service Processing Centers (SPC) used by the U.S. Department of Homeland Security (DHS) Immigration and Customs Enforcement (ICE). The technical requirements presented herein shall apply to both design-build and design-bid-build projects.

These Standards are organized in the following manner:

Part A	Background Establishes users, organization, and policies
Part B	Requirements Establishes, in narrative form, the minimum standards for the secure areas of the SPC. Part B is organized using CSI (Construction Specifications Institute) 16 Divisions. *The reader is advised to use information in Part B before proceeding to Parts C and D.*
Part C	Technical Material Provides technical specification sections to be edited for specific projects, detailed drawings that establish minimum requirements for secure assemblies and security features, and catalogue cuts of specific security products. Technical specifications are available in Microsoft Word format. Drawings are available in AutoCAD 2000 format.
Part D	Appendix Provides abbreviations, definitions, and waiver request form. Any deviations from these standards shall have prior approval via the waiver form provided.

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U.S. Immigration and Customs Enforcement

Service Processing Center
Detention Construction Standards

Part A Background

01 November 2004

HDR

PART A BACKGROUND

A. PURPOSE OF THE DOCUMENT

These Standards were produced to provide technical design requirements and selected construction details for the design and construction of Service Processing Centers (SPC) used by the U.S. Department of Homeland Security (DHS) Immigration and Customs Enforcement (ICE). The technical requirements presented herein shall apply to both design-build and design-bid-build projects. It outlines essential characteristics and basic standards. Descriptive and graphic material given is meant to serve as a minimum standard of performance.

B. USERS OF THE SPC DETENTION CONSTRUCTION STANDARDS

These Standards are intended for use by all individuals involved in the planning, design, and maintenance of federally-owned SPC facilities including architects and engineers, ICE staff located in Headquarter, Regional, and District offices assigned to Detention and Removal, Engineering Design and Construction. These Standards are also intended to communicate ICE requirements to other governmental agencies providing design, construction and facility management services such as the General Services Administration (GSA) or Corps of Engineers (Corps).

C. APPLICATION OF THE SPC DETENTION CONSTRUCTION STANDARDS

These Standards contain technical design requirements for the development of drawings and technical specifications for SPC facilities. These Standards are complementary and shall be taken as a whole when designing and constructing a project.

These Standards are not developed to the level required for 100% construction documents. The information contained in these Standards shall be used in the development of detailed construction documents for SPC facilities; for both new construction and remodeling.

Variations to these Standards must be submitted in writing for review by ICE using the *"Request for Variance from SPC Standards"* form. See Part D of these Standards for the appropriate form.

D. ORGANIZATION OF THE SPC DETENTION CONSTRUCTION STANDARDS

Part B includes a narrative which explains the requirements that are part of these Standards. Part C includes technical resources (drawings, specifications, and catalogue cuts) that will assist in the implementation of the standards.

The drawings have been prepared in AutoCAD 2002 and are available electronically.

The technical specifications have been prepared in Construction Specifications Institute (CSI) Master Format (16 Divisions; 3-part section format) in Microsoft Word 2000 and are available electronically.

The final revision of drawings and specifications shall be prepared in accordance with the format requirements of the Contracting Agency.

E. POLICIES AND AUTHORITIES

It is the policy of ICE that detention facilities will provide a safe and secure environment for staff, visitors, and detainees. This is accomplished through proper security operations within an appropriately secure facility. These standards are meant to provide an appropriate level of physical security for an SPC. These policies are issued under the authority of Anthony S. Tangeman, Director, Office of Detention and Removals, Immigration and Customs Enforcement, US Department of Homeland Security.

F. REVISIONS AND UPDATES

Updates will be issued as warranted to these Standards. The updates will contain date, revisions, and page information.

U.S. Immigration and Customs Enforcement

Service Processing Center
Detention Construction Standards

Part B Requirements

01 November 2004

HDR

DIVISION 01 GENERAL REQUIREMENTS

A. DESIGNATION OF SECURE SPACES

The following Secure Space Matrix identifies spaces or program areas that require "secure" construction in their walls, floors, ceilings, and penetrations such as doors, windows, and mechanical penetrations. Wherever detainees are located within a facility, the entire physical perimeter shall provide essentially a secure "envelope" with a consistency in the level of security. This physical perimeter may include the exterior fencing, the exterior wall, roof, and floor of a building, and/or the interior walls, ceiling, and floor of an area of the building.

For this Standard, three levels of security are used: "high", "medium", and "low". These levels do not directly relate to the terminology applied to detainees. The physical description of these levels is explained in Paragraph C below. "Non secure" areas may be constructed to a commercial-grade standard as a minimum. The application of these three security levels to program areas are identified below.

PROGRAM SPACE	**SECURITY LEVEL**	**REMARKS**
DETAINEE HOUSING *(refer also to Drawings 01-104 through 01-105)*		
Segregation Cell	High	
Segregation Dayroom	High	
Medium Security Dayroom	Medium	
Medium Security Cell	Medium	
Dormitories	Medium	
Housing Building Unit Exterior Envelope	High	Complete exterior envelope of housing unit
Secure Vestibule	High	
Detainee Shower	Medium	
Detainee Toilet	Medium	
Storage	Medium	
Meeting Room	Medium	
Housing Control	High	
Electronic Security Room	High	
Electrical / Mechanical	Medium	
Outdoor Recreation Yard – Medium	Medium	
Outdoor Recreation Yard – Segregation	High	

PUBLIC AREAS		
Vestibule, Visitor Waiting	Low	
Public Toilets	Non Secure	
Public Lockers	Non Secure	
Visitor Security Check	Non Secure	
ADMINISTRATION / DEPORTATION		
Facility Administrator	Non Secure	Extend partitions to underside of deck
General Administrative Area	Non Secure	
Personnel / Fiscal Offices	Non Secure	Extend partitions to underside of deck
Computer/Network/Telecomm.	Low	Extend partitions to underside of deck
EOIR		
Hearing Room	Low	Extend partitions to underside of deck
Attorney	Medium	
Detainee Holding	Medium	
General Office Areas	Non Secure	
Computer/Network/Telecom	Low	
Court Administrator	Non Secure	Extend partitions to underside of deck
CENTRAL VISITING		
Visitor Search	Medium	
Non-Contact Visiting	Medium	
Attorney Visiting	Medium	
Contact Visiting	Medium	
Control Office	Medium	
CENTRAL HOLDING		
Holding Room	Medium	
Search Room	Medium	
Control Office	Medium	
Search Room	Medium	
STAFF SERVICES		
General Staff Areas	Non Secure	
DETENTION ADMINISTRATION *(Refer also to Drawings 01-101, 01-102, 01-103, and 01-106)*		
Central Control Room	High	
Electronic Security Equipment Room	High	
Armory	High	
Computer/Network/Telecom	Low	Extend walls to underside of deck
Key Room	High	
Mail Room	Medium	

SWAT Ready Room	Medium	
Duty Office	Medium	
PROCESSING *(refer also to Drawings 01-101, 01-102, 01-103 and 01-107)*		
Vehicle Sallyport	High	
Security Vestibule	High	
Holding Room / Search Room	Medium	
Personal Property Storage	Medium	
Inmate Processing Area	Medium	
HEALTH SERVICES		
Holding Room	Medium	
Medical Records	Low	Extend walls to underside of deck
Pharmacy	Medium	
Medical Equipment Storage	Medium	
Patient Rooms	Medium	
Exam Room	Medium	
Medical Lab	Medium	
Dental Operatory	Medium	
FOOD SERVICE		
Cutting Room	High	
Secure Storage	Medium	
Security Vestibule – Kitchen Area	Medium	
Security Vestibule – Detainee Dining	Medium	
Detainee Dining	Medium	
CENTRAL INDOOR RECREATION	Medium	
LIBRARY/LAW LIBRARY	Medium	
EDUCATION		
Classrooms	Medium	
Multipurpose Room	Medium	
Religious Activity Room	Medium	
Hair Care	Medium	
COMMISSARY		
Restricted Storage	Low	Extend walls to underside of deck
Dispensing Window	Medium	
LAUNDRY	Non Secure	Extend walls to underside of deck
WAREHOUSE	Non Secure	
MAINTENANCE	Non Secure	

B. SECURE ASSEMBLIES AND PENETRATIONS

This section describes the construction materials and assemblies required for secure construction. Three types of secure construction are identified: "high", "medium", and "low". Where reinforcing bars are identified for secure walls, additional reinforcement may be necessary to meet structural requirements for the specific application.

1. Wall Construction

"High" security walls shall be constructed using one of the following methods:

Concrete masonry unit walls shall be a minimum nominal 8" (200 mm) wide units reinforced with #4 (No. 13 metric) vertical reinforcing bar at 8" (200 mm) on center. All cells of concrete masonry units shall be fully grouted with 3,000 psi (21 Mpa) grout.

Precast concrete panel walls shall be a minimum nominal 4" (100 mm) wide, minimum strength of 5,000 psi (35 Mpa) and reinforced with minimum W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions, conforming to ASTM A185.

Cast-in-place concrete walls shall be a minimum 6" (150 mm) wide, minimum strength of 3,000 psi (21 Mpa) reinforced with #4 (No. 13 metric) reinforcing bars at 8" (200 mm) on center in one direction. Cast-in-place concrete walls that are less than 6" (150 mm) wide, but no less than 4" (100 mm) wide shall have a minimum strength of 5,000 psi (35 Mpa) reinforced with W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions.

Steel wall panels shall be 0.093 in. (12 gage) minimum thickness A-60 galvanneal steel conforming to ASTM A 653-CS requirements. All structural or stiffening members shall be 0.058 in. (16 gage) minimum thickness A-60 galvanneal steel conforming to ASTM A 653-LFQ requirements. All structural tubing stall be 0.115 in. (11 gage) minimum thickness steel conforming to ASTM A 653-CS and ASTM A-525, G-90 galvanized requirements.

"Medium" security walls shall be constructed using one of the following methods:

Concrete masonry unit walls shall be a minimum nominal 8" (200 mm) wide units reinforced with #4 (No. 13 metric) vertical reinforcing bar at 16" (400 mm) on center. All cells of concrete masonry units shall be fully grouted with 3,000 psi (21 Mpa) grout.

Precast concrete panel walls shall be a minimum nominal 4" (100 mm) wide, minimum strength of 5,000 psi (35 Mpa) and reinforced with minimum W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions, conforming to ASTM A185.

Cast-in-place concrete walls shall be a minimum 6" (150 mm) wide, minimum strength of 3,000 psi (21 Mpa) reinforced with #4 (No. 13 metric) reinforcing bars at 8" (200 mm) on center in one direction. Cast-in-place concrete walls that are less than 6" (150 mm) wide, but no less than 4" (100 mm) wide shall have a minimum strength of 5,000 psi (35 Mpa) reinforced with W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions.

Steel wall panels shall be 0.093 in. (12 gage) minimum thickness A-60 galvanneal steel conforming to ASTM A 653-CS requirements. All structural or stiffening members shall be 0.058 in. (16 gage) minimum thickness A-60 galvanneal steel conforming to ASTM A 653-LFQ requirements. All structural tubing stall be 0.115 in. (11 gage) minimum thickness steel conforming to ASTM A 653-CS and ASTM A-525, G-90 galvanized requirements.

"Low" security walls shall be constructed using one of the following methods:

Concrete masonry unit walls shall be a minimum nominal 6" (150 mm) wide units. All cells of concrete masonry units shall be fully grouted with 3,000 psi (21 Mpa) grout.

Gypsum wallboard walls (partitions) shall be a minimum 5/8" (16 mm) thick gypsum wall board on galvanized steel mesh panels 0.048" (1.2 mm) thick, 41 lbs/sf (200 kg/m) on each side of minimum 20 gauge metal studs at 16" (400 mm) on center.

"High", "medium", and "low" security walls must be constructed continuously from a security floor to a secure ceiling. The secure ceiling may be either a secure roof deck or a cap of secure construction built below the roof deck in high bay areas. The continuity of the secure wall construction must be maintained by tying the wall reinforcing into the secure floor and ceiling construction. When this cannot be accomplished, a continuous #4 (No. 13) reinforcing bar shall be cast no more than 1 ½" (38 mm) from the edge of the concrete unit where it meets other concrete or masonry members.

2. Roof / Ceiling Construction

"High" security roof/ceiling construction shall be constructed of the following:

Cast-in-place concrete slabs shall be a minimum of 6" (150 mm) thick, 3,000 psi (21 Mpa) concrete with #4 (No. 13 metric) reinforcing bars at 8" (200 mm) on center in one direction. Cast-in-place concrete slabs that are less than 6" (150 mm) thick, but no less than 4" (100 mm) thick shall have a minimum strength of 5,000 psi (35 Mpa) reinforced with W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions.

Composite metal deck shall be a minimum of 4" (100 mm) total depth, 3,000 psi (21 Mpa) concrete, #4 (No. 13 metric) bars 8" (200 mm) on center in one direction.

Prestressed concrete tees or hollow core slabs shall have a concrete topping to give adequate cover for #4 (No. 13 metric) bars 8" (200 mm) on center in one direction.

Solid concrete planks shall have #4 (No. 13 metric) reinforcing bars at 8" (200 mm) on center in one direction. No concrete topping is required.

Metal acoustical ceiling panel shall be maximum security double skin metal 0.125" (3.2 mm) thick with perforations.

Metal roof decks shall be a minimum of 12 gauge. No additional reinforcing is required, however the deck must be securely tied to the "high" security walls.

"Medium" security roof/ceiling construction shall be constructed of the following:

Cast-in-place concrete slabs shall be a minimum of 6" (150 mm) thick, 3,000 psi (21 Mpa) concrete with #4 (No. 13 metric) reinforcing bars at 16" (400 mm) on center in one direction. Cast-in-place concrete slabs that are less than 6" (150 mm) thick, but no less than 4" (100 mm) thick shall have a minimum strength of 5,000 psi (35 Mpa) reinforced with W4 (MW26) welded wire fabric at 4" (100 mm) on center in both directions.

Composite metal deck shall be a minimum of 4" (100 mm) total depth, 3,000 psi (21 Mpa) concrete, #4 (No. 13 metric) bars 16" (400 mm) on center in one direction.

Prestressed concrete tees or hollow core slabs shall have a concrete topping to give adequate cover for #4 (No. 13 metric) bars 16" (400 mm) on center in one direction.

Solid concrete planks shall have #4 (No. 13 metric) reinforcing bars at 16" (400 mm) on center in one direction. No concrete topping is required.

Metal acoustical ceiling panel shall be maximum security double skin metal 0.125" (3.2 mm) thick with perforations.

Metal roof decks shall be a minimum of 12 gauge. No additional reinforcing is required, however the deck must be securely tied to the "medium" security walls.

"Low" security roof/ceiling construction shall be constructed of the same level of security as "Medium" security described above.

3. Intersections of Horizontal and Vertical Surfaces

Continuity of materials is preferred to facilitate a continuous security enclosure. Where dissimilar materials occur, provide sufficient connections to prevent deflection of materials; or continuously weld deck to a steel member anchored to wall or foundation.

Security bars must be continuous at all intersections; the bars must go around the corners and continue into adjacent slabs or secure ceiling construction. When this cannot be accomplished, a continuous #4 (No. 13 metric) reinforcing bar shall be cast no more than 1 ½" (38 mm) from the edge of the concrete unit where it meets other concrete or masonry members. These requirements must be coordinated with masonry horizontal reinforcing, and dissimilar concrete materials; i.e. masonry and cast-in-place concrete.

4. Penetrations

Security barriers are required on all penetrations in "high" and "medium" secure walls, floors, and ceilings where opening is larger than 8" x 8" (200 mm x 200 mm) or larger than 5" (125 mm) slit. Security barriers are required on all penetrations 5" (125 mm) wide which exceed 24" (600 mm) in length.

Security barriers shall be constructed of 7/8" (22 mm) diameter round bars or 2" x 2" x ¼" (50 mm x 50 mm x 6 mm) structural steel tubing. Space between bars or tubing shall not exceed 5" (125 mm). Bars longer than 24" (600 mm) shall be reinforced with an intermediate flat bar, 2 ½" x 3/8" (63.5 mm x 9.5 mm), welded to the barrier frame and tack welded to each bar. The flat stock is installed perpendicular to the bars and at the midpoint of the bars to prevent spreading.

Bars on security barriers at central control or housing control must be horizontal (to provide visibility). Bars on all other security barriers must be vertical. Bars on security barriers at central control or housing control are not required to have an intermediate reinforcement at 24" (600 mm).

Where a security barrier in a "high" or "medium" secure wall occurs at a mechanical penetration, refer to Part B, Section 15, Paragraph 8 "Barrier Grilles."

C. DETENTION CELLS

Detention cells must comply with American Correctional Association (ACA) Standards for Adult Local Detention Facilities (Latest Edition and Supplements). Typical cell layouts for concrete masonry cell construction and precast concrete modular cell construction are shown on Guide Drawings 01-201 through 01-205. Accessible cells shall be provided at the minimum of one for each housing pod, or at least 2% of the total population.

D. ACCESS FOR THE DISABLED

The facility must provide access to the physically disabled, as required by the *Uniform Federal Accessibility Standards (UFAS)* and *Americans with Disabilities Act Architectural Guidelines (ADAAG)*.

1. Detainee areas

Access for the disabled shall be provided in all areas in which detainees use such as program areas, housing units, detainee processing, and health services. However, where several identical spaces are provided, such as a row of housing cells, a row of showers, a row of holding cells, only designated spaces will be provided with special features for the disabled. Generally, a minimum of quantity of one each and a maximum of 2% of these identical spaces shall be provided.

2. Staff areas

Security post staff must be able-bodied and therefore do not require accessible construction for the security post work environment. Other staff areas shall provide facilities for handicap accessibility.

3. Public areas

All public areas shall be provide access to the disabled.

E. STRUCTURAL BUILDING CODES AND STANDARDS

1. Building Code

All work shall conform to the standards of the International Codes Council International Building Code; the latest edition.

Seismic design shall conform to the above code, the Executive Order 12699 "Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction", and 41 CFT128-1.8005. The seismic design and construction shall conform to the national model building code as mentioned above unless the local building code provides a higher level of seismic safety, in which case the local building code shall be utilized for seismic design.

2. Standards

All work shall conform to the following standards:

a. American Concrete Institute (ACI): Building Code Requirements for Reinforced Concrete ACI 318M.
b. Steel Joist Institute (SJI): Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders.
c. American Institute of Steel Construction (AISC): Manual of Steel Construction.
d. American Iron and Steel Institute (AISI): Cold-Formed Steel Design Manual.
e. American Welding Society (AWS): Structural Welding Code, Reinforcing Steel AWS D1.4.
f. American Welding Society (AWS): Structural Welding Code, Steel AWS D1.1.
g. Steel Deck Institute (SDI): Design Manual for Composite Decks, Form Decks and Roof Decks.

3. Minimum Design Live Loads

(Unless more stringent loads are required by codes)

Corridor, stairs, mezzanine walkway 100 psf (4.8 kPa)

Day rooms, housing support space	100 psf (4.8 kPa)
Cells	50 psf (2.4 kPa)
Administrative areas	50 psf (2.4 kPa)
Mechanical rooms	100 psf (4.8 kPa)
Roof	20 psf (1.0 kPa) *30 psf in snow areas*
Interstitial mechanical plenum	30 psf (1.5 kPa)

Designer must verify if any equipment to be used will exceed these floor or roof loads.

Refer to applicable building code for the geographic locale for wind speed.

4. General Structural Requirements

a. Mechanical, plumbing, and electrical loads should be supported from beams. Light mechanical, plumbing, and electrical loads (less than 220 lbs (100 kg)) may be anchored into structural concrete slabs and concrete slabs on metal deck above. Welding hangers to steel deck is prohibited.

b. Stair framing framing may be supported by the primary structure, but may not impose any torsional loads on any structural member of the primary frame.

c. No load shall be imposed on slab-on-grade before the concrete has attained its full 28 day strength.

d. Reinforcing bars shall be used at corners and at non-planar intersections on masonry walls and concrete construction, positive connections for wall panels at corners, all intersections (same plane or non-planar), and foundations.

e. Foundation design shall be based on the recommendations of a registered geotechnical engineer.

f. Concrete with calcium chloride or any admixture containing chlorides shall not be used with composite steel deck.

g. Compensate for wet concrete deflection of the structure "Flat and Level" surface within ACI tolerances.

F. APPEARANCE GUIDELINES

New Service Processing Centers are to be plain and simple in appearance. There shall be no hint of opulence or excess in the way the buildings are designed or in the types of materials used. The appearance shall not exceed the esthetic used in the local area for institutional projects such as public schools.

Building exterior walls are to be monochromatic, avoiding multi-colored striping or other patterning. Precast, cast-in-place concrete or concrete block

(including split faced block) is to be used instead of brick. Simple enhancements such as rustication, form liners, textures, and reveals are permissible if used in a restrained manner. Building windows, doors, and frames or other trim should be limited to a single color throughout the institution.

Landscaping shall include grass for soil stabilization and low shrubs (1' high or less) or ground cover only at the public entry and main site sign. Trees and tall shrubs shall be avoided as they provide hiding places and limit visibility.

End Division 01

DIVISION 02 SITE CONSTRUCTION

A. SITE PERIMETER

The perimeter of the SPC property shall be delineated by a minimum 6 feet (1800 mm) high non-secure chain link fence with single barbed wire outrigger, or in an urban setting, a 6' (1800 mm) high concrete masonry fence to block views. This fencing is intended to clearly identify the limitations of the property to the general public. Appropriate fence-mounted signage shall identify US Government Property and specify the penalties for crossing the fence without authorization. A buffer zone of 200 feet (61 meters) shall be provided between the perimeter fence and the primary facility perimeter in order to diminish visual contact between the public and secure sides. In urban areas, where the buffer zone or a separate site perimeter is not attainable, other measures for the security and protection of the facility must be considered. At the site perimeter, maintain openings in the chain link fence for vehicular site access.

B. SITE ACCESS

Access to a rural facility site shall be limited to a main entrance for use by all primary arriving traffic and a secondary site access for use by emergency vehicles only. The main entrance shall be situated from a public road. The secondary access shall be from an alternate location.

C. LANDSCAPE

All open site areas must have topsoil, seed, sod and plant material that allow visibility of the facility from the patrol areas. Rock covered landscaping is not allowed. Low shrubs or ground cover (less than 1' high) may be located near the main entry and main entry sign. Trees and tall shrubs shall not be used.

D. PRIMARY FACILITY PERIMETER

The primary facility perimeter shall include a double row of 12 feet (3660 mm) high security fences spaced 20 feet apart (6100 mm). Barbed tape shall be used to deter access. The inner fence shall have a continuous concrete grade beam. A minimum 60 feet (19 meters) buffer zone shall be provided between the primary facility perimeter and any buildings or fenced areas

(such as recreation yards or maintenance yards) within the site. All areas occupied by detainees shall be surrounded by a primary facility perimeter.

Above photo shows a similar double fence configuration. Exact fence details are shown on Drawing 02-102 in Part C.

In urban areas where a double fence facility perimeter is not feasible, the exterior wall, acting as the facility perimeter, shall be a "high" security wall. A buffer zone of 60 feet (19 meters) is desired between the property line and the exterior wall. No vents or other openings shall be located on primary facility perimeter that does not provide an adequate buffer zone. When the building perimeter is part of the primary facility perimeter, the associated horizontal planes (soffits, rooftops, etc.) shall be of secure construction. Surveillance and/or detection are required for these associated horizontal planes. Sanitary sewer piping beneath the double fence facility perimeter shall not exceed 8" (200 mm) diameter.

A paved patrol road for surveillance of the outer facility perimeter shall be 12 feet (3600 mm) wide with vehicle turnarounds at each corner.

E. VEHICLE BARRIERS

Vehicle barriers are intended to:

- Impede vehicle entry
- Segregate and control vehicle traffic
- Slow down vehicles or prevent them from ramming buildings, vehicles, or other site features

Vehicle barriers shall be used to maintain a 50' (15 m) distance from the SPC Administration Building to any public or staff parking area. Acceptable "passive" (non-operable) vehicle barriers are:

- Precast concrete jersey barriers (properly anchored)

- Dual ¾" aircraft cables on 10' on center line posts with deadmen every 200' maximum
- Concrete filled bollards (8" (203 mm) diameter spaced at 4' (1220 mm) on center)
- Concrete planters with 4' (1220 mm) maximum clearance between planters
- "V" ditches

Vehicles which are allowed closer than 50' (15 m) shall be permitted access through an "active" vehicle barrier: These are barriers which block vehicle access but move sideways, up, or down to provide an opening. Acceptable "active" vehicle barriers are:

- Crash barrier arm
- Hydraulic bollards
- Crash beam
- Hydraulic plate or wedge

Where "active" vehicle barriers are used, warning devices must be visible to warn drivers of the position of the barrier.

Vehicle barriers shall be selected based on the need to control traffic and the ability to stop a vehicle at a probable speed attainable as it approaches a facility or compound.

Specific requirements for vehicle barriers may be found in security engineering technical manuals published by US Army (TM 5-853-1, TM 5-853-2, and TM 5-853-3).

F. VEHICULAR SALLYPORT

A vehicular sallyport with high-speed interlocked gates for vehicles and (separate gates for pedestrians) shall be provided access through the primary facility perimeter. A guardhouse shall be provided and located within the vehicular sallyport shall provide staff for screening of all vehicles and personnel moving through the sallyport. The vehicular sallyport shall be under CCTV surveillance from the central control room. The interlocked gates shall be operated from the central control room.

Crash resistance shall be provided that maintains a maximum 20 feet penetration from a 15,000 lb. vehicle traveling at 50 mph *(US State Department Specifications SD-STD-02.01)* at the primary vehicular entrance with the use of a crash beam as part of the sliding vehicle gate (see Technical Section 11197 Vehicular and Pedestrian Gate and Gate Operator in Part C).

G. PEDESTRIAN SALLYPORT

Where separate pedestrian access through the primary facility perimeter is provided, gates shall be interlocked and under CCTV surveillance from the central control room. The interlocked gates shall be operated from the central control room.

H. STAFF PARKING

A separate parking area shall be provided for staff. It is desirable that a vehicular access control system is used to control access to the staff parking. A card reader, intercom, pin pad, and camera, shall be located at the entry lane. In large staff parking areas, a separate exit only lane shall be considered. Staff parking areas shall be a minimum of 50 feet (15 meters) from any building or the primary facility perimeter. Staff parking shall not be provided within the primary facility perimeter, except for official transport vehicles (after screening and search). Video surveillance of the staff parking area shall be provided at the main control room.

I. PUBLIC PARKING

A separate parking area shall be provided for public visitors. Video surveillance of the public parking area shall be provided at the main control room. Public parking shall not be allowed closer than 100 feet (30 meters).

J. STORM WATER DRAINAGE

Storm piping beneath the perimeter fence shall not exceed 8" (200 mm) in diameter. At a minimum, the 8" (200 mm) security piping must extend continuously from 3' (1 m) inside the interior fence, to 3' (1 m) outside the exterior fence. The pipes shall be encased in concrete for their entire length. Appropriately sized manholes or headwalls shall be provided at each end of the security pipes. Within the secure perimeter, provide a similar security barrier where a fence is used for interior functional areas.

K. SITE GRADING

Site grading within the secure perimeter shall be such that the "line of sight" from any point perpendicular to the patrol road, from a vantage point 5'-6" (1676 mm) above the inner edge of the patrol road pavement, shall be able to view an object 1 foot (300 mm) above the ground located between the outer security fence up to the outside face of the building (rear building line).

Site grading within the inside compound shall be such that the "line of sight" from a vantage point 5'-6" (1676 mm) above the "center" of the compound

to the "front" of any building shall be able to view an object 1 foot (300 mm) above the ground.

Topsoil shall be free of any object larger than 1 inch (25 mm) in any dimension.

L. TECHNICAL STANDARDS REGARDING SITE CONSTRUCTION

The following technical specifications and design drawings are included in Part C:

Technical Specifications:
Section 02831 Security Fences and Gates
Section 11197 Vehicular and Pedestrian Gate and Gate Operator

Guide Drawings:

02-101	Site Security Concept
02-102	Fence Type 1 – Double Perimeter Security Fence
02-103	Fence Type 2 – Security Fence
02-104	Fence Type 3 -- Vehicular Sallyport Security Fence
02-105	Fence Type 5 – Security Fence
02-106	Fence Type 2 – Security Fence at Corners
02-107	Fence Type 3 – Sallyport
02-108	Vehicle Sallyport Gate Elevation
02-109	Typical Fence Section at Vehicular Sallyport
02-110	Fence Plan Detail at Building
02-111	Fence Type 4 – Typical Recreation Yard Enclosure
02-112	Traffic Control Gates
02-113	Vehicle Sallyport Gate Elevation
02-114	Buried Fabric Detail
02-115	Typical Fence Section at Vehicular Sallyport
02-116	Fence Type 1 Side View of Outer Fence
02-117	Fence Type 1 Side View of Inner Fence
02-118	Typical Fence Ties

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End Division 02

DIVISION 03 CONCRETE

A. CAST-IN-PLACE CONCRETE

All phases of work pertaining to the concrete construction shall conform to the Building Code Requirements for Reinforced Concrete, ACI 318M.

Unless otherwise noted, all concrete shall develop a minimum compressive strength of 21 MPa (3000 psi) at 28 days.

Portland cement shall conform to ASTM C-150, Type I, II, or III, low alkali.

Aggregate for hardrock concrete to meet ASTM-C-33. Exceptions may be used only with permission of the Structural Engineer and when it is not used to construct the security envelope.

Forms for concrete shall be constructed to provide the specified cambers.

The concrete slab minimum thickness shall be maintained, unless otherwise noted.

Building Slabs-On-Grade:

1. Building slabs-on-grade shall be a minimum of 6" (150 mm) thick.

2. Reinforce the slab with a minimum cross sectional area of steel as that provided by 6x6-W2.9W2.9 (150x150 -MW19xMW19) welded wire fabric or that required by security level construction in Part B – Section 01 with the most stringent requirement controlling.

3. Place beneath all building slabs-on-grade a minimum of 4" (100 mm) of a granular fill. A vapor retarder shall be placed between the slab and granular fill.

The following minimum concrete cover shall be provided for reinforcement placed in cast-in-place concrete, unless noted otherwise:

Minimum Cover		
	Concrete cast against and permanently exposed to earth	3" (76 mm)
	Formed concrete exposed to earth or weather: #16M or smaller through bars #19M or larger	 1-1/2" (38 mm) 2" (50 mm)
	Concrete not exposed to weather or in contact with ground: Slabs, walls, joists: #36M bar and smaller Beams, columns and wall jambs primary reinforcement, ties, spirals, stirrups: #10M through #36M	 ¾" (20 mm) 1-1/2" (38 mm)

B. ARCHITECTURAL PRECAST CONCRETE PANELS

1. All exterior exposed-to-view precast concrete panels shall have an architectural finish. The requirements of this section also apply to tilt-up panel construction as applicable.

2. The precast manufacturing plant shall be certified by the Precast/Prestressed Concrete Institute (PCI) Plant Certification Program for applicable Categories of project's Product Group work, or Architectural Precast Association (APA) certification. Submit copies of certification. Insulated precast concrete panels shall meet minimum requirements of PCI MNL-116. Non-insulated precast concrete panels shall meet minimum requirements of PCI MNL-117.

3. Connections shall be made of anti-corrosive materials such as stainless steel and shall be galvanically compatible with concrete. Structural connections shall be located to minimize exposure to weathering.

4. Provide mockups of exterior exposed-to-view precast panels. Mockups shall be used to verify selections made from submitted design samples, and to demonstrate aesthetic effects and quality of material and execution.

5. All exterior exposed to view surfaces have a textured as-cast produced board finish, textured form liner finish, or sand-blasted finish in lieu of a smooth as-cast finish. Textured surfaces will mask

many of the aesthetic limitations of smooth concrete. Coordinate with finish of precast concrete modular cells when used on the same site.

6. Exterior exposed surfaces shall be treated with a clear silicone sealer to repel water and to reduce maintenance.

C. PREFINISHED PRECAST CONCRETE MODULAR CELL UNITS

See Division 13.

End Division 03

DIVISION 04 MASONRY

A. CONCRETE MASONRY UNITS

Concrete masonry units shall be hollow load bearing units conforming to ASTM C90 Grade N Type I. All CMU shall have minimum prism compressive strength (f'm) of 1,500 psi (10.3 Mpa).

Where unit masonry is used to construct the security envelope of an area, medium weight or normal weight masonry units shall be used. CMU mortar shall meet ASTM C270 Type M or S with a minimum compressive cube strength of 1,800 psi (12.4 MPa) at 28 days. CMU grout, poured or pumped, shall meet ASTM C476, and have a minimum 28-day compressive strength of 3,000 psi (21 MPa).

Provide minimum grout space of one bar diameter ½" (13 mm) minimum grout between main reinforcement and masonry unit.

Tool all exposed joints.

Provide dowel to foundation of equal diameter and minimum 48 bar diameter lap splice at each vertical bar in walls, pier columns, etc, unless noted otherwise. Dowels shall be straight, plumbed and centered in cells.

All cells shall be in vertical alignment. Space dowels in footings shall be set to align with cores containing reinforcement.

Where steel beams support CMU walls, the steel beams shall be preloaded with the equivalent dead load of the final masonry construction prior to placement and grouting of the concrete blocks.

Where bond beams or lintels are required to have a lap splice, the splice shall not be placed above any opening.

Discontinue all horizontal joint reinforcing at control joints, unless noted otherwise.

Provide bond beam reinforced with two continuous #16M bars at the top course of all walls, unless noted otherwise.

Walls shall be laid in running bond pattern. Where stackable modular masonry units are provided as a construction option, the units must meet requirements for minimum size, grouting, and security reinforcing.

B. STRUCTURAL GLAZED FACING TILE

Where concrete masonry walls are located in detainee areas, the wall base shall be structural glazed facing tile (SGFT) *(also see more specific locations in the Room Finishes Schedule in Section 09: Finishes).* .

SGFT shall conform to ASTM C126 and shall meet the following requirements:

1. Grade SS (Select Sized or Ground Edged)
2. Type I (Single-Faced Units) when only one finished face is exposed when units are installed, and
3. Type II (Two-Faced Units) when two opposite finished faces are exposed when units are installed
4. Face Glaze: Opaque
5. Sizes: 8W series with actual face dimension of 7-3/4" (197 mm) high x 15-3/4" (400 mm).long x thickness indicated.
6. Units shall have vertical cores for installation of reinforcing bars.
7. Use special molded shapes where required for bullnose corners, jambs, bases, and other special conditions.

C. TECHNICAL SPECIFICATIONS

Section 04810 – "Unit Masonry Assemblies" in Part C.

End Division 04

DIVISION 05 METALS

A. METAL STAIRS TREADS IN DAYROOMS

Treads:

Welded steel bar grating with minimum 1-1/4" x 3/16" (32 x 5 mm) bearing bar and end band bars.

1. Maximum bearing bar spacing 1-3/16" (30 mm) o.c.

2. Cross bars: Welded, swaged or pressure locked to bearing bars. Maximum spacing 4" (100 mm) o.c.

3. Fabricate and design stair to meet all loading requirements required by applicable codes.

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4. Fabricate and design stair components in accordance with NAAMM Metal Stairs Manual.

5. Where exposed fasteners are used, provide pinned torx security screws or bolts.

B. OPEN RISERS AT DAYROOM STAIRS:

1. Embed anchors: ASTM-A36/A36M steel.

2. Embed anchors underground: ASTM A36/A36M galvanized steel.

C. PIPE AND TUBE RAILINGS

1. Handrails and railings: For security areas, and at all elevated loading docks over 7" (175 mm) in height.

2. Diameter of handrails and railings shall be the maximum allowable by applicable codes.

3. ASTM-A53, Type E or S, Grade-A, black finish, standard weight (Schedule-40)

4. Continuously weld joints and grind smooth.

5. Where exposed fasteners are used, provide Torx head with center rejection pin.

6. Provide welded end caps at all terminations.

7. Embed anchors: ASTM-A36/A36M steel.

8. Comply with all applicable codes and requirements.

9. Steel guard railings shall be continuous along both balconies and stairs in detainee housing units. Guard rails shall be a minimum of 42" (1,067 mm) high from the balcony floor and front edge of stair treads and shall be constructed with 2" (50 mm) diameter tubular steel with vertical members at 4'-0" (1219 mm) and horizontal members at 12" (305 mm). A 1-1/2" (38 mm) diameter tubular steel handrail shall run continuous along guardrail and stairs at 2'-10" (864 mm) above the balcony floor and front edge of stair treads. Guardrail shall withstand a superimposed load of 300 lbs. (1350 N) along any point.

End Division 05

DIVISION 07 THERMAL AND MOISTURE PROTECTION

A. SECURITY SEALANT

"High", "Medium", and "Low" secure areas where detainees are housed shall have security sealant applied to close the gaps between dissimilar materials such as between wall/floor, wall/ceiling, wall/frame, fixture/wall, and other locations identified in specifications schedule. The sealant shall be two component epoxy, 100% solids, moisture insensitive and either "pick-proof" (interior only) or permanently flexible. Gaps shall be closed with security sealant in these areas in order to prevent a razor blade from sliding between two materials.

See Technical Specifications Section 07900 – "Security Sealants" in Part C.

End Division 07

DIVISION 08 DOORS AND WINDOWS

A. DETENTION WINDOWS

Windows in detainee cells or sleeping area shall be detention grade stainless steel fixed windows, thermally broken, with no operating hardware.

The following technical specifications and design drawings are included in Part C:

Technical Specification Section 08651 Stainless Steel Detention Windows
Guide Drawings 08-101 through 08-107

B. STANDARD HOLLOW METAL DOORS AND FRAMES

Non-security hollow metal doors and frames shall be in accordance with the Steel Door Institute (SDI) Grades I, II, or III as referenced on the Technical Section 11199 Detention and Non-Detention Door and Hardware Schedule. Refer to Part C.

C. DETENTION HOLLOW METAL DOORS AND FRAMES

See Section 11 – Equipment (Page B-11-1).

D. BUILDERS HARDWARE (NON-DETENTION)

All door hardware that occurs in "Non-secure" or "standard" openings shall be heavy-duty commercial door hardware.
Locks shall be mortised mechanical with ADA compliant lever handles; except where suicide resistance is warranted, a substitute cone-shape handle may be used. Locks with interchangeable cores are acceptable (obtain approval from COTR and Using Agency).
Cylinders shall be 0-bitted with a minimum of two keyways, 3 keys per cylinder. Cylinders shall be 6 pin removable core with visual key control. Keying shall be integrated into a single non-detention key type and keying system for the entire project. Keys shall only be inscribed with "U.S. Government, DO NOT DUPLICATE."
Hinges shall be full mortised, five knuckle.
Door closers shall be heavy-duty cast iron cylinder with steel rack and pinion construction.

Full hardware accessories shall be provided to accommodate fit and function of the door openings. Comply with minimum requirements indicated on the Door Schedule and hardware sets scheduled.

E. GLASS AND GLAZING (NON-SECURE)

Glass and glazing in "non-secure" openings may include tempered glass, tempered wire glass, one-way mirror, and insulating glass. Refer to Technical Specification 08800 – "Glass & Glazing" in Part C.

F. DETENTION GLAZING

Glass that occurs in "High", "Medium", and "Low" security walls shall be detention glazing in accordance with Technical Specifications Section 08860 – "Security Glazing" in Part C.

End Division 08

DIVISION 09 FINISHES

A. GENERAL FINISH REQUIREMENTS

All finishes listed in this section shall be considered the minimum acceptable material and does not preclude the substitution of a higher quality product.

All interior gypsum board, plaster and masonry wall surfaces and exposed structure ceiling surfaces shall be painted. Paint shall be water based semi-gloss latex unless otherwise specified.

Suspended acoustical tile ceiling systems shall only be used inside the secure perimeter (at all security levels) in detainee dayrooms where the ceiling material is at least 20' (6100 mm) above the floor and at least 10' (3050 mm) from direct reach of the top of mezzanine railings. (Note: The use of acoustical tile ceiling will enhance the acoustics in the dayroom.)

Exposed structure may be used as a finish ceiling in detainee day rooms, when mechanical and other building support systems are not exposed. Exposed structure will not be allowed for the ceiling in food preparation or dining areas.

All surface finishes in detainee housing areas, health services, detainee processing areas, and detainee holding areas shall be rated Class A in accordance with NFPA 101.

No vinyl or fabric wall coverings shall be used.

VCT floors shall be of one color to avoid multi-colored patterns, except as necessary for CCTV surveillance, a checkerboard pattern may be used.

Program Space	Floor Finish	Base	Walls	Ceiling
Detainee Housing				
Entry Corridor	Sealed Concrete	Struct. Glazed Facing Tile	High Performance Coating	Acoustical Painted Metal Security Ceiling
Dayroom	Sealed Concrete	Struct. Glazed Facing Tile	High Performance Coating	12" x 12" (300x300 mm) ACT glued to GWB, exposed structure, or suspended acoustic tile (see Para. A above)

Program Space	Floor Finish	Base	Walls	Ceiling
Detainee Cells (Where prefinished modular cells are used, refer to cell specification)	Concrete with Hardener/Sealer	High Performance Coating	High Performance Coating	High Performance Coating
Laundry / Storage	Sealed Concrete	Struct. Glazed Facing Tile	High Performance Coating	Acoustical Painted Metal Security Ceiling
Detainee Toilet	Special (Floor) Finish	Special (Floor) Finish	High Performance Coating	High Performance Coating
Detainee Shower	Special (Floor) Finish	Special (Floor) Finish or Optional Stainless Steel Panels	Special (Wall) Finish or Optional Stainless Steel Panels	High Performance Coating
Housing Control Room	Raised Access Flooring	Rubber	Paint	2' x 2' Suspended ACT
Janitor Closets	Hardener/Sealer	Struct. Glazed Facing Tile	High Performance Coating	Acoustical Painted Metal Security Ceiling
Staff Toilet	Hardener/Sealer	Struct. Glazed Facing Tile	Semi-gloss Alkyd Enamel Paint	Painted GWB
Electrical / Mechanical Rooms	Hardener/Sealer	Struct. Glazed Facing Tile	Semi-gloss Alkyd Enamel Paint	Exposed to Structure
Detainee Processing				
Holding Cells	Hardener/Sealer	Struct. Glazed Facing Tile	High Performance Coating	Acoustical Painted Metal Security Ceiling
Detainee Showers	Special (Floor) Finish	Special (Floor) Finish or Optional Stainless Steel Panels	Special (Wall) Coating or Optional Stainless Steel Panels	Epoxy Paint

B. VINYL FLOORING

Vinyl Composition Tile (VCT) shall, in areas accessible to detainees, be restricted to corridors and program spaces only. VCT shall not be used in the cells or day room areas.

C. CEILING TILE

Standard suspended acoustical tile ceilings shall be used in administrative areas (see also Para. A above). Where suspended ceilings are used, provide an actual 24" x 24" (nominal 600 mm x 600 mm) grid.

D. SPECIAL FINISH WALL COATING

Spray applied fiber-reinforced mat coating system, 100% solids, accelerated aliphatic amine cured epoxy system shall generally be used for the walls of detainee showers on concrete masonry or concrete substrate. Special finish wall coating shall not be used on gypsum wallboard surfaces. *(Option: Detainee showers may be Type 304 stainless steel panels)*

Comply with Technical Specifications Section 09750 "Special Finishes". In Part C.

E. SPECIAL FINISH FLOOR COATING

Decorative quartz-filled epoxy anti-microbial seamless floor surfacing system (4.76 mm thickness) shall generally be used for detainee shower floors on concrete substrate.

Comply with Technical Specifications Section 09750 "Special Finishes" in Part C.

F. HIGH PERFORMANCE COATINGS

Primer, intermediate coating, and top coating epoxy-resin coating systems shall generally be used where durability and maintainability is important. Materials to receive high performance coatings in addition to the Finishes Schedule above:

Exterior metal (galvanized and ferrous)
Railings and guard rails
All exposed steel within dayroom (except stainless steel)
Exposed steel in detention cells and holding cells
(except stainless steel)
Hollow metal door frames (except stainless steel)
Hollow metal window frames (except stainless steel)

The level of environment selected within the Technical Specifications (either moderate or severe) shall be determined on the security level desired. "High" security and exterior environments shall require the "severe" environments coating.

Comply with Technical Specifications Section 09960 "High Performance Coatings" in Part C.

End Division 09

DIVISION 10 SPECIALTIES

A. FIRE EXTINGUISHERS AND CABINETS

All fire extinguisher cabinets shall be constructed of steel, and be "architectural" or standard grade with a white enamel finish. Detention grade shall not be used. Door style shall be flush and labeled with "Fire Extinguisher." Fire extinguisher cabinets (FECs) shall be sized to hold a minimum 2.5 gallon water fire extinguisher.

Installation shall be recessed or semi-recessed only where wall conditions do not permit a full recessed installation. Surface mounting shall be permitted only in mechanical, electrical or electronic equipment rooms.

Fire extinguisher cabinets in administrative areas, public areas, or areas that are not occupied by detainees do not require locking devices. Cabinets shall be locked using a ¾" (19 mm) cylinder cam lock. Paracentric prison locks will not be used on FECs.

Placement and installation shall comply with NFPA.

B. METAL LOCKERS

Visitors reception area, provide multiple tier wardrobe lockers, 12" x 12" x 60" (300 mm x 380 mm x 1525 mm). Lockers shall be provided with locking mechanisms designed to accept a deposit of a special token or a quarter which is returned after use. The user inserts a coin which permits locking of the locker and removal of the key. When the locker is unlocked the deposit is returned to the user and the key is captured by the lock.

Staff toilets requiring lockers shall be equipped with double tier athletic lockers, 15" x 15" x 72" (80 mm x 380 mm x 1830 mm) with locker bench.

C. ACCESS FLOORING

Access flooring shall be provided in the Control Rooms, Electronic Equipment Rooms, Inmate Telephone System Room and any other areas with significant electronic control panels.

Access flooring shall have a minimum of 18" (460 mm) clear space from the bottom of the access floor panel to the finished floor below.

Access flooring provided on this Project may be used as a supply or return air plenum.

The height of the floor surface should be the same as adjacent rooms.

The surface shall be NEMA LD 3, High Wear Type, Grade HW 120, .120" (3 mm) thick, plastic laminate. Carpet tile or other surface materials are not be acceptable.

D. TOILET COMPARTMENTS

Toilet compartments shall be either:

1. Type 304 Stainless Steel, Finish No. 3 or No. 4., 18 ga. minimum.
2. Solid phenolic core with high pressure melamine fusion welded to surface of core to form a one piece unit which will not delaminate. Edges shall be solid phenolic resin. Units shall be water resistant, impervious to steam, soaps and detergents and shall not mildew. Minimum thickness shall be ¾" (19 mm). Product shall be ASTM E 84 Tested Class B minimum.
3. HDPE High Density Polyethylene stress relieved solid polymer resin. Minimum thickness shall be 1")25 mm). Product shall be ASTM E 84 Tested Class B minimum.

Style: Overhead braced and floor anchored.

E. PRIVACY SCREENS

Privacy Screens shall be either:

1. Type 304 Stainless Steel, Finish No. 3 or No. 4., 18 ga. minimum.
2. Solid phenolic core with high pressure melamine fusion welded to surface of core to form a one piece unit which will not delaminate. Edges shall be solid phenolic resin. Units shall be water resistant, impervious to steam, soaps and detergents and shall not mildew. Minimum thickness shall be ¾" (19mm). Product shall be ASTM E 84 Tested Class B minimum.
3. HDPE High Density Polyethylene stress relieved solid polymer resin. Minimum thickness shall be 1" (25mm). Product shall be ASTM E 84 Tested Class B minimum.

Style: Wall hung or floor anchored, as required for full support.

F. SHOWER STALL DOORS *(AT MULTIPLE OCCUPANT SHOWER ROOMS OR MINIMUM SECURITY SHOWER STALLS)*

Shower Stall Doors shall permit staff observation of inmate's head and feet while providing privacy. Doors shall be a single leaf starting at 18" (500 mm) AFF and ending 60" (1525 mm) AFF. Attachment shall be made by bolting through CMU or concrete walls with stainless steel threaded rod or bolts.

Doors shall be either:

1. 20 gage type 304 Stainless Steel with a honeycomb core, and a number 4 satin or a "textured" finish.
2. Solid phenolic core with high pressure melamine fusion welded to surface of core to form a one piece unit which will not delaminate. Edges shall be solid phenolic resin. Units shall be water resistant, impervious to steam, soaps and detergents and shall not mildew. Minimum thickness shall be ¾" (19 mm). Product shall be ASTM E 84 Tested Class B minimum.
3. HDPE High Density Polyethylene stress relieved solid polymer resin. Minimum thickness shall be 1" (25 mm). Product shall be ASTM E 84 Tested Class B minimum.

Baked enamel, and plastic laminate on particle board or other core materials, shall not be permitted.

Doors shall have heavy duty stainless steel hardware. "Vault type" hinges are preferred with a plastic pin. A self closing feature shall be provided.

Hardware, accessories, brackets, pilaster shoes and sleeves, anchorages and fasteners shall be solid stainless steel. Only tamper resistant fasteners shall be used. Continuous piano hinges shall not be used.

End Division 10

DIVISION 11 EQUIPMENT

A. DETENTION HOLLOW METAL DOORS AND FRAMES

All doors and frames that occur as openings in "High", "Medium", and "Low" security walls shall be detention type and comply with the Technical Specifications Section 11191 "Security Metal Doors and Frames" and Section 11199 – "Detention and Non-detention Door and Hardware Schedule" in Part C.

The following secure construction types shall match specific hollow metal grades by the Hollow Metal Manufacturers Association (HMMA):

Secure Construction Type	HMMA
"High"	Grades 1
"Medium"	Grade 2
"Low"	Grade 3

B. DETENTION HARDWARE

All door hardware that occur in openings "High", "Medium", and "Low" security walls shall be detention type and comply with the Technical Specifications Section 11192 – "Detention Door Hardware" and Section 11199 – "Detention and Non-detention Door and Hardware Schedule" in Part C.

C. DETENTION EQUIPMENT AND DETENTION FURNISHINGS

Detention equipment shall be used for furnishings and equipment where detainees are housed or where detainees have access, and at security control rooms. Detention equipment shall include the following and shall be in accordance with Technical Specifications Section 11193 – "Detention Furnishings, Equipment, and Accessories" in Part C:

Shelf unit with clothes safety hooks
Safety clothes hook strips
Security mirror
Safety grab bar
Wall mounted detention bunks
Writing surface
Wall and floor mounted detention stool
Television support bracket

Four-person table
Key control cabinet
Package receiver
Transaction drawer
Pass hopper
Key pass
One-way food pass
Metal soffit
Steel barrier grille

End Division 11

DIVISION 13 SPECIAL CONSTRUCTION

A. PREFINISHED PRECAST CONCRETE MODULAR CELL UNITS

Where prefinished precast concrete modular cell units are used for secure detainee housing as an option to concrete masonry or cast-in-place concrete construction, the modular cell units must be designed, fabricated, and installed by a qualified manufacturer. Such manufacturer shall be certified by the Precast/Prestressed Concrete Institute (PCI), have experience in the manufacture of modular cell units, and meet other requirements stated in Technical Specification Section 13131 in Part C.

Prefinished precast concrete modular cell units shall be six-sided, which provides for a completely finished module prepared at the factory and shipped to the site for immediate installation. Cell shall be completely fitted in the factory for furnishings, painting/coating, window, doorframe, plumbing fixtures, and plumbing stack, and HVAC stack. *As an option, five-sided modular cell units are acceptable, which require field installation of cell and chase equipment. The choice of six or five sided modular cells will be impacted by availability of specialized pre-cast plants to the project site..*

Facility designers must carefully coordinate the integration of the precast concrete modules with the other construction materials used. Concrete finish of precast concrete modules is difficult to match with concrete finish of precast architectural panels that may be used adjacent to the modules.

Refer to Part C for a typical precast modular cell unit plan Guide Drawing 01-203 and Technical Specifications Section 13131 "Prefinished Precast Concrete Modular Cell Units."

B. CONTROLS

An energy management system shall be provided for controls of the HVAC. All thermostats in the detainee areas shall be concealed. Temperature sensing devices shall be concealed in "High" and "Medium" secure areas with remote temperature control.

C. ELECTRONIC SECURITY

1. General Requirements

The electronic security system shall be a completely integrated system which coordinates with gate operators, electric locks and other detention hardware, detention equipment, fire alarms, and provides electronic door controls, video touch screen controls, intercom and paging, video surveillance/CCTV, staff duress system, and perimeter alarm system.

Due to the critical nature of these facilities, contractors who perform the electronic security work must be pre-qualified to meet requirements such as:

- Relevant experience in similar projects
- Company financial soundness
- Payment and performance bondable
- Relevant experience of assigned key personnel

Security electronic equipment must be coordinated with detention equipment, including but not limited to: security fasteners, security access panels, electric locks.

Prior to final acceptance of the systems, the electronic security contractor shall provide evidence of system tests, complete documentation manuals, and shall conduct training in the use of the systems.

See Technical Specifications Section 13800 – "Electronic Security System General Requirements" in Part C.

2. Control Consoles, Cabinets, and Enclosures

Control consoles shall be minimum 14 gauge cold rolled steel, modular construction 19" (483 mm) rack type with 12" (305 mm) writing surface. Depth shall be sufficient to house touch screen monitors and other equipment. Thermostatically controlled cooling fans shall not exceed 45dBA or 3dbA above ambient noise levels, whichever is lower.

Equipment cabinets shall be minimum 14 gauge cold rolled steel with hinged mounting rails for modular 19" (483 mm) equipment racks. Provide cooling fans, removable panels, and lockable hinged covers.

See Technical Specifications Section 13810 – "Controls, Consoles, Cabinets, and Enclosures" in Part C.

3. Control Panels

Control panels shall contain locking operations for door and gates, and intercom communications. Panels shall be low-voltage and provided with lights, audible annunciator, intercom speaker, microphone, power supply and control switches. Switches and indicators shall be semi-recessed below the

working surface and shall be in a water-resistant panel. Control panel shall be 14 gauge cold rolled steel, desk or turret mounted and removable at the top, with body and lens of high impact polycarbonate material. Visual annunciators shall be LED type 24 vdc with an operating life minimum of 100,000 hours.

See Technical Specifications Section 13811 – "Control Panels" in Section 3.

4. Video Touch Screen Control System

A video touch screen control system (VTCS) shall provide a means to control and monitor all systems and equipment related to the electronic security control systems and a means to log and archive all events to a data base from which reports can be generated. The VTCS shall include 21" (533 mm) color monitors with an infrared touch screen switching system, software, central processing units, printers, and connection to the PLC for electronic security system control.

The VTCS shall process and display as a minimum the following graphical user interface type systems:

- Perimeter security system
- Panic duress system
- Door and gate controls
- Intercom and paging system

See Technical Specifications Section 13812 – "Video Touch Screen Control System" in Part C.

5. Electronic Control System

Electronic control system shall be programmable logic controller (PLC) based. PLC to control input and output interface devices for interfacing to all controlled and monitored devices. All input and outputs are to be run through the PLC. Any system failure is to result in a lock down, fail secure mode, with the exception of life safety devices that are to fail safe. Provide central processing units (CPU) at control rooms. The control room is to work independently, regardless as to whether or not there is a communications fault between CPU units.

See Technical Specifications Section 13821 – "Electronic Control System" in Part C.

6. Intercom and Paging System

Intercom and paging system shall be provided for security detainee and staff communication, and shall consist of control and switching equipment, security grade intercom stations in detainee areas, security grade paging speakers in detainee area, commercial grade paging speakers in public area, and paging horns. Intercom and paging system shall be in addition to telephone system. Intercom stations shall be provided at all remotely controlled doors for communication with the area controlling the door and interface to the CCTV system for automatic call-up of video surveillance cameras associated with controlled doors. Audio monitoring shall be provided via the paging/intercom system. Utilizing the local speakers, audio monitoring shall automatically occur upon alarm condition or be manually selected by the on-duty security staff. Security grade intercoms shall be 11 gauge stainless steel plate with vandal resistant call switch. Security grade paging speakers shall be 14 gauge carbon steel.

See Technical Specifications Section 13825 – "Intercom and Paging System" in Part C.

7. Video Surveillance / CCTV System

A complete CCTV system shall contain cameras, exterior and interior camera housings, mounts, cables, monitors, fiber optic interface equipment, multiplexers, matrix switch, alarm interface, keypad, video/digital recorders, pan-tilt-zoom equipment, lenses, and appurtenances. The system shall provide a visual confirmation of movement through security barriers and general surveillance of movement, assessment of alarms at security barriers, and a means of recording any camera. The CCTV system shall use color CCD cameras at all interior locations and color/B&W (day/night) automatic switching cameras for exterior applications, color monitors, switchers/multiplexers and digital recording devices. The exterior cameras shall be suitable for low-light level performance and provided with pan and tilt controls where required. Cameras shall be installed in enclosures for environmental and/or physical protection.

The following minimum areas shall have video surveillance, coordinated with locations that have duress alarms, door alarms, intercom stations, or perimeter alarms:

- Recreation yards
- Exterior entries
- Sallyports
- Dayroom entry
- Fencing gates
- Vehicle sallyport
- Administrative segregation

See Technical Specifications Section 13827 – "Video Surveillance / CCTV System" in Part C.

8. Staff Duress System

The staff duress system shall, upon activation of an ultrasonic signal from a personnel transmitter, provide an alarm signal to the PLC, which, in turn, annunciates the location of the transmitter in alarm on the appropriate video touch control screen. The transmitters shall be initiated either by an alarm switch or by "man-down" activation. The staff duress system shall be integrated with the electronic control system for event logging and digital recording from the nearest CCTV camera.

Where staff are not provided with a personal transmitter and have direct contact with detainees, duress pushbuttons mounted on walls or beneath desks shall be provided.

The staff duress system shall be active in the following areas:

- Detainee dayrooms
- Housing unit corridors
- Outdoor recreation
- Indoor multipurpose spaces used by detainees
- Holding rooms
- Medical clinic

See Technical Specifications Section 13830 – "Staff Duress System" in Part C.

9. Perimeter Alarm System and Intrusion Detection

The perimeter alarm system shall be a dual zone signal processor fence protection system (FPS) connected to two transducer sensor cables mounted on the perimeter chain link fence. The FPS processor is mounted on or near the fence in the middle of two detection zones (left and right). Mechanical disturbances detected by the sensor cable are sent to the FPS processor. The processor contains the circuitry that analyzes the disturbance detected by the sensor cable. The electronics are designed to match the characteristics of the sensor cable input and only report as events those signals that are similar to the disturbances caused by climbing, cutting or lifting the chain link fence fabric.

The system shall include microwave transmitters and receivers at all vehicle sallyports and gates. It shall be possible to place any zone in the system in a bypass mode from the touch screen stations. Pedestrian entry gate access may be controlled by the card access system, pending coordination with

security operations plan, which may require visual or other confirmation by master control prior to entrance through secure perimeter. The perimeter alarm system shall be interfaced through the PLC system, and shall print on the event printer the time, date and zone of perimeter alarms.

The exterior perimeter of buildings shall have door position indicators on all doors with reporting to the central control in the event of a breach. Staff interior movement doors shall be equipped with card access readers for unassisted entry. Doors leading into secure areas shall be designed to incorporate sallyports with interlocking doors. These doors shall be controlled from the central control room utilizing intercoms and cameras to control movement. Passive infrared type motion sensing devices shall be installed in interior spaces as required for special conditions, such as property rooms, evidence rooms, pharmacies, and other critical areas.

See Technical Specifications Section 13831 – "Perimeter Alarm System" in Part C.

End Division 13

DIVISION 15 MECHANICAL

A. HEATING, VENTILATING, AND AIR CONDITIONING

1. General Requirements

The SPC facility HVAC design shall comply with all applicable Federal, State, County, and City requirements. The Authority Having Jurisdiction (AHJ) shall be consulted at all levels during the design and construction process to insure compliance with Code and other requirements.

2. Design Criteria

Design of the facility shall comply with applicable regulations as listed in other sections, including but not limited to:

a. Code of Federal Regulations 10-CFR-435 and 10-CFR-436.
b. International Mechanical Code.
c. International Plumbing Code.
d. ASHRAE Handbooks.
e. ASHRAE Standards 15, 62, 90.1, 90A, and 96.
f. NFPA 13, 14, 20, 70, 101, 231, and referenced standards.
g. SMACNA HVAC Duct Construction Standards, Metal and Flexible and HVAC Air Duct Leakage Manual.
h. ASME B31.9 Building Services Piping.
i. Uniform Federal Accessibility Standards (UFAS).
j. American Correctional Association (ACA) Standards for Adult Local Detention Facilities, latest edition with supplements.

Design conditions for determining building cooling and heating loads shall be in accordance with climate conditions outlined in the ASHRAE Fundamentals.

Minimum outside air flow rates will be provided in accordance with ASHRAE Standard 62 to insure proper indoor air quality throughout the facility. Twenty (20) cubic feet per minute of ventilation air will be provided for every detainee and member of the staff for the facility.

3. Heating System

Heating temperature criteria:

Outdoor:	ASHRAE 99% DB data
Indoor:	72 degrees F DB throughout the SPC

Heating shall be provided throughout the facility by gas-fired heat exchangers as components within single zone, constant volume air handling units. Some administrative areas within the SPC may have local electric heat provided in VAV terminal units, as applicable to the project. Electric heating should be avoided within air handling systems serving detainees due to large ventilation loads. Natural gas fired boilers may also be considered for a hydronic heating system, if applicable to the project, climate within the region of construction, and as the COTR and A/E see fit for the project.

If natural gas is not readily available at the site, alternative fuels may be considered such as propane that is stored within storage tanks on the site. A propane-fired heating water boiler system shall be provided and a hydronic loop extended throughout the facility.

It is recommended, if provided, that boilers be located within a central utility plant on the site with the corresponding pumps and other heating water system components. If a hydronic heating loop is provided, all air handling units, VAV terminal units, baseboard heating units, etc. within the facility shall have water coils versus electric coils, as applicable to the project.

Steam shall be avoided as an alternative heating choice for SPC Detention projects due to maintenance difficulties and costs, as well as limitations due to lack of experience with and knowledge of steam systems by most maintenance staff.

4. Cooling System

Cooling temperature criteria (NOTE: Select climate data from closest geographic city listed in ASHRAE Handbook):

Outdoor:	ASHRAE 2.5% DB/ ASHRAE 1% WB data
Indoor:	75 degrees F DB/ 50% RH throughout the SPC

Air-cooled chillers shall be provided for the production of chilled water for cooling. Chilled water provides much better control of temperature and humidity than DX equipment, regardless of climate. As seen often in detention work, loads and population can shift at any time within a facility. As such, flexibility in operation and control is required to meet the load at all times. Only a chilled water system can provide this level of control, flexibility, and reliability.

Typically, 42-45 degree F water will be produced by the air-cooled chillers. All cooling coils within air handling units, fan coil units, etc. shall be selected and specified accordingly.

Air-cooled chillers shall be located on each site with pad-mounted chilled water pumps. Chiller redundancy shall be considered by the A/E dependent on the load, climate, proximity to service personnel, etc. An air-cooled chiller will have some level of redundancy built-in the unit due to multiple stages of unloading and compressors. Multiple chilled water pumps shall be provided for the same level of redundancy and sized for 60% of the full load each. Pumps shall be isolated for sound and vibration control and located on a full size concrete pad adjacent to the chillers. Expansion tanks, air separators, and other standard hydronic system components shall be located accordingly and may be preferred within the facility. Packaged pump systems and enclosures shall be considered by the Engineer based on feasibility and budget. If pursued, the architectural appearance of the packaged pump system must be coordinated with the design architect during schematic design.

Pumps and chillers shall be located at a reasonable distance from the facility due to control of airborne noise. All air-cooled chillers that are considered shall have specific sound criteria requirements that are to be listed in the project specifications. Sound packages shall be given strong consideration if offered by the chiller manufacturers that are listed.

5. Air Handling Units

It is recommended in a detention environment, that custom air handling equipment be utilized. Custom products are built with higher quality components and are intentionally built to last much longer than standard, packaged systems.

Air handling units shall be roof-mounted or internal to the facility within mechanical rooms. Climate and outdoor conditions, COTR direction, A/E preference, etc. shall dictate the location of the air handling systems throughout the facility. It is preferred that, regardless of location, all air handling units shall utilize chilled water and heating shall be provided by gas-fired heat exchangers, unless job conditions dictate otherwise.

Air handling units shall be zoned according to use (detainee, administrative, etc.), level of security, and smoke compartmentalization. In a smoke event, the air handling units shall be responsible for make-up air (100% outdoor air) to the area in alarm. It is recommended that a single zone air handling unit be dedicated to individual quadrants within a cell pod for smoke control. As such, each quadrant or segment of the pod shall be treated as a separate smoke zone with dedicated, roof-mounted, smoke exhaust systems. If the air handling units are located on the roof, care should be exercised by the A/E

to provide adequate distance between the smoke exhaust systems and the outside air intakes for the air handling units. Twenty-five (25') feet is recommended as a minimum distance.

Variable air volume (VAV) systems shall be provided in administrative areas within the facility to insure occupant comfort. Careful consideration should be given by the A/E when zoning a VAV system to insure adequate control. DDC controls shall be utilized throughout, unless Owner-directed. When VAV air handling units are utilized, variable speed drives (VSD) shall be designed and specified to insure performance while minimizing energy consumption. It is recommended that VSDs be unit-mounted and internally wired by the air handling unit manufacturer. For outdoor installations, VSDs shall be provided internal to the unit within an air-conditioned compartment or vestibule. Natural venting is not acceptable to insure proper operation and longevity of the drive.

Air handling units located in geographic areas that are impacted by salt water (coastal regions, etc.) are strongly recommended to be indoors. If this is not feasible, corrosion resistant coatings shall be used on all exposed metal surfaces. If DX rooftop equipment is utilized in this environment, copper tubes and fins shall be utilized in addition to corrosion resistant coatings for coils and the structural frame. Aluminum fins are not acceptable in this scenario.

Pre-treatment of outside air may be necessary dependent on geographic location and climate. This shall be accomplished via coils within the custom air handling unit or by a separate system that is ducted into the main air handling systems. The A/E shall carefully use their discretion in handling pre-treatment of outdoor air.

Gas-fired heating sections shall be provided with modulating gas valves with a high turndown ratio; 10:1 or better is preferred. Heat exchangers shall be constructed of stainless steel.

Filtration in non-medical detainee areas and administrative areas within the facility shall be 2" throwaway type, 30% efficient filters. Additional filtration shall be required if medical functions are offered within the facility. These special requirements shall be addressed in other sections of the Standard.

6. Registers and Grilles

Registers and grilles shall be designed and constructed specifically for use in correction and detention facilities. For typical areas within the SPC, all air devices within detainee areas are to be "maximum security" devices and shall be constructed of steel with a 3/16" thick steel face with 5/16" diameter holes on 7/16" staggered centers. A 3/16" thick steel sleeve shall be stitch welded to the face and along the entire length of all sleeve seams. All shall

be provided with a face-operated damper for balancing from the cell side versus a tight chase.

Security air devices within showers or other areas that are subject to moisture and humidity shall be of the same construction, but must be stainless steel.

If "minimum security" areas exist within the facility, the A/E shall specify all air devices accordingly. It is suggested that, even in areas of lessened security, "maximum security" devices be utilized, especially in areas that are not directly supervised or in view by staff at all times.

Air devices within administrative areas shall be typical, louvered face diffusers for supply and perforated face for return air. If ceilings are high enough within dayroom spaces or other detainee areas and are not considered to be "secure" (i.e.: lay-in ceiling), security air devices are not required. The A/E shall use his or her discretion, in coordination with the COTR, when determining which air devices are appropriate for use within the facility.

7. Air Distribution

All supply, return, and exhaust ductwork within the facility shall be constructed in accordance with SMACNA guidelines. Minimum sheet metal gauge, etc. shall be dictated by the guidelines based on duct size. Supply and return air ductwork shall be externally insulated; internal lining is not acceptable. It is not necessary to insulate exhaust air ductwork. All exhaust air ductwork from showers and other moisture laden areas must be stainless steel from the air devices to the fan.

All detainee areas shall have fully ducted supply and return air systems. Use of open plenum returns is prohibited because of smoke control requirements within secure areas of the facility. Open plenum return is allowed within administrative areas and other non-secure areas of the facility. In this case, all cable above the ceiling space shall be plenum-rated. The use of polyvinyl chloride (PVC) piping and other combustible materials is prohibited.

Return air ductwork shall be responsible for smoke exhaust in the event of a fire via automatic dampers tied into the system. In this event, dampers within the air handling unit (which serves the zone in alarm) shall operate to fully close the return air and fully open the outdoor air, for full 100% make-up to the space in alarm. A dedicated smoke exhaust fan shall exhaust the smoke from the area in alarm. All areas adjacent to the area in alarm shall be positively pressurized to prevent passage of fire and smoke.

8. Controls

A fully-integrated, direct digital control (DDC) system of control shall be provided, unless directed otherwise by the Owner. The system shall be fully integrated with all HVAC equipment including, but not limited, to: air handling units, exhaust fans, chillers, boilers, pumps, VAV terminal units, fan coil units, etc.

All building management system functions shall tie into a main computer station located within central control, unless specified differently by the Owner. It is recommended that the building management system have full graphic capabilities for the user, as well as secure integration with the Internet for remote capabilities, via the LAN.

Aside from equipment status and input/output to and from the system, the main function of the building management system is to provide an automatic system of controls for smoke management within the SPC. Although an override is provided via a Fireman's Smoke Management Station (FSMS), the system shall function automatically to provide this basic life safety function in an emergency. A signal from the fire alarm system in a dayroom or cell shall initiate the sequence of operation for smoke control. The A/E shall provide a detailed sequence of operation within the controls specification.

Aside from smoke control, the FSMS also allows portions of the facility to be manually "purged" by the security staff or emergency personnel. In the event of tear gas, pepper spray, or another chemical agent that may be used to gain control of detainees in an emergency situation, the area can be quickly purged with outdoor air and fully exhausted to remove the product from the air.

"Demand control ventilation" is encouraged via CO_2 monitoring in the return air ductwork in all detainee areas. The population within detention facilities can fluctuate at any time; however, it is not a good economic or energy efficient strategy to bring in the maximum ventilation rate at all times.

This ventilation controls strategy allows the outdoor air minimum to be set (typically 20%) during normal operation and, as population dictates, the outdoor air can modulate upwards as needed to accommodate more detainees needs. This strategy will help maintain indoor air quality while minimizing the conditioning of outdoor air and utility consumption and costs.

9. Barrier Grilles

Provide barrier grilles within all ducts penetrations in walls of "high" and "medium" security where one dimension is larger than 5" (125 mm) and the other dimension is larger than 8" (200 mm). Barrier grilles shall also be placed within all ductwork to and from rooftop air handling equipment.

Barrier grilles shall be tool resisting steel with minimum diameter 7/8" (22 mm) spaced with a maximum 5" (125 mm) distance between bars welded to minimum 2" (51 mm) x 2" (51 mm) x 3/16" (4.8 mm) steel angle frames which are anchored to "high" and "medium" secure wall construction.

10. Negative Pressure Isolation Rooms

Where dedicated isolation rooms are provided within the SPC for detainees infected with tuberculosis or other airborne diseases, the rooms shall have negative pressure. The following design criteria shall not be used in place of consultation with qualified design professionals who can assume responsibility for advising on ventilation system design and selection, installation and maintenance of equipment. Design criteria described herein are minimum requirements. It is the responsibility of the A/E to be knowledgeable as to the most current requirements of isolation room design as promulgated by authorities such as the American Institute of Architects (AIA), American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), and the Centers for Disease Control (CDC) and any other Federal, State, County, or City authorities having jurisdiction.

a. Negative pressure rooms shall be designed to have 12 air changes per hour (ACH) and be fully (100%) exhausted. Recirculation of air from negative pressure rooms is not permitted.
b. Exhaust cfm of negative pressure rooms shall exceed supply cfm by 10% or 24 I/s (50 cfm), whichever is greater.
c. If the discharge of an isolation room is within 50' (16 m) of an air intake, operable window, or pedestrian thruway, provide an exhaust fan with a high efficiency particulate arrestance (HEPA) filter. Otherwise, provide a dedicated exhaust fan with an exhaust stack having a discharge height 1/3 of the building height. The fan shall be located on the roof or other location outside of the negative pressure rooms.
d. If a HEPA filter is provided, it shall be placed downstream of a 25% and 90% prefilter and upstream of the exhaust fan. Each filter shall have its own Magnehelic-type manometer. Full scale of manometer reading shall not be larger than twice the full load pressure drop of its filter. Full load pressure drop data for each of the filters shall be indicated on its respective manometer.
e. When a HEPA filter unit is provided for a negative pressure room system, the exhaust fan shall be key-operated to prevent filter loading that would result from continuous fan operation. Locate key control at the room entrance.
f. The negative pressure exhaust fan shall be hard-wired interlocked with the air handling unit serving the medical area air handling unit. The medical area AHU shall not be able to energize if the negative pressure room fan is not operating. Operation of the negative

pressure fan shall be verified by means of differential pressure measurement across the fan. A current sensing relay is not a sufficient means of verification for this fan.

g. Provide an annunciation/indicating panel at the entrance of each negative pressure room (visible from a secure officer station or nurse station within the medical area) capable of directly monitoring pressurization of the negative pressure room and confirming operation of the exhaust fan. The panel shall incorporate a visual and audible alarm (80 dB @ 10' (3 m)) that shall annunciate when the differential pressure between the isolation room (as sensed near the entrance door) and the hallway falls below 0.001" water column WC (0.25 Pa) or when the exhaust fan fails to operate.

h. All equipment associated with providing negative pressure to the negative pressure rooms shall be on emergency power.

i. Provide "Contaminated Air" warning labels every 3 m (10') on all ductwork and equipment in contact with the negative pressure room exhaust air stream.

j. Where negative pressure rooms are required to have "secure" construction, supply and exhaust grilles shall meet the requirements of this Standard. Supply grilles shall be located high on the wall or ceiling near the entrance and the exhaust grille shall be located low on the wall or ceiling on the opposite side of room.

k. If constant volume (CAV) boxes are provided for the negative pressure room supply air system, they shall fail in the closed position.

m. Negative pressure rooms shall be tested, adjusted, and balanced by a NEBB or AABC certified firm and a certificate provided at Substantial Completion verifying that design conditions have been met.

B. PLUMBING

1. General Requirements

Domestic water service shall be provided by the city or other local water utility (depending on site location) and distributed to the facility to within 1524 mm (5 feet) of the outside of the facility. Code analysis will need to be performed to determine if the backflow preventer is to be located outside or inside the facility. If the backflow preventer is to be located inside the facility, a reduced pressure principle backflow preventer assembly with airgap and full size drain line shall be provided in the mechanical room. Where mechanical equipment requires a water source, a non-potable system shall be provided. The non-potable system shall consist of a reduced pressure principle backflow preventer assembly with airgap and full size drain line shall be provided to protect the potable system from cross-contamination.

Handicapped accessible plumbing facilities shall be provided in accordance with the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 latest edition.

Water piping shall not be routed through or into the following rooms: electrical rooms, control room, electronic equipment room, secure electronics room, radio room, network equipment room, or telephone monitoring equipment room. Water piping or waste piping shall not be routed through or into rooms from directly above these rooms. Fire sprinkler piping serving these rooms may be run routed into these rooms.

All security type combination plumbing fixtures shall be able to be serviced from the cell chase.

Domestic water shutoff ball valves shall be located in cell chases for water supplying all plumbing fixtures within that chase. One set of shutoffs can be provided for back to back detainee cells, except in segregation housing areas where detainee cell fixtures shall have individual cell shutoff valves accessible from the chase.

Each stainless steel combination fixture and shower cabinet shall be provided with tempered hot water and cold water.

A water analysis shall be performed to determine the amount of dissolved solids in the water supply. This will determine if a water softener or filtration s system is required. Depending on the quality of the water supply, either the complete domestic water supply or just the domestic hot water system will be provided with softened water. As a minimum, the domestic hot water system and the non-potable system serving the mechanical equipment shall be softened to protect the systems from clogging due to lime build-up in the lines, at the heaters, and mechanical equipment. Location of the water softener system shall be in the mechanical room with easy access for delivery of the salt.

2. Floor Drains

Floor drains and floor sinks shall be cast iron with bronze grates and vandal resistant fasteners. Provide floor drains in mechanical rooms, water heater rooms, janitor's closets, holding cells, and multi-purpose rooms. Floor drains shall be provided in detainee housing unit dayrooms at every other cell chase. Floor drains shall not be provided in detainee cells. Parapet drains shall be provided in the detainee showers on the mezzanine level with the piping located in the cell chases. Parapet drains may also be utilized at the mezzanine landings and piped into cell chases.

3. Vitreous China Water Closet

In "minimum" security areas and non-secure areas (e.g. public, staff, and minimum security detainee areas), water closets shall be wall hung, elongated bowl, manufactured of vitreous china, and be flush valve type. As a minimum, all minimum security detainee area fixtures shall have concealed flush valves and have vandal resistant caps in lieu of vitreous china caps. ADA compliant fixtures shall be provided in all handicapped accessible areas. All flush valves shall meet the federal low flow requirements.

4. Vitreous China Lavatory

In "minimum" security areas and non-secure areas (e.g. public, staff, and minimum security detainee areas), lavatories shall be manufactured of vitreous china and be the wall hung or countertop mounted type. As a minimum, all minimum security detainee area fixtures shall have vandal resistant metering faucets and meet the federal low flow requirements. P-traps shall be cast brass. Fixtures used within the minimum security detainee area shall have concealed stops and p-traps. ADA compliant fixtures shall be provided in all handicapped accessible areas. Exposed pipe covers, required under ADA, shall not be used in detainee areas.

5. Stainless Steel Combination Water Closet/Lavatory Unit

In "maximum" and "medium" security areas or within detainee cells, dayrooms, or holding rooms, combination water closet and lavatory units shall be 14 gauge, Type 304 stainless steel with satin finish. Construction shall be seamless welded. Toilet shall be blowout jet type with an elongated bowl, self-draining flushing rim, and an integral contoured seat with a sanitary high polish finish. Countertop shall have a self-draining soap dish. Fixture shall be "off the floor" type. Lavatory shall have pneumatically operated, pushbutton valve. A deck mounted penal bubbler shall be provided. Integral recessed toilet paper holder shall be provided. Fixture shall withstand 3,000 lb. loadings without permanent damage. Where required for handicapped accessibility, special ADA units may be used or separate stainless steel fixtures. Where these fixtures are replacing existing toilets, most manufacturers produce "replacement" fixtures which allow the use of custom floor outlet locations.

6. Stainless Steel Water Closet

In "maximum" or "medium" security areas or within detainee cells, dayrooms, or holding rooms, and where combination units are not used, water closets shall be 14 gauge, Type 304 stainless steel with satin finish. Construction shall be seamless welded. Toilet shall be blowout jet type with an elongated bowl, self-draining flushing rim, and an integral contoured seat

with a sanitary high polish finish. Fixture shall be wall mounted at ADA height. Fixtures withstand 3,000 lb. loadings without permanent damage. Flush valve shall be concealed and serviced from the rear. Where these fixtures are replacing existing toilets, most manufacturers produce "replacement" fixtures which allow the use of custom floor outlet locations.

7. Stainless Steel Lavatory

In "maximum" and "minimum" secure areas or within detainee cells, dayrooms, or holding rooms, and where combination units are not used, lavatories shall be 14 gauge, Type 304 stainless steel and ADA compliant. Lavatory shall be wall hung and totally enclosed. Countertop shall have an air-circulating, self-draining soap dish. A separate deck mounted bubbler shall be provided with separate push button for drinking water. Pneumatic or electronic push button controls shall be used and mounted at ADA compliant height. Where these fixtures are replacing existing lavatories, most manufacturers produce "replacement" fixtures which allow the use of custom drain outlet locations.

8. Stainless Steel Sink

In medical clinic, other health care areas, and multi-purpose rooms, sinks shall be Type 304 stainless steel with gooseneck faucet and wrist blade handles. ADA compliance shall be met on a room-by-room basis, unless governmental documents dictate otherwise.

9. Showers

"Minimum" security detainee shower rooms, shower heads and shower controls shall be vandal resistant and of the pressure balanced type.

Holding areas, medium/maximum housing and segregation housing, shower heads shall be assembled in a shower panel of 14 gauge, Type 304 stainless steel with satin finish. Exposed trim shall be chrome-plated brass. Shower head shall be fixed, vandal resistant, and non-adjustable except with use of Allen wrench. Provide push button electronic or pneumatic control. A stainless steel recessed soap dish shall be factory welded in place. Shower panel shall be accessed from the chase. ADA accessible shower panels shall have an additional shower head at 48" (1220 mm) above floor with separate push button control.

10. Flushing Floor Drain

In safety cells or isolation cells where a conventional stainless steel toilet may present a hazard to the detainee, a remote flushing floor drain shall be used. Bowl shall be 14 gauge stainless steel, Type 304 with satin finish, with a continuous washdown flushing rim. Bar grate shall be 3/8" (10 mm) diameter bars welded in place, except bar over waste outlet, which shall be removable and secured in place with two tamper-resistant screws. Flush valve shall be remotely located with a remote push button or electronic actuator.

11. Domestic Water Heating

Minimum hot water storage temperature shall be 140 degrees F (60 degrees C) or when laundry is provided. System shall utilize thermostatic mixing valves, capable of consistent water delivery at a temperature of 105 degrees F (40 degrees C) to all showers, lavatories, and sinks. Mop sinks at a minimum can be served from the 105 degrees F (40 degrees C) water supply, but can be supplied from the 140 degrees F (60 degrees C) water supply if requested. Where washing machines are provided in the detainee housing unit, provide 140 degrees F (60 degrees C) hot water for the laundry machines. Where a laundry is provided that uses commercial washing machines, 160 degrees F (71 degrees C) shall be provided to washing machines. Gas-fired and water-to-water heat exchanger type heating sources are acceptable. Steam to hot water is not a preferred method of providing hot water.

When water-to-water heat exchangers are specified, they shall be double wall construction, even where local codes permit single wall units. When gas fired water heaters are specified, heat exchangers shall be all copper construction and burners shall be stainless steel. System shall be sized to accommodate the entire facility or portion of the facility. Split system consisting of water heaters and storage tank is the preferred method of providing and storing hot water to the facility. Heaters shall be designed at a 60% split to accommodate the system in the event a heater should require maintenance.

Provide a water heating system for the Kitchen and a separate system for the Laundry. Separate systems shall be provided through thermostatic mixing valves. Neither system shall be used to serve fixtures outside of its designated area. To prevent the heavy instantaneous use of the Laundry from depleting the Kitchen hot water supply, each system shall be circulated back to the hot water storage tank through its own circulating pump. Circulating pumps shall be of the continuous running type. Where kitchens are provided, 105 degrees F (40 degrees C) temperature water shall be provided at hand washing sinks to prevent scalding.

In the Food Service area the pulper, pot sinks and dishwasher shall have a 140 degrees F (60 degrees C) supply temperature, with the dishwasher providing a local booster heater to assure 180 degrees F (82 degrees C) final rinse temperature. Provide a water temperature of 160 degrees F (71 degrees C) for laundry service.

The shower portion of the hot water requirements for General Housing Areas shall be based on the following method:

1. Shower heads shall have a flow rate of 2.5 gpm (0.16 L/s).
2. Assume inmates take a 7-minute shower with 3 minutes between showers, resulting in a 42-minute total head run time per hour.
3. A storage temperature of 140 degrees F (60 degrees C) is used and a user temperature of 105 degrees F (40 degrees C).
4. A 90 degree F (32 degrees C) temperature rise 50 to 140 degrees F (10 to 60 degrees C).
5. A storage factor of 2.0.
6. The ACA Standards for Adult Local Detention Facilities requires one shower fixture for every twelve (12) detainees. Worst case design for this usage condition would require storage/recovery capacity capable of flowing all housing unit shower heads simultaneously and meeting peak lavatory usage requirements continuously.

Housing unit hot water storage shall consist of a system using two (2) units of 60% load demand with double (for "stacked" or multistory buildings) hot water storage tank. Both gas-fired and water-to-water heat exchanger type heating sources are acceptable. All water-to-water heat exchangers shall be specified to be of the double wall type regardless of local code exceptions to the contrary. Single wall heat exchangers shall not be specified.

C. FIRE PROTECTION

1. General Requirements

The fire protection service, depending on local codes, can be either a combined service with domestic water or a separate service from the city or local water utility. If a separate service is required, the service shall be provided by the city or local water utility and distributed to the facility to within 5 feet (1524 mm) of the outside of the building. A code analysis shall be performed to determine if the backflow preventer is to be located inside the facility or outside. If the backflow preventer is to be located inside the facility, a reduced pressure detector check backflow preventer assembly with airgap and full size drain line shall be provided in the mechanical room. Water flow and pressure test shall be performed at the site to determine if adequate pressure and water flow is present to serve the fire protection system and whether or not a fire pump is required.

Fire pumps shall be sized according to NFPA requirements. State or local authorities will govern the fire protection system. Fire protection system will be provided by performance specifications and drawings. Drawings will indicate location of major equipment and pertinent components and location

and general routing of fire mains and location of steel enclosures when required in detainee areas, such as under mezzanine landings.

The facility may be split into zones to provide enhanced control of the sprinkler system. Zones may be split to accommodate detainee housing cells, dayrooms, and administration areas. Control valves shall be located either in the mechanical room, secure chases or at locations determined by the COTR or authority having jurisdiction.

Security sprinkler heads shall be provided in all detainee areas, except dayrooms where the height of the ceiling may determine that the sprinkler heads can be of the non-secure type. Security heads shall also be located in transfer corridors, vestibules, janitor's closets within the dayroom areas and multi-purpose rooms.

Drypipe sprinkler heads shall be provided in all areas that are subject to freezing temperatures. Drypipe system and all components shall meet all state and local codes including NFPA standards adopted.

Fire protection system shall conform to NFPA standards 13,14 (when required), 20 (when required), 24, and 25. Where local firefighting and/or emergency response units are to be utilized in the event of emergencies, the A/E and COTR shall meet during the preliminary design stage with the fire officials to discuss hydrant placement, emergency access, and the fire protection system.

Fire protection systems shall be of black steel schedule 40 pipe unless approved by the A/E, COTR, and AHJ.

End Division 15

DIVISION 16 ELECTRICAL

A. LIGHTING

1. Medium Security Fixture

Medium-security type ceiling surface mounted light fixtures: Housing, back, and door shall be 16 gauge steel with continuous exterior welds that are ground smooth and reinforced at the corners. The housing shall have a continuous steel piano hinge spot-welded and bolted to doorframe. The hinge pin shall be welded to hinge to prevent removal. Grind all welds smooth. Outer lens shall be 0.250" clear polycarbonate backed with an inner lens of 0.125" prismatic polycarbonate. Lens retention to be by means of continuous 16 guage L-angle along lens for length of lens opening. A night-light shall be included. The inside and outside of housing shall be white polyester powder paint, 1.4 to 1.7 mil thick, with minimum reflectance of 85%. Sleeping area illumination level is to be a minimum of 215 lux (20 foot candle) throughout the entire cell area. Particular attention shall be given to providing the 215-lux illumination level at the desk level and in the personal grooming area. Fixture shall be similar to Kenall (www.kenall.com) Mighty Mac Model SCH4-1/1-332-PB-1-277-1/9-1-TN or similar. See catalogue cuts in Section 3

Locations for the above fixture type:
Medium/maximum cells (not Segregation cells)
Dayroom lights under balconies
Multi-purpose rooms, janitor closet, and laundry rooms adjacent to medium/maximum dayrooms
Sallyports
Any detainee area ceiling within 3.6 meters (12') of the floor.
Health Service - Inpatient Suite (including corridor), except where required to be maximum security grade in paragraph 2 below
Visiting; Non-contact Visiting Rooms (detainee side), Contact Visiting Rooms.
Special Housing Unit (all areas except for detainee cells and lobby)
Multi-purpose rooms for detainees

2. Maximum Security Fixture

Maximum-security type ceiling surface mounted light fixtures: Housing, back, and door shall be 14 gauge steel with continuous exterior welds that are ground smooth and reinforced at the corners. The housing shall have a

continuous steel piano hinge spot-welded and bolted to doorframe for hinged door or spot welded to housing and back for hinged housing. The hinge pin shall be welded to hinge to prevent removal. Grind all welds smooth. Outer lens shall be 0.375" clear polycarbonate backed with an inner lens of 0.125" prismatic polycarbonate. Lens retention to be by means of continuous 14 guage L-angle along lens for length of lens opening. A night-light shall be included. The inside and outside of housing shall be white polyester powder paint, 1.4 to 1.7 mil thick, with minimum reflectance of 85%. Cell illumination level is to be a minimum of 215 lux (20 foot candle) throughout the entire cell area. Particular attention shall be given to providing the 215-lux illumination level at the desk level and in the personal grooming area. Fixture shall be similar to Kenall (www.kenall.com) Mighty Mac Model SCH4-0/0-332-PB-1-277-1/B-1-TN or similar. See catalogue cuts in Section 3.

Locations for the above fixture:

Health Services Observation/Isolation Rooms
Holding Cells (Receiving and Discharge, Associate Warden, etc)
Segregation Housing Unit: Detainee Cells, Multi-purpose Rooms
"High" security areas

3. Detainee Shower Area Light

For "High", "Medium", and "Low" security detainee areas, light fixtures shall be maximum security type ceiling surface mounted. Housing, back, and door shall be 14-gauge stainless steel with continuous exterior welds that are ground smooth and reinforced at the corners. The housing shall have a continuous steel piano hinge spot-welded and bolted to doorframe for hinged door or spot welded to housing and back for hinged housing. The hinge pin shall be welded to hinge to prevent removal. Grind all welds smooth. Outer lens shall be 0.375" clear polycarbonate backed with an inner lens of 0.125" prismatic polycarbonate. Lens retention to be by means of continuous 14 gauge L-angle along lens for length of lens opening. The inside of housing shall be white polyester powder paint, 1.4 to 1.7 mil thick, with minimum reflectance of 85%. Lens retention to be by means of continuous 14 gauge L-angle along lens for length of lens opening. Fixture shall be UL listed for wet locations. Fixture shall be similar to Kenall (www.kenall.com) Might Mac Model SSD-2-6/3-17-EB-1-277-1/C-1-WL.

4. Dayroom Light Fixture in Upper Ceiling

For dayrooms with high ceilings in "High" and "Medium" security areas, fixture shall be medium security type surface mounted, 250 watt metal halide with 16 gauge painted metal housing, . Fixture shall be similar to Kenall (www.kenall.com) Mighty Mac Model SQCD-C-1/1-1-250M-NA-1-277-R/9-1-QR.

5. Dayroom Light Fixture Below Balcony Overhang

For "High" and "Medium" secure areas, light fixtures mounted below the edge of balcony shall be maximum security type, surface mounted. Housing, back, and door shall be 12 gauge steel with continuous exterior welds that are ground smooth and reinforced at the corners. The housing shall have a continuous steel piano hinge spot-welded and bolted to doorframe for hinged door or spot welded to housing and back for hinged housing. The hinge pin shall be welded to hinge to prevent removal. Grind all welds smooth. Outer lens shall be 0.375" clear polycarbonate backed with an inner lens of 0.187" prismatic polycarbonate. Lens retention to be by means of continuous 14 gauge L-angle along lens for length of lens opening. The inside and outside of housing shall be white polyester powder paint, 1.4 to 1.7 mil thick, with minimum reflectance of 85%. Fixture shall be similar to Kenall (www.kenall.com) Mighty Mac SQD-C-1/1-1-250M-NA-1-277-R/9-1-QR.

3. General Site Lighting Requirements

The following are minimum foot-candle requirements:

Perimeter fences and perimeter walls	1.5 fc at ground level both sides to perimeter road
Between perimeter road and property line	1.5 fc at ground level
Vehicle gates	1.5 fc at both sides
Vehicle gates (remotely controlled)	2.0 fc at both sides
Vehicle sallyport	50.0 fc entire area
Roof tops	1.5 fc
Parking lots	2.0 fc with minimal shadows
Area within secure perimeter fence	1.5 fc at ground level
Building entries and pedestrian gates	10 fc

Lighting level design shall specifically eliminate any shadows or low light level pockets. Maintain a uniformity not to exceed 4 to 1 maximum to minimum, measured at grade.

General site lighting shall be obtained with metal halide fixtures on 30' (9.1 m) tall steel poles set on 36" (914 mm) tall concrete bases. Where necessary to supplement pole lighting, wall mounted fixtures may be used. High mast lighting (100' (30.5 m) tall poles) should be considered for large sites if they are cost effective and are compatible with surrounding land use. Light poles shall be no closer than 20' (6 m) to security fencing, except where light poles occur between the patrol road and exterior perimeter security fence.

All exterior lamps and ballasts used within the double fence perimeter or adjacent to the perimeter shall have instant restart or shall be hot re-strike type. Where required by local codes, perimeter fixtures shall be cut-off type using a street light luminaire.

All exterior lighting within the secure perimeter fence shall be controlled from the main control room. Controls shall be manual only, automatic controls shall not be allowed. For general site lighting outside the secure perimeter fence, photocells and timers shall be used and shall fail "on".

All site lighting must be color corrected light for accurate security surveillance and identification.

B. POWER

1. Emergency Generation

Emergency power shall be derived from a 480/277 volt, 3 phase, 4-wire diesel engine driven generator sent sized to carry the required loads, along with a second, equally-sized generator for back-up. The generators shall serve distribution panelboards in the main electrical room through a 4-pole automatic transfer switch (ATS). This emergency system shall provide power for the life safety/security systems and other essential loads upon failure of the normal electrical power service for a minimum of 72 hours continuous operation prior to re-fueling. Emergency generators shall be located outside the secure perimeter. Items that must be on the emergency generator include:

- Security equipment
- Emergency lighting
- Alarm systems
- Communications equipment
- Computer database (UPS system)
- Ventilation and heating system to maintain habitable conditions during emergency periods
- Negative pressure mechanical system for isolation medical cells
- Essential food service equipment to allow continued operation during emergency periods

2. Uninterruptible Power Supply

Uninterruptible power supplies (UPS) shall be provided for all security system components. The UPS shall be sized to provide backup power for the full load of the security system for a minimum period of ten (10) minutes.

This system is designed to handle all security systems in the event of a primary power loss until such time as the emergency generator takes over.

3. Power Outlets

Electrical outlets shall not be provided in areas generally accessible to groups of detainees. Holding rooms and cells shall not have electrical or special systems outlets (except for group holding cells equipped with TV in a security enclosure where the outlet will not be exposed to the detainee). For cleaning and other activities, cords can be run in from the corridors. Medical areas shall have electrical outlets with covers to prevent casual detainee tampering.

C. LIGHTNING PROTECTION / SURGE PROTECTION

All communication, video, and data equipment shall be protected against surges induced on all control, communication, video, sensor and data cables. All cables and conductors that serve as control, audio, video, sensor or data conductors that leave the building (including devices mounted on building exterior) shall have surge protection circuits. Fuses shall not be used for surge protection. All systems and components shall be equipped with lightning protection devices. Lighting protection system shall be designed to meet the requirements of NFPA 780.

D. TELEPHONE / DATA SYSTEMS

From the main telecommunications entrance facility, backbone cabling shall be provided to telecommunications rooms and ADP rooms where they will be terminated onto 110 style telephone punch blocks.

Individual telephone outlets will be located and provided as related to the use of the space and as directed by ICE staff. One-inch (25 mm) minimum conduit stub-ups will be provided for each telephone outlet, from the outlet to above the ceiling (in areas with suspended acoustic tile ceilings) or to accessible ceiling spaces (in areas with security type ceilings). From each telephone outlet, category 6 UTP horizontal telephone cabling will be provided to the 110-style telephone punch blocks in the telecommunications room. Modular jacks shall be the same category as the cable they terminate.

Individual data outlets will be located and provided as related to the use of the space and as directed by ICE staff. One-inch (25 mm) minimum conduit stub-ups will be provided for each data outlet, from the outlet to above the ceiling (in areas with suspended acoustic tile ceilings) or to accessible ceiling spaces (in areas with security type ceilings). From each data outlet, category 6 UTP telephone cabling will be provided to respective data wiring closet,

where it will be terminated into a category 5e patch panel in a standard 19" aluminum rack.. Modular jacks shall be the same category as the cable they terminate. Fiber optic cabling will be provided for inter-connection of the ADP room and individual telecommunications rooms.

Data and telephone outlet boxes shall be 4-11/16" (119 mm) square by 2-1/8" (54 mm) with a minimum 3/8" (10 mm) deep single or two gang plaster ring and a minimum 1" (25 mm) conduit stubbed to the nearest accessible space.

A telecommunications grounding system shall be provided at each building which includes a telecommunications main ground busbar (TMGB) that is installed in the telecommunications entrance facility and is connected to the main electrical service ground. Each telecommunications room shall be provided with a telecommunications ground busbar (TGB) that is connected back to the TMGB and is used to ground equipment racks, cable tray, etc. in the TR via grounding conductors.

E. COMMUNITY ANTENNA TELEVISION (CATV) SYSTEM

A complete CATV system shall be provided, which will include all devices, cable, splitters, line taps, equipment, and conduit from each CATV outlet to the location of the CATV interior backboard with extension of conduit to location of satellite dish. CATV system shall be star typology with each outlet connected to headend equipment with the drop cable. System shall provide high quality TV signals to all outlets with a return path for interactive television and cable modem access. Downstream bandwidth shall be 50 – 750 MHz minimum. Upstream bandwidth shall be 5 – 40 MHz minimum. Each termination for a TV receiver must have a minimum signal level of 0 decibel millivolts (dBmV) (1000 microvolt) at 55 MHz and 0 dBmV (100 microvolt) at 750 MHz and a maximum signal of 15 dBmV or a level not to overload the receiver for the entire system bandwidth.

CATV outlets shall be provided at the following locations or as further identified at each specific facility:

Detainee dayroom
Detainee holding rooms
Detainee infirmary rooms
Staff conference room
Staff break room

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Part C Technical Material

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PART C TECHNICAL MATERIAL

A. INSTRUCTIONS FOR USE

Part C contains Guide Drawings, Technical Specifications, and Catalogue Cuts for construction assemblies and products relating to detention aspects. These reference materials establish a minimum level of security. Application of these materials to actual detention projects must be made with proper consideration for project specific conditions.

B. GUIDE DRAWINGS

General Drawings

01-101	"High" Security Walls
01-102	"Medium" Security Walls
01-103	"Low" Security Walls
01-104	Typical Security Wall Types at Housing – 1st Floor
01-105	Typical Security Wall Types at Housing – 2nd Floor
01-106	Typical Security Wall Types at Master Control
01-107	Typical Security Wall Types at Holding
01-108	Top of Security Wall Closure to Concrete Slab
01-201	Typical Detainee Cell Plan with Concrete Masonry
01-202	Typical Detainee Accessible Cell Plan with CMU
01-203	Typical Cell Plan with Precast Concrete Modular Cell
01-204	Typical Cell Interior Elevations
01-205	Typical Accessible Interior Elevations

Sitework

02-101	Site Security Concept
02-102	Fence Type 1 – Double Perimeter Security Fence
02-103	Fence Type 2 – Security Fence
02-104	Fence Type 3 -- Vehicular Sallyport Security Fence
02-105	Fence Type 5 – Security Fence
02-106	Fence Type 2 – Security Fence at Corners
02-107	Fence Type 3 – Sallyport

02-108 Vehicle Sallyport Gate Elevation
02-109 Typical Fence Section at Vehicular Sallyport
02-110 Fence Plan Detail at Building
02-111 Fence Type 4 – Typical Recreation Yard Enclosure
02-112 Traffic Control Gates
02-113 Vehicle Sallyport Gate Elevation
02-114 Buried Fabric Detail
02-115 Typical Fence Section at Vehicular Sallyport
02-116 Fence Type 1 Side View of Outer Fence
02-117 Fence Type 1 Side View of Inner Fence
02-118 Typical Fence Ties

Detention Windows

08-101 Cell Window Elevation
08-102 Cell Window Head Detail at CMU
08-103 Cell Window Cell at CMU
08-104 Cell Window Jamb at CMU
08-105 Cell Window Head at Precast
08-106 Cell Window Cell at Precast
08-107 Cell Window Jamb at Precast

Detention Equipment

11-101 Typical High and Medium Security Cell Door
11-102 Typical Segregation Shower Door
11-103 Typical Exterior Recreation Door
11-104 Typical High and Medium Security Sallyport
11-105 Typical Sliding Detention Door at Exterior
11-106 Typical Sliding Detention Door at Corridor to Dayroom
11-107 Typical Holding Room Door

11-201 Frame Anchor Details
11-202 Detention Hollow Metal Frame Infill Conditions
11-203 Hinge Reinforcement at Detention Hollow Metal Frame
11-204 Detention Hollow Metal Frame Glazing
11-205 Detention Hollow Metal Frame Details
11-206 Typical Detention Hollow Metal Profiles
11-207 Detention Hollow Metal Jamb at CMU
11-208 Detention Hollow Metal Cell Door Jamb at Precast
11-209 Detention Hollow Metal Jamb at Concrete Wall
11-210 Detention Hollow Metal Jamb at Lock Side
11-211 Detention Hollow Metal Jamb at Exterior Precast
11-212 Detention Hollow Metal Head at Steel Lintel
11-213 Detention Hollow Metal Head at CMU Lintel

11-214	Detention Hollow Metal Sill at CMU
11-215	Detention Hollow Metal Sill at CMU
11-216	Detention Hollow Metal Sill at Floor
11-217	Sliding Door Head Detail at Exterior CMU Cavity Wall
11-218	Sliding Door Head Detail
11-219	Sliding Door Head Detail at Window
11-220	Intermediate Window Mullion Detail
11-221	Sliding Door Jamb/Window Mullion Detail
11-222	Sliding Door Receiver Detail
11-223	Door and Window Mullion Detail
11-224	Food Pass / Handcuff Elevation
11-225	Food Pass / Handcuff Section
11-226	Fire Hose Pass
11-227	Fire Hose Pass

11-301	Safety Hooks with Shelf
11-302	Safety Hooks with Shelf Section
11-303	Cell Bunk Detail
11-304	Cell Bunk Alternate Detail
11-305	Cell Bunk Support Section
11-306	Security Grab Bar Detail
11-307	Wall Mounted Stool Anchor Plate Detail
11-308	Dayroom Table Base Detail

Mechanical

15-101	Negative Pressure Isolation Room Concept Layout
15-201	Duct Penetration Through High and Medium Security Wall
15-202	Secure Air Distribution Device at Detainee Accessible Wall
15-203	Fire Damper at High and Medium Security Wall Duct Penetration

C. TECHNICAL SPECIFICATIONS

Section 02831 – Security Fences and Gates
Section 04810 – Unit Masonry Accessories
Section 07900 – Joint Sealants
Section 08651 – Stainless Steel Detention Windows
Section 08800 – Glass & Glazing
Section 09750 – Special Finishes
Section 09960 – High-Performance Coatings
Section 11190 – Detention Equipment General Provisions
Section 11191 – Detention Hollow Metal
Section 11192 – Detention Door Hardware
Section 11193 – Detention Furnishings, Equipment, and Accessories
Section 11195 – Woven Security Mesh Partitions

Section 11196 – Security Fasteners
Section 11197 – Vehicular and Pedestrian Gate and Gate Operator
Section 11199 – Detention and Non-Detention Door and Hardware Schedule
Section 13131 – Prefinished Precast Concrete Modular Cell Units
Section 13800 – Electronic Security System General Requirements
Section 13810 – Controls, Consoles, Cabinets, and Enclosures
Section 13811 – Control Panels
Section 13812 – Video Touch Screen Control System
Section 13821 – Electronic Control System
Section 13825 – Intercom and Paging System
Section 13827 – Video Surveillance / CCTV System
Section 13830 – Staff Duress System
Section 13831 – Perimeter Alarm System

D. CATALOGUE CUTS

Sitework

Gate Operator
Fortified Impact Gate

Detention Door Hardware

H1	Full Mortise Hinge
DP1	Raised Door Pull
DP2	Recessed Door Pull
DPS	Door Position Switch
DC	Door Closer
ML 1 / ML 4	Institutional Mortise Lock
ML 50	Deadlock
ML 51	Deadlatch
GL 1	Electro-Mechanical Gate Lock
GL 2 / ML 43	Combination Spring and Dead Lock
EL 1	Electro-Mechanical Deadlatch (50 mm frame)
EL 3	Electro-Mechanical Deadlatch (203 mm frame)
ED 4	Electrical Sliding Doors

Detention Equipment

D 1	Book Shelf / Safety Hook Unit
D 2	Safety Clothes Hook
D 3	Mirror
D 6	Wall Mounted Bunk
D 7	Writing Surface
D 8	Wall Mounted Detention Stool - Fixed
D 9	Wall Mounted Detention Stool – Swivel
D 23	TV Shelf
D 25	Four Person Dining Table
D 30	Utility Shelf and Mop Strip

Plumbing Fixtures

Lavatory-Toilet Combination Fixture (Comby)	Acorn 1418 Series
Lavatory-Toilet Handicap Comby	Acorn 1428 Series
Lavatory with Oval Bowl – ADA Compliant	Acorn 1652 Series
Blowout Jet Toilet – Off –floor	Acorn 1675 Series

Penal-Pak Wall Shower – ADA Compliant Series	Acorn 1741ADA
Penal-Pak Wall Shower	Acorn 1741 Series

Light Fixtures

Cell Ceiling Light Fixture	Kenall SCH Series
Dayroom Ceiling Light Fixture	Kenall SQCD Series
Detainee Shower Ceiling Light Fixture	Kenall SSD Series
Dayroom Cell Balcony Overhang	Kenall SSA Series

End Part C

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Part D Appendix

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PART D APPENDIX

A. ABBREVIATIONS/DEFINITIONS

ACA	American Correctional Association
A/E	architect/engineer
AHJ	authority having jurisdiction
AHU	air handling unit
AIA	American Institute of Architects
ASHRAE	American Society of Heating, Refrigeration, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
CCTV	closed circuit television
CMU	concrete masonry units
CO	contracting officer
COTR	contracting officer technical representative
DDC	direct digital control
DEC	detention equipment contractor
detainee	an individual who is held by ICE until his legal citizenship status is determined
DHM	detention hollow metal
DHS	US Department of Homeland Security
EOIR	Executive Office for Immigration Review which determines the outcome of an applicant's request for admission and residency within the U.S.
ESC	electronic security contractor
GC	general contractor
HVAC	heating, ventilating, and air-conditioning
ICE	Immigrations and Customs Enforcement
LAN	local area network
MCS	modular cell supplier

non-secure	operational components with no detainee access, located outside the primary secure perimeter
NFPA	National Fire Protection Association
SDEC	security detention equipment contractor
secure perimeter	physical barrier beyond which detainees are not allowed
SGFT	structural glazed facing tile
SMACNA	Sheet Metal and Air-Conditioning Contractor's National Association
SPC	Service Processing Center – a detention center operated by ICE
VAV	variable air volume

REQUEST FOR VARIANCE FROM SPC STANDARDS

(Submit this form to the appropriate contact person(s) within ICE)

Due to certain considerations related to specific site, security, and/or operational issues for the following site:

_____

We are forwarding a request for the following variance(s) to the *SPC Detention Construction Standards.*

Variance Description	Reason for Request
_____	_____
_____	_____
_____	_____
_____	_____

(Attach information as necessary to fully document the reason(s) for Variance Request.)

Submitted by

_____	_____	_____
Printed Name	Organization	Date

_____	_____	_____
Address	Phone	E-mail

Reviewed by:
Comments:

_____	_____	_____
Project Manager	Immigration and Customs Enforcement	Date

_____ Approved _____Rejected
Comments:

_____	_____	_____
Deputy Director of Detention and Removals	Immigration and Customs Enforcement	Date