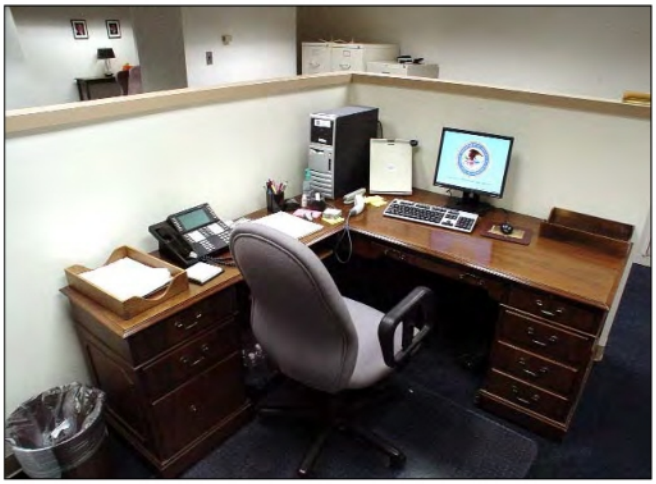
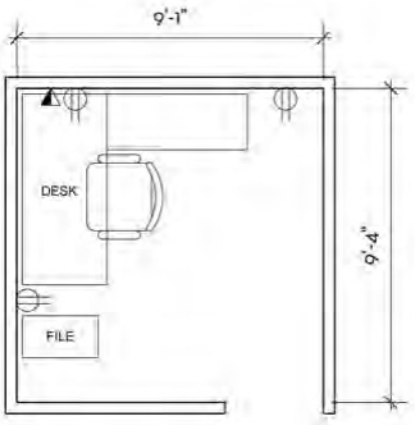
2.0 Administrative Unit - Room Data Sheet

2.5 SUPPORT WORKSTATION

Function
The Support Workstation consisting of low fixed gypsum board partitions. This area houses clerks, legal technicians, the receptionist and interpreters. Depending on the layout of the partitions - the individual workstation may have a left or right handed “L”-shaped desk. Also within this area are shared printers. One of the workstations will function as the Receptionist and may be occupied by a Legal Technician or Interpreter.



Photograph



Floor Plan (85 nsf)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

2.5 SYSTEMS MATRIX

Walls	*Floors*	*Ceiling*	*Doors*	*Hardware*	*Glazing*
See Appendix - Section 5 - Finish Schedule Full Security Partition in Receptionist Area	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	Ballistic - Reception Only

Plumbing	*HVAC*	*Lighting*	*Power*	*Security*	*Communications*
N/A	Typical	Recessed Fluorescent	110v Duplex - All 54" H Partitions	See Schedule Below	Telephone and Data - All 54" H Partitions

2.5 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	*Item*	*Vendor**	*Style*	*Model #*	*Qty.*
FURNITURE					
F	"L" Desk Righ Return	UNICOR	Symphony	S-68R9-01-WN	TBD
F	"L" Desk Left Return	UNICOR	Symphony	S-68L9-01-WN	TBD
F	File Cabinet (2-drawer, letter size)	UNICOR	Putty	312P	1
F	Desk Chair (High Back/Adj.)	UNICOR	Classic Ergo	WP8007-BLK-3501	1
F	File Compressor	UNICOR		CIVISCF	1 Drawer
F	Waste Receptacle				
EQUIPMENT					
N/A					
HARDWARE					
N/A					
RECEPTION WINDOW					
FURNITURE					
F	"L" Desk Right Return, or	UNICOR	Symphony	S-68R9-01-WN	1
F	"L" Desk Left Return	UNICOR	Symphony	S-68L9-01-WN	1
F	File Cabinet (2-drawer, letter size)	UNICOR	Putty	312P	1
F	Desk Chair (High Back/Adj.)	UNICOR	Classic Ergo	WP8007-BLK-3501	1
EQUIPMENT					
BI	Ballistic Transaction Window	Armortex		SSTW-10	1
HARDWARE					
BI	Duress Alarm Button				1
BI	2-way Communicator	Haven Technologies		SC-300	1
BI	Closer, Door	LCN		4040	1
BI	Speaker - Glass Mounted	ARMORTEX		SSBRS-7	1
BI	Electronic Keypad	Radionics or Ademco	Vista	D1225 or 6139	1
BI	Electronic Door Release				1
BI	Peephole (190 degrees)	IVES		698	1
BI	Cypher Lock	Trilogy		DL2700	1
BI	Door Buzzer			BZ-24	1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

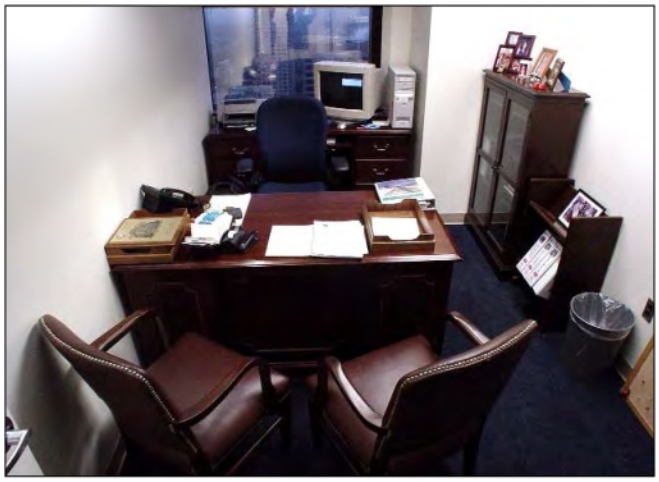
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

2.0 Administrative Unit - Room Data Sheets

2.6 SUPERVISORY INTERPRETER OFFICE

Function
The Supervisory Interpreter Staff supervises interpreters and provides administrative and court support. The Supervisory Interpreter is responsible for the following:

- ✓ General staff administrative functions
- ✓ One to One supervision, work assignment(s), scheduling and consultation



Photograph

Floor Plan (130 nsf)

SYMBOL LEGEND: △ Voice Outlet ◭ Voice/Data Outlet ▲ Data Outlet ⊖ Duplex Outlet △ ISDN Outlet D Duress Alarm Outlet

2.6 SYSTEMS MATRIX

Walls	*Floors*	*Ceiling*	*Doors*	*Hardware*	*Glazing*
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	Exterior Windows

Plumbing	*HVAC*	*Lighting*	*Power*	*Security*	*Communications*
N/A	Typical	Recessed Fluorescent	110v Duplex	N/A	Telephone and Data - 2 Walls

2.6 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	*Item*	*Vendor**	*Style*	*Model #*	*Qty.*
FURNITURE					
F	Desk	UNICOR	Symphony	S-6830-01-WN	1
F	Credenza (Kneespace)	UNICOR	Symphony	S-6820-09-WN	1
	or (Double Door)	UNICOR	Symphony	S-6820-01-WN	1
F	Bookcase (4-shelf, open)	UNICOR	Symphony	S-3520-12-WN	1
F	Lateral File (Two Drawer)	UNICOR	Symphony	S-3520-09-WN	1
	or (Four Drawer)	UNICOR	Symphony	S-3520-10-WN	1
F	Desk Chair (High back/Panel Arms)	UNICOR	Classic Ergo	WP8007-BLK-3501 (Ebony 3501)	1
F	Side Chair	UNICOR	Soprano	WVC6120-WN-7612	2
F	Waste Receptacle				1
EQUIPMENT					
N/A					
HARDWARE					
BI	Door Hardware Lockset**		Classroom Function		1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 COMMON SUPPORT UNIT REQUIREMENTS

- Function
- Workflow Patterns
- Room Data Sheets

3.0 Common Support Unit - Function

FUNCTION STATEMENT
The Common Support Unit contains the space which help support the daily roles and responsibilities of the EOIR Court staff. As such, the spaces should be located in a centralized location for easy access.

Design Criteria

Critical Issues

- ✓ The Common Support Unit should be centrally located for easy staff access.

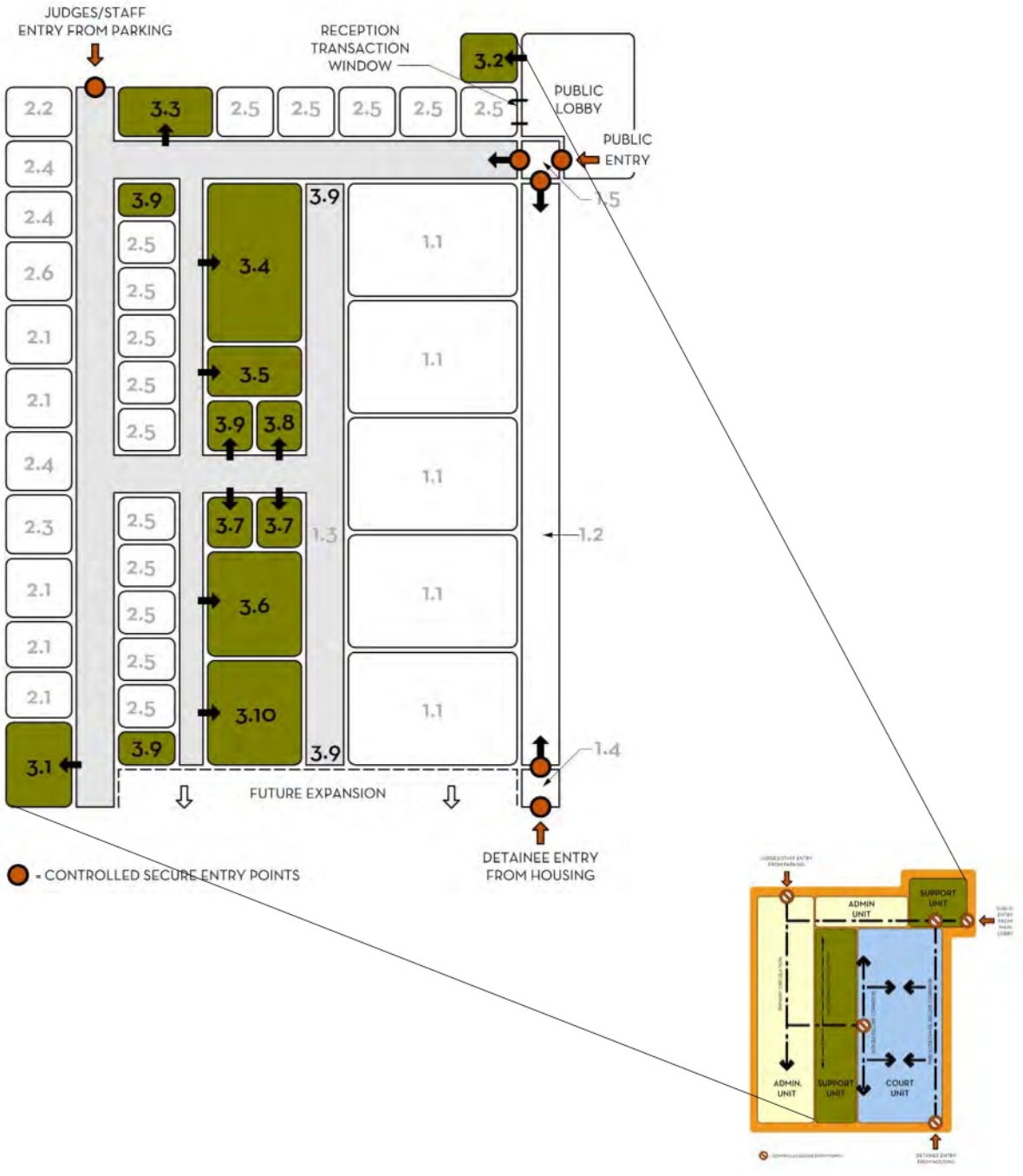
Special Requirements

- ✓ The Common Support Unit houses a secure File Room, Computer Room and work areas requiring special equipment data and power requirements.
- ✓ The Waiting Room is separated from a Reception Work Station by a Ballistic Transaction Window installed in a secure partition.

Space Requirements

3.0 COMMON SUPPORT UNIT
3.1 Conference Room
3.2 Pro Bono Room
3.3 Copier/Mail Room
3.4 File Room
3.5 Computer (ADP) Room
3.6 Break Room
3.7 Staff Restrooms
3.8 Janitor Closet
3.9 Printer Workstation
3.10 Supply Room

3.0 Common Support Unit : Organizational Diagram



EOIR Diagram

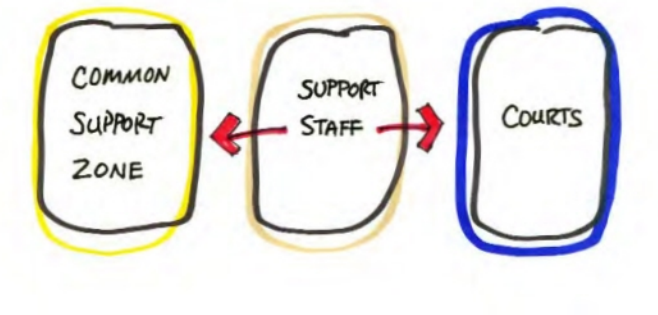
3.0 Common Support Unit - Workflow Patterns

INTRODUCTION

The diagrams on the following page (p4.47) illustrate some of the most critical workflow issues and patterns of the Common Support Unit.

3.0 Common Support Unit : Critical Workflow Patterns

1. "CENTRAL SUPPORT"
The support functions shall be located centrally for ease of access between the judges and administrative staff moving between the courtrooms, administrative and support spaces.



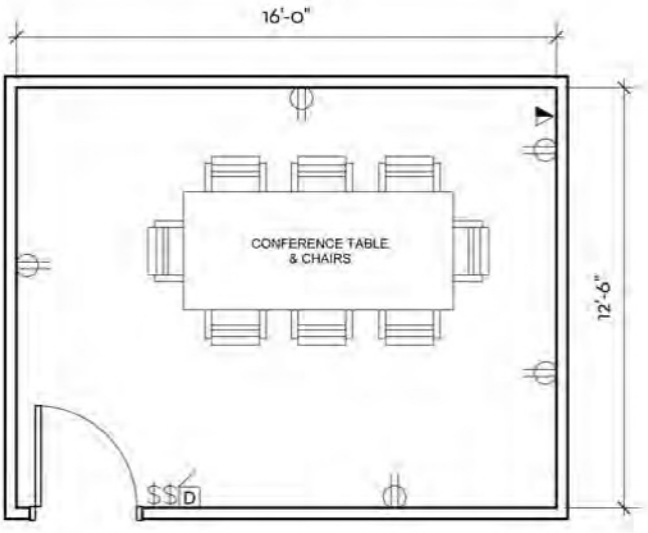
3.0 Common Support Unit - Room Data Sheet

3.1 CONFERENCE ROOM

Function
The Conference Room is provided in each EOIR Court suite and will increase in size proportionate to the number of courtrooms/staff. The conference room is used for the following:

- ✓ Meetings
- ✓ Conferences
- ✓ Intermittent training

Photograph



Floor Plan (Size determined by number of courtrooms)

SYMBOL LEGEND: △ Voice Outlet ◭ Voice/Data Outlet ▲ Data Outlet ⊖ Duplex Outlet ⚠ ISDN Outlet D Duress Alarm Outlet

3.1 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	190 Degree Peephole in Door

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent	110v Duplex - 6	Duress Alarm Button - 110V	Telephone and Data

3.1 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Table 12'	UNICOR	Symphony	S-14448-03-WN	TBD
F	Table 10'	UNICOR	Symphony	S-12048-03-WN	TBD
F	Table 8'	UNICOR	Symphony	S-964201-WN	TBD
F	Chairs	UNICOR	Minuet	WVC7232-BLK-7612	TBD
F	Waste Receptacle				1
EQUIPMENT					
NA					
HARDWARE					
BI	Door Peephole - 190 Degrees	Ives		698	1
BI	Lockset				1
BI	Duress Alarm - Wall Mounted				1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

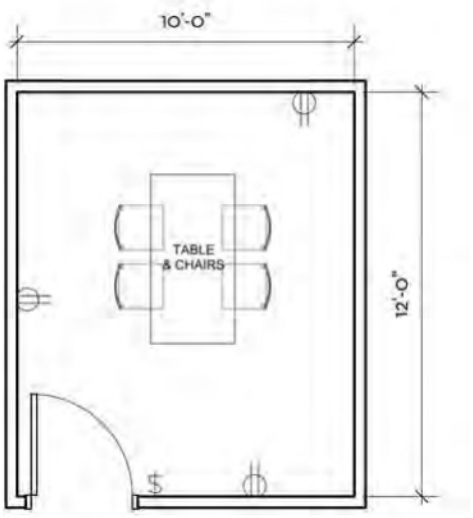
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 Common Support Unit - Room Data Sheet

3.2 PRO BONO ROOM

Function
The Pro Bono Room is used by private counsel representing a respondent on a pro bono basis and who require meeting time prior to a scheduled hearing. The room shall be located adjacent and accessible to the Waiting Room to preclude entrance into EOIR Court's secure area.

Photograph



Floor Plan (120 nsf)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.2 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - for Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent	110v Duplex - 3		N/A

3.2 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Table	UNICOR	Rhythm	R03060TA1SAJBC	1
F	Chair	UNICOR	Overture	MXPLNAPY-CH-BL	4
F	Waste Receptacle				1
EQUIPMENT					
N/A					
HARDWARE					
BI	Latchset				1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

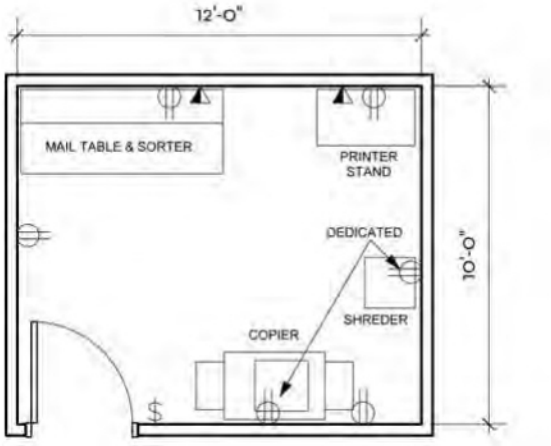
3.0 Common Support Unit - Room Data Sheet

3.3 COPIER/MAIL ROOM

Function
The Copier/Mail Room is used for mass printing for Courtroom proceedings and record-keeping, mail receipt, processing and distribution for EOIR Court staff. The Copier/Mail Room will contain the following as a minimum:

- ✓ One photocopier
- ✓ One shredder
- ✓ Fax
- ✓ Postage meter
- ✓ Mail center
- ✓ Form sorter

Photograph



Floor Plan (120 nsf)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.3 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent	TBD Based on Dedicated Equipment Circuits	N/A	Fax, Mail Machine, Telephone and Data - 2 Analog Lines Required

3.3 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Mail Table	Charnstrom	Putty/Walnut	A987W	1
F	Mail Table Sorter	Charnstrom	Putty	P787	1
F	Waste Receptacle				1
EQUIPMENT					
BI	Copier	DOJ			1
BI	Postage Meter	DOJ			1
BI	Shredder	DOJ			1
BI	Fax Machine	DOJ			1
HARDWARE					
BI	Lockset		Building Standard Latchset		1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 Common Support Unit - Room Data Sheet

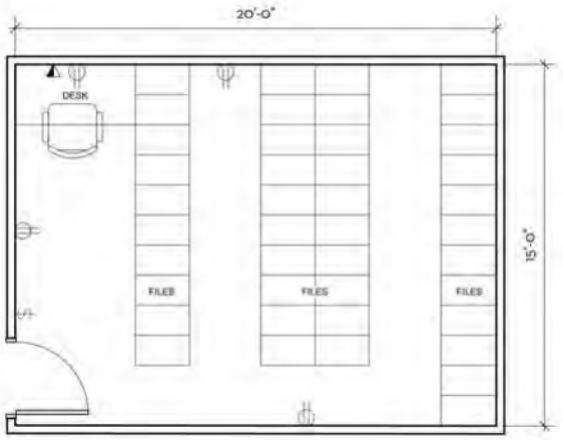
3.4 FILE ROOM

Function
The File Room is used to secure files. The size of the File Room will vary proportionately to the number of courtrooms. The worktable is for use by a support staff in closing out/retiring files. The Case File Room shall be in close proximity to the Administrative Staff.

Following are functional uses of the Case File Room:

- ✓ Storage of court case records
- ✓ Completion of case closeout files

Photograph



Floor Plan (Size determined by number of courtrooms)

SYMBOL LEGEND: △ Voice Outlet ◭ Voice/Data Outlet ▲ Data Outlet ⊖ Duplex Outlet △ ISDN Outlet D Duress Alarm Outlet

3.4 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent Connected to Emergency Generator	110v Duplex	Electronic Strikes and Cipher Locks - See Schedule Below	Data

3.4 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Work Table	UNICOR	Rhythm	R03060TA1SAJBC	1
F	File Cabinet, 5 Drawer, Locking	UNICOR	Sand	VER15305DFB28	15/Court Room
F	Compressors for Vertical Files	UNICOR		CIVISCF	1 Drawer
F	Chair (High Back/Adj.)	UNICOR	Classic Ergo	WP8007-BLK-3501	1
F	Waste Receptacle				1
EQUIPMENT					
N/A					
HARDWARE					
BI	Cypher Lock	Trilogy	Key Bypass	DL2700	1
BI	Door Closer	LCN	w/Holdopen	LCN 4040	1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing

3.0 Common Support Unit - Room Data Sheet

3.5 COMPUTER (ADP) ROOM

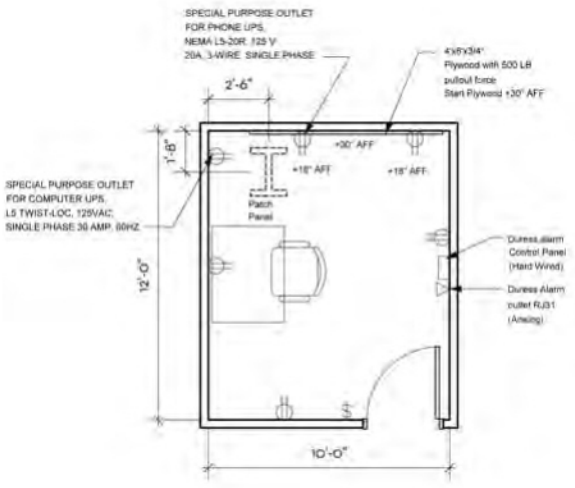
Function
The Computer (ADP) Room is used for termination of network cabling into EOIR Court server equipment. Termination occurs in the LAN within a “Patch Panel”.

The following are Computer Room functions:
- ✓ Computer cabling terminations
- ✓ Main server equipment location
- ✓ Computer cabling terminations

Critical Requirements

- ✓ 3/4 ton split air conditioning unit (ACU) with remote condenser, that operates 24/7/365. The ACU will have the capacity to control both temperature and humidity

Photograph



Floor Plan (120 nsf)

SYMBOL LEGEND: △ Voice Outlet ◭ Voice/Data Outlet ▲ Data Outlet ⊖ Duplex Outlet ⚠ ISDN Outlet D Duress Alarm Outlet

3.5 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Auxiliary - See Equipment Matrix	Recessed Fluorescent	Special Purpose Duplex Nema L5-20R and L5-30R (twist lock), 120v, 20A 3-wire single phase Individual branch circuit - orange outlet	See Schedule Below	Telephone and Data

3.5 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Bench w/Casters	Anthro		B4829BK/BK	1
F	Chair	UNICOR	Classic Ergo	ZZUST2032-3601	1
F	Waste Receptacle				1
EQUIPMENT					
BI	Auxiliary - self contained, above ceiling m'ntd, 3/4 ton				1
	A/C Unit				
BI	Server Rack				1
BI	Computer Patch Panels (48 port)				1
BI	Phone Patch Panel Board (4'x8')				
DOJ	UPS, Servers, PCs / Monitors	DOJ			
HARDWARE					
BI	Closer w/automatic hold open feature	LCN	w/holdopen	LCN 4040	1
BI	Cypher Lock	Trilogy	Key Bypass	DL2700	1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 Common Support Unit - Room Data Sheet

3.6 BREAK ROOM

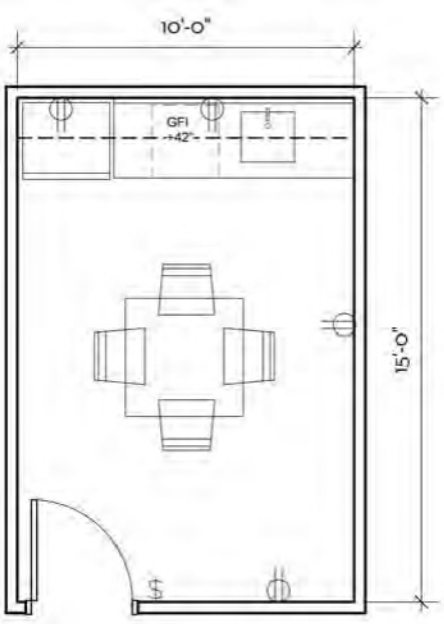
Function
The Break Room is used for staff food storage and preparation and for staff lunch/coffee breaks. A small table is provided for seating of up to four people.

In addition, to the use by employees during regular working hours, there is an ongoing requirement for individuals that may be required to work after hours and weekends. The size/number of Break Rooms will be proportional to the number of courtrooms, with one Break Room per floor in those Immigration Courts that are on multiple floors. A refrigerator will be provided in each Break Room

Following are functional uses of the Break Room:

- ✓ Lunch room
- ✓ Storage of food and drinks
- ✓ Employee Breaks

Photograph



Floor Plan (150 nsf)

SYMBOL LEGEND: △ Voice Outlet ◭ Voice/Data Outlet ▲ Data Outlet ⊖ Duplex Outlet △ ISDN Outlet D Duress Alarm Outlet

3.6 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
Faucet & Sink w/Disposal	Typical w/Air Exhaust	Recessed Fluorescent	110v Duplex - GFI	Small Appliance Dedicated 20 amp Circuit	N/A

3.6 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Seating	UNICOR		MXPLNAPY-CH-BL	4
F	Table	UNICOR		R04242TA1XAJBB	1
F	Waste Receptacle (Mid-size)				2
EQUIPMENT					
BI	Upright Refrigerator/Freezer		White (18 c.u.)		1
BI	Base Cabinets, 6 LF Total				1
BI	Wall Cabinets, 6 LF Total				1
BI	Counter Top, 6 LF Total				1
BI	Air Exhaust System (200 CFM)	Penn Zepher		Z-10	1
BI	Faucet & Sink w/Disposer		Stainless Steel		1
HARDWARE					
BI	Latchset				

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

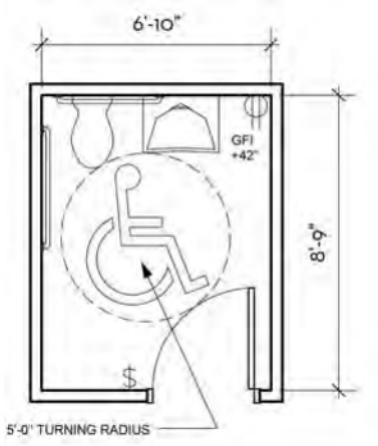
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 Common Support Unit - Room Data Sheet

3.7 STAFF RESTROOMS

Function
The Staff Restrooms are single use rooms located within the EOIR court suite so that staff and Judges do not have to leave the secure EOIR Court suite to access restroom facilities.

Photograph



Floor Plan (56 nsf)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.7 SYSTEMS MATRIX

Walls	*Floors*	*Ceiling*	*Doors*	*Hardware*	*Glazing*
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Doors	See Schedule Below	N/A

Plumbing	*HVAC*	*Lighting*	*Power*	*Security*	*Communications*
Fixture Water and Waste Lines	Toilet Exhaust	Recessed Fluorescent	110v Duplex - GFI	N/A	N/A

3.7 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	*Item*	*Vendor**	*Style*	*Model #*	*Qty.*
FURNITURE					
N/A					
EQUIPMENT					
By Owner	Toilet - Flush Valve	***			1
By Owner	Lavatory - Wall Mounted	***			1
By Owner	Grab Bars	***			2
By Owner	Toilet Paper Dispenser	***			1
By Owner	Toilet Seat Cover Protector Dispenser	***			1
By Owner	Semi-recessed Paper Towel/Waste Receptacle	***			1
By Owner	Soap Dispenser	***			1
By Owner	Feminine Napkin Disposal Unit (Women's Restroom)	***			1
By Owner	Wall Mirror	***			1
HARDWARE					
By Owner	Lockset	***	Push Button/Privacy		1

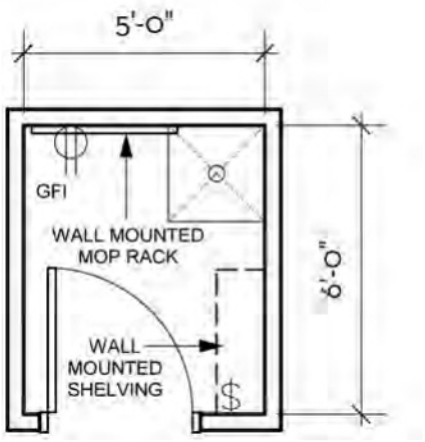
* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.
*** Item provide by owner as part of CDF build-out.

3.0 Common Support Unit - Room Data Sheet

3.8 JANITOR CLOSET

Function
A janitor's closet with a mop sink and room for storage of cleaning products and equipment will be located within the EOIR Court suite.

Photograph



Floor Plan (30 nsf)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.8 SYSTEMS MATRIX

Walls	*Floors*	*Ceiling*	*Doors*	*Hardware*	*Glazing*
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	*HVAC*	*Lighting*	*Power*	*Security*	*Communications*
Floor Mop Sink	Exhaust Fan	Recessed Fluorescent	110v Duplex - GFI	N/A	N/A

3.8 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	*Item*	*Vendor**	*Style*	*Model #*	*Qty.*
FURNITURE					
N/A					
EQUIPMENT					
By Owner	Floor Sink, 3'x3' w/6" curb	***			1
By Owner	Wall Mounted Mop Rack	***			1
By Owner	Wall Mounted Shelving	***			1
HARDWARE					
By Owner	Latchset	***			1

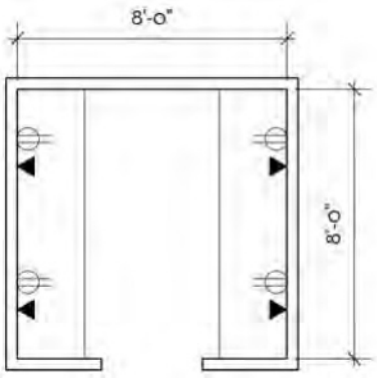
* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.
*** Item provide by owner as part of CDF build-out.

3.0 Common Support Unit - Room Data Sheet

3.9 PRINTER WORKSTATION

Function
A Printer Workstation is a dedicated space for document printing and management of print files. The size of the Printer Workstation is proportionate to the number and Courtrooms served.

Photograph



Floor Plan (64 nsf, Qty. determined by No. of courtrooms)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.9 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	N/A	N/A	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent	110v Duplex	N/A	Data Outlets

3.9 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Printer Stand	UNICOR	Symphony	S-192007-WN	TBD
F	Printer Stand	UNICOR	Symphony	S-352007-WN	TBD
F	Waste Receptacle				TBD
EQUIPMENT					
N/A					
HARDWARE					
N/A					

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

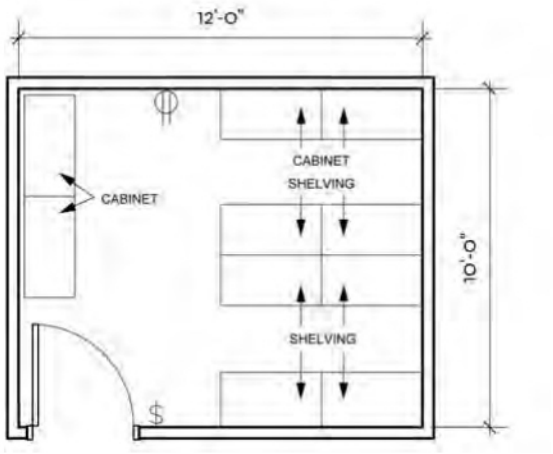
** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

3.0 Common Support Unit - Room Data Sheet

3.10 SUPPLY ROOM

Function
The Supply Room is used to stock boxes of copier paper, supply cabinets, blank transcription tapes, standard forms and stacked boxed files.

Photograph



Floor Plan (Size determined by number of courtrooms)

SYMBOL LEGEND: Voice Outlet | Voice/Data Outlet | Data Outlet | Duplex Outlet | ISDN Outlet | Duress Alarm Outlet

3.10 SYSTEMS MATRIX

Walls	Floors	Ceiling	Doors	Hardware	Glazing
See Appendix - Section 5 - Finish Schedule	See Appendix - Section 5 - Finish Schedule	ACT - 8' High	Solid Core Wood	See Schedule Below	N/A

Plumbing	HVAC	Lighting	Power	Security	Communications
N/A	Typical	Recessed Fluorescent	110v Duplex	N/A	N/A

3.10 FURNITURE - EQUIPMENT - HARDWARE SCHEDULE

ID	Item	Vendor*	Style	Model #	Qty.
FURNITURE					
F	Cabinet	UNICOR	Grey	CSCA18367829	4
F	Shelving	UNICOR	Grey	BSU0136188729	6
F	Waste Receptacle (Large)				1
EQUIPMENT					
N/A					
HARDWARE					
BI	Closer	LCN	w/holdopen	LCN4040	1
BI	Lockset (Cypher Lock)	Trilogy	Key Bypass	DL2700	1

* Vendor names are listed as a point of reference for equipment specs. Equal products by other manufactures can be used.

** Lockset to be determined based on CDF facility requirements. Where an existing facility is being modified, new hardware shall be compatible with existing preference is for electronic keyless entry - via card readers or cipher locks. Each system must provide for key override.

4.68

TECHNICAL REQUIREMENTS

Technical Requirements

HANDICAPPED ACCESSIBILITY
Accommodations for the handicapped shall be provided in accordance with the Uniform Federal Accessibility Standards (UFAS), which identifies standards for complying with accessibility provisions contained in the Architectural Barriers Act, 42 U.S.C. 4251-4157, and/or applicable local codes, regulations and laws.

FIRE PROTECTION AND LIFE SAFETY
Fire Protection and Life Safety requirements shall be in accordance with local statutes. Notwithstanding this provision, the requirements shall comply with National Fire and Protection Association, National Fire Codes, Occupational Safety and Health Administration standards, and applicable local and/or national codes.

ELECTRICAL
The installation of two isolated ground duplex outlets with a limit of four isolated ground outlets per circuit shall be provided per 125 square feet of space. For each position, there shall be one quadruplex outlet (or equivalent). All power wiring shall be in floor, wall, or ceilings. No power poles are allowed. Panelboards shall have spare circuit spaces, which shall be defined by EOIR with each space request.

One electrical closet per 10,000 square feet shall be provided with sufficient ventilation. Notwithstanding this provision, a minimum number and location of outlets required by local and/or national codes shall be adhered to.

COMPUTER LAN REQUIREMENTS
For each workstation, individual data cabling (Cat6, 8-wire twisted pair plenum rated) shall be provided. Cable drops will originate at each workstation location marked on the provided floor plan with a single 8-pin, RJ45 jack (pin-out configuration: 1,2;3,6;4,5;7,8) and will terminate and be hard wired into the back of a patch panel the meets TIA/EIA-568B Category 6 standards in the computer room. The patch panel shall be installed in a floor-mounted upright distribution rack. Each end to be clearly marked to uniquely identify each cable in the computer room and each cable at the workstation location. All cable runs to be tested for Category 6 certification. Each cable run will be supplied with a 10'-0" Cat6 patch cord at the workstation location and a 3'-0" Cat6 patch cord at the patch panel location in the computer room.

The computer room will be provided with three (duplex) NEMA L5-20R receptacles (orange), 125 Volt, 20 Amp, 3-wire single phase, individual branch circuits with isolated ground; four (duplex) standard 20A and one (duplex) NEMA L5-30R twist-lock receptacle (orange), 125 Volt, 20 Amp, 3-wire single phase, individual branch circuit with isolated ground for Uninterruptible Power Source (UPS). Also, three analog phone lines shall be provided.

The computer room shall have a package ¾ ton, split air conditioning unit (ACU) with remote condenser, which will operate 24 hours a day. The ACU will have the capability to control both temperature and humidity.

MECHANICAL
Mechanical requirements shall be provided in accordance with the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Handbook and Standards.

PHYSICAL SECURITY
Physical security guidelines have been established for EOIR to afford an adequate level of uniform protection. Each guideline is designed to achieve a separate security objective. All guidelines are mutually inclusive and the absence of any component, will result in a security vulnerability. These guidelines include the following:

Public Access Control

Agency requires contiguous space. Space will be accessible to the public while providing adequate security measures, due to the highly sensitive and critical filing and archiving system and for increased personnel security. Unique building siting and/or security issues and concerns may also preclude building occupancy.

Courts shall be located in buildings where visitors are required to pass through a public access control (PAC) point or screening area comprised of a guard(s), a magnetometer, and/or X-ray equipment. Emergency exits shall be accessible to the public.

Employee Entrances: Consideration shall be given to establishing one or more separate employee entrances.

Perimeter Security

Perimeter Security is the outer security boundary which surrounds the secured area, and provides the first level of control and protection. The perimeter security guidelines will contain the following minimum components:

Site Perimeter: The perimeter of the CDF 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.

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.

Walls: Slab to slab walls; either cinder block with drywall or plaster finish, or metal stud with drywall and fiberglass insulation.

The wall surrounding the Ballistic Transaction Window (BTW) will be reinforced with 9-11 gauge steel mesh lathe. Ballistic-rated walls may be considered where appropriate.

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

Technical Requirements

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.

***Roofing / 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.

Reception Areas

Ballistic Transaction Windows: A ballistic transaction window (BTW), with a Level 3 ballistic rating (.44 Magnum) and incorporating a Natural Voice Channel and/or the indicated Level 3-rated center speech device, will be installed in immigration Court reception areas. Larger windows will be incorporated in larger courts.

The Wall surrounding the BTW will be reinforced with 9-11 gauge steel mesh lathe. Ballistic-rated walls may be considered where appropriate.

The Door leading from the reception area and/or waiting room into the staff area (generally, adjacent to the BTW) will be of solid wood construction and incorporate a keyed lockset. The door will also incorporate hardware which will enable the receptionist to remotely unlock the door by pressing a button at or near the reception desk. It shall also include a door closer and a peephole

Courtrooms

Doors: All doors will be of solid wood construction.

Doors leading from public space (i.e., waiting rooms, reception areas, and corridors, etc.) into courtrooms will incorporate keyed locking hardware and will remain locked when courtrooms are not in use. Interior doors leading from the courtrooms into the staff areas will be fitted with automatic door closers, Trilogy combination locks with no key bypass, door viewers (model to be specified by the EOIR Security Office), and a single throw deadbolt lock (unless prohibited by local codes) on the staff side of the door. The door frame will be provided with electric strike controlled by a timer.

Rail: A 3'-4" (or 40") high wood rail will separate the visitors' seating area from the judge's and attorney's area. The rail will incorporate a single-swing gate which swings away from the judge's bench towards the visitors' area.

Judges' Benches: Where feasible, judges' benches will be placed at least twelve (12) feet from the respondent(s).

Emergency Lighting: Emergency lights will be installed in all courtrooms. The lights will be incorporated into the building's electrical system and have battery back-up capability.

Duress Alarm System (DAS): Each court will be provided a DAS connected to the main CDF control room and to on-site security personnel (i.e., Detention and Deportation Officers). Upon Court occupancy of the space, the contractor must provide the Court with an Operator's Instruction Manual, and provide on-site training session on the system's operation.

The DAS performs two critical functions:

1. It alerts the court's staff and the designated monitoring facilities to a security situation within the court; and

2. When incorporated into the Electronic Door Release System (EDRS), it provides the judges/staff a means to expeditiously evacuate the courtroom during an emergency situation without having to use the combination lock on the interior courtroom door.

The DAS consists of the following components:

1. Duress buttons: One (1) fixed duress button each at the reception area desk or within the immediate area), the Court Administrator's desk, conference room, and at each judge's bench. Only the duress buttons affixed on the judges' benches (when tied into the EDRS) will automatically secure the door upon exit or is timed out. These doors will remain locked at all times.

There shall be the installation and wiring of a fully operational duress system, which, when activated, will summon an immediate armed response and engage ceiling mounted strobe lights. Duress system components are as follows:

1. Panic buttons shall be cylinder slide, no noise; alarm reset with key operation.
2. Controller shall be Radionics #D7212B or equivalent.

3. Electronic keypad shall be Radionics #D1255 or equivalent.
4. Strobe lights shall be SECO-LARM SL-126 ceiling/wall mount or equivalent.
5. Wiring shall be steel shield or conduit, 18-22 gauge, four conductor, copper.

Technical Requirements

Where appropriate, locking hardware will be keyed or coded (as in card swipe) to permit access by building management and engineering personnel during an emergency situation, (e.g., flooding, power outages, fire, etc.) The keyed locks will also allow authorized members of the building's cleaning staff after-hours access to the court's space.

Distribution of keys (or key cards) to court space shall be limited and a log maintained for accountability purposes. Spare keys shall be secured in a locked key cabinet, inside the Computer Room.

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 have the capability to disengage the electric strikes on the interior courtroom doors. This feature will permit the judges, in the event of an emergency, to open the door without having to use the combination lock. EOIR Security Office will specify portable (wireless) duress buttons where
appropriate.

2. Indicator panel (keypad): Shall be installed at or near the receptionist's desk/area, programmed to display which button (zone) is activated and emit a low audible alarm (e.g.. beeping sound) which can be heard in the immediate area of the panel. Alarm signals shall not be audible throughout court space nor be emitted from remote or external sounder(s)/horn(s).

3. Strobe lights: Number and locations will be determined by the EOIR Security Office. Lights will activate when any of the duress buttons are pressed.

The judge's private entrance/exit door in each courtroom will be equipped with a push button lock, viewport, deadbolt and an Electronic Door Release System (EDRS) incorporated into the duress alarm system (the duress button will activate the EDRS).

The system will require an electric strike, a momentary switch and a power supply at each courtroom door. The panic button, which will be "hardwired" to the alarm system, will require an additional set of wires leading to the power supply and the electric strike. A timer must be added so the door will remain "unlocked" until the staff exit. EDRS system components are as follows:

1. Electronic strike shall be Rutherford #7114 or equivalent.
2. Momentary switch shall be Ace II Switch Locks # 4073-70DDC.
3. Power supply shall be Securitron #BPS-12-3 or equivalent.
4. Timer shall be Securitron #TM-8.
5. Deadlbolt shall be Schlage #B680 or equivalent.
6. Viewport shall be Ives #698 or equivalent.

Door from waiting area into agency administrative area to be equipped with an electric door strike with remote release button to be accessible by the receptionist in the main work area. An electronic signal shall be located at the reception window. Components are as follows:

1. Electric strike shall be Rutherford Model 7114 (or equivalent) with BZ-24 buzzer.
2. Momentary switch, Ace II switch Locks Model #4073-70DDC or equivalent.
3. Power supply, Securitron Model BPS-12-3 or equivalent.

Electronic Door Release System (EDRS): Each interior door leading from the courtroom into the staff area will be fitted with an EDRS which will be incorporated into, and work in conjunction with, the courtrooms' duress buttons. When a duress button in a courtroom is activated (pressed), the EDRS will allow the judge/staff to effect a rapid exit from the courtroom by disengaging the electric strike on the interior courtroom door, thereby eliminating the need for the staff to press the code numbers on the door's combination lock. Button activation will also signal the appropriate monitoring facility, and/or on-site security staff (where available), activate the court's internal strobe light system, and initiate a low audible signal at the court's duress alarm panel.

The EDRS, which will work in conjunction with the door's specified locking hardware (Trilogy combination lock), will require an electric strike (Rutherford Model 7114 or equivalent) and momentary switch (Ace II Model #4073-70DDC or equivalent) at each courtroom door, while using the existing button specified for the court's duress alarm system. The button, which will be "hardwired" to the alarm system, will require an additional set of wires

leading to a power supply (Securitron Model BPS-12-3 or equivalent) and the electric strike. A timer (Securitron Model TM-8) must be added so the electric strike remains "disengaged" for no longer than fifteen (15) seconds allowing the staff sufficient time to exit. After the staff opens the door to exit the courtroom the electric strike will "re-engage" (a Door Position Switch (relay) allowing the electric strike to re-engage when the door is opened) and the door, when closed, will remain locked until the duress alarm system is reset. To further secure the staff area, a deadbolt lock (Schlage Model B680 or equivalent) will be installed on each courtroom door. The lock will be engaged after the staff enters the area.

The Statement of Work shall read as follows:

"When pressed, duress buttons installed in the courtrooms shall simultaneously disengage the electric strike only on the respective interior courtroom door, activate alarms at the appropriate on-site security, activate the court's internal strobe light system, and initiate a low audible signal at the court's duress alarm panel (keypad). A timer shall keep the electric strike disengaged until the door opens, at which time the timer will immediately shut-down so that the electric strike re-engages and door is automatically secured when closed or the door is automatically secured after the preset timer time expires. The timer shall not be set for more than fifteen (15) seconds. Once closed, the courtroom door will remain secured and the duress button will not be able to disengage the electric strike (a second time) until the threat situation is nullified and the duress system is reset."

Other Office Areas

ADP Rooms: The doors of ADP rooms will be secured with a push button (Trilogy) lock, as specified by the EOIR Security Office.

File Rooms: To control access, the room shall have ceiling high walls and the door will be secured with a lock as specified by the EOIR Security Office.

Restrooms: Restrooms shall be incorporated within court staff areas, one male and one female minimum. Doors to restrooms located outside court space shall be secured by locking hardware as specified by the EOIR Security Office, and incorporate a key bypass for building management access.

Evacuation Routes: Floor plans and/or maps of evacuation routes for bomb threats, fires and other emergencies shall be strategically posted within office areas.

Windows: A Category-2 (.08 mil) shatter-resistant film (clear or reflective) shall be applied to the interior side of all exterior windows (e.g., courtrooms, judges' chambers, administrative areas) in court spaces.

Windows of courts located in close proximity of public/private public roads/streets shall be comprised of Level III rated ballistic resistant glass. Street level windows may have to be protected with steel grillwork or metal screening.

Safety Systems

Safety systems shall be designed to meet the minimum requirements specified by the Occupational Safety and Health Administration (OSHA), for safe emergency egress. These requirements shall be coordinated with CDF facility security and safety requirements. This system includes the following.

1. Panic release bars installed on all main entrance doors and stairwell doors that sound audible alarm when opened, as per Security Specifications.

2. Electronic door strikes that are used on fire egress doors are designed to fail-safe (unlock) in the event of a power failure or emergency.

3. Fail-safe capability on selected door locks are to work in conjunction with smoke and fire alarms in those instances where emergency egress is restricted without such a configuration.

4. The use of fire certified or safety approved products install in the office (e.g., fire resistant doors and draperies.)

Communication Closet Specifications (MDF and RWC)

Typically communications closets house common equipment required to support both voice and data connectivity to workstations. Communication closets/rooms are typically centrally located on the floor, and adhere to the ANSI/TIA/EIA specifications for cable lobe lengths (e.g. maximum cable from closet to workstation will not exceed 100 meters, end-to-end). Closets/rooms shall be vertically stacked, with a sufficient number of sleeves interconnecting each closet. All wiring centers shall

Technical Requirements

comply with or support the following specifications and requirements:

General Requirements
The space shall be environmentally temperate, convenient, and professional looking.

The communication closets must have sufficient infrastructure required to support the variety of communication services provided to ICE and contractor staff. Typically this includes items such as conduits, cable trays, building grounding system, etc.

Communications closets shall be designed for growth, and flexibility supporting new technologies without the need for major room modifications and rearrangements.

Environmental
Room shall be dust free with positive air pressure where possible and meet Federal guidelines for specified material to reduce airborne contaminants caused by off gassing.

Ceilings shall be finished with similar drop tiles used throughout the floor.

Overhead lighting sufficient to provide 80 candle feet measured five feet above the finished floor, is to be switched controlled and is not to be connected to communications equipment circuits.

Care must be taken to avoid structural columns, ductwork, other building structures, which would restrict the functionality of the space.

Ceiling space above communications closets shall be open and clear of major Heating, Ventilation, and Air Conditioning (HVAC) systems and ductwork, including major motors, elevator motors, generators, or equipment that induce excessive EMI an/or RFI to communications equipment or systems.

Room temperature must be maintained between 65 and 85 degrees Fahrenheit, with a relative humidity range of 20 to 60 percent. When heat-generating equipment placed into communication closets, maintaining environmental parameters is essential, thus avoiding down time due to equipment failures caused by equipment overheating. Where the building HVAC is insufficient to maintain these parameters a standalone HVAC system shall be considered to maintain these environmental ranges for 24 hour, 7 days a week (24/7) schedule.

Where no dedicated HVAC system is required for plenum air return buildings, there shall be a minimum of two diffusers for fresh HVAC air intake, with a minimum of two air return vents, vented door and a positive air flow maintained. Buildings without air return systems shall provide clean air 24/7. Additionally, rooms without dedicated HVAC systems shall have continuous airflow 24/7.

Construction
Closets irregardless of their function shall be 120 sf. However, minimum communications closet shall never be less than specified in the applicable ANSI/TIA/EIA specifications. ICE typical closet minimum size shall be no less than 80 square feet, whereas the recommended size is calculated by the ANSI/TIA/EIA specifications

Door locks for all communications rooms will conform to local security requirements

Door must be a minimum 36 inches wide by 80 inches high. The door shall swing out to facilitate equipment installation and provide maximum space utilization by allowing higher density equipment designs and configurations without the concern of lost space due to door travel.

Floor shall be rated to withstand 100 pounds per square foot and shall be covered with appropriate tile or linoleum. Carpets are not acceptable in communications closets.

Each communications closet shall have a minimum of 2 separate 120 Volt @ 20A circuits installed for cable plant electronics. Preferred outlets are the National Electrical Manufacturers Association (NEMA) - 20 5 quad receptacles. Outlets shall be installed at heights that adhere to the building electrical codes, typically 18 inches above finished floor. Additional circuits may be required as equipment density is increased.

A certified electrical ground and buss shall be installed into each closet for communications equipment grounding and be connected to a dedicated building ground, that is compliant with the ANSI/TIA/EIA 607.

For both the Medium Density Fiberboard (MDF), a pre-treated, fire-rated, plywood backboard (3/4 inches by 4 feet by 8 feet sheets) shall be fastened properly to the wall for riser cable control.

All cable shall be neatly tie-wrapped and anchored every 3 feet on the backboard.

ICE occupied floors that are contiguous, with stacked closets, shall have a minimum of two 4-inch shelves between closets for ICE Data and Voice cables. Additional sleeves will be required for the building voice riser system. Where ICE data and voice cables must pass through communications closets not controlled by ICE or the US government, mechanical protection must be provided. Thin wall ridged conduit will be sufficient for this requirement.

5. APPENDIX

Reference Publications

Acronyms and Abbreviations

Room Finish Schedule

Reference Publications

REFERENCE DOCUMENTS

The Offeror (Contractor) will conform their facility design to the following standards, at a minimum, plus any additional applicable standards that may be pertinent to the location where the facility is intended to be built. The Offeror will be solely responsible for complying with these standards and code requirements. Failure of ICE to identify particular construction code standards that are pertinent to a particular site will not relieve the Offeror of the responsibility of meeting those criteria.

American Correctional Association (ACA)

Standards for Adult Local Detention Facilities
3rd Addition

American Correctional Association (2002 Standards Supplement)

International Building Code, 2003

National Fire Protection Association

Life Safety Code 101, current edition

U.S. Department of Justice
Immigration and Naturalization Service (Legacy)
Service Processing Center Design Guide

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

National Commission on Correctional Healthcare (NCCHC)

Occupation, Safety and Health Association (OSHA)

ICE Detention Standards

USICE Structured Cable Plant Standard

ANSI/TIA/EIA - 526-14, Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant - OFSTP-14

ANSI/TIA/EIA - 568-B.1, Commercial Building Telecommunications Cabling Standard Part 1: General Requirements

ANSI/TIA/EIA - 568-B.2, Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted-Pair Cabling Components

National Electrical Code (NEC)

ANSI/TIA/EIA - 568-B.3, Commercial Telecommunications Cabling Standard Part 3: Optical Fiber Cabling Components

ANSI/TIA/EIA - 568-A, Commercial Building Standard for Telecommunications Pathways and Space

ANSI/TIA/EIA - 598, Optical Fiber Cable Color Coding

ANSI/TIA/EIA - 606-A, Administration Standard for Telecommunications Infrastructure of Commercial Building

ANSI/TIA/EIA - 607, Commercial Building Grounding and Bonding Requirements for Telecommunications

ANSI/TIA/EIA - 758, Customer-Owned Outside Plant Telecommunications Cabling Standard

RELATED DOCUMENTS

Uniform Federal Accessibility Standards, 1988

Americans with Disabilities Act (ADA), Title III

American Society for Testing and Materials, current standards

Underwriters Laboratories, Inc.

American National Standards Institute, Inc.

National Association of Architectural Metal Manufacturers

Hollow Metal Manufacturers Association, Standard 863-96

H.P. White Laboratory, Inc. HPW-TP-0500.02

WMFL Physical Attack Test

ACRONYMS AND ABBREVIATIONS

ACA	American Correctional Association
ADA	Americans with Disabilities Act
AHSA	Assistant Health Services Administrator
BOP	Bureau of Prisons
BP	blood pressure
BI	built-in
CCTV	closed circuit television
CD	Clinical Director
CDF	Contract Detention Facility
IBC	International Building Code
CBP	Customs and Border Protection
DHS	U.S. Department of Homeland Security
DOJ	Department of Justice
DRO	Detention and Removal Office
EOIR	Executive Office for Immigration Review
F	furniture
Fab.	Fabricators
FDA	U.S. Food and Drug Administration
Flr.	floor
GFI	ground fault interrupter
GSF	Gross Square Feet
HCP	Health Care Program
H.M.	hollow metal
HS	Health Services
HSA	Health Services Administration
Ht.	height
HVAC	heating, ventilation and air conditioning
ICE	Bureau of Immigration and Customs Enforcement
IGSA	Inter-governmental service agreements
INS	(Legacy) Bureau of Immigration and Naturalization Services
DIHS	Division of Immigration Health Services
HHS	U.S. Department of Health and Human Services
HRSA	Health Resources Services Administration
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
LAN	local area network
Lav.	lavatory
LVN	Licensed Vocational Nurse
qt.	quart
manuf.	manufacturer
ME	medical Equipment
MRT	Medical Records Technician
NCCHC	National Commission on Correctional Health Care
NEC	National Electrical Code
NFPA	National Fire Protection Association
NP/PA	Nurse Practitioner/Physicians Assistant
NSF	Net Square Feet
OSHA	Occupational, Safety and Health Administration
OTC	over-the-counter medications
P	primary
PA	public address system
PDT	Project Development Team
PI	performance improvement
pk	package
S	secondary
SHU	Secured Housing Unit
SPC	Service Processing Center
SSU	Short Stay Unit
TB	tuberculosis
RHIA	Registered Health Information Administrator
RN	Registered Nurse
TBD	to be determined
USF	Usable Square Feet
USPHS	United States Public Health Service
VCT	vinyl composition tile
w/	with
Wt.	weight

Room Finish Schedule

FINISH SCHEDULE FOR NEW CDF's

Product	Location	Manufacturer	Color/Style	Number	Name	Finish	Notes
Paint	All Spaces	Duron		CW003W	Mysterious	Eggshell	
Paint	Courtroom	Duron		8505D	Bluecoat	Eggshell	Only on wall behind IJ Bench
Stain	Wood Cap	Minwax		224	Special Walnut	-	
Carpet	Throughout	Bentley	Bond Street RC	8BS4506301	Cove Road 888630	-	Direct Glue-Down
VCT	ADP, Break, File & Waiting Room	Mannington	Brushwork	702	Granito	-	
Base Molding	All spaces other than courtrooms	Roppe	-	748	Steel Gray	-	4", vinyl
Base Molding	Courtroom	Johnnsonite	-	MW-40-F	Black	-	4 1/4" Millwork Reveal Profile
Wall Covering	Waiting Room	Muraspec	Regalia	GS-6147	Lunar	-	Type II, 20 oz.
Counter	Break Room	Nevamar	-	LD-6-1T	Black Lodestone	Textured	ARP Surface
Cabinets	Break Room	Nevamar		S-6-475	Sandpiper	Textured	
Ceramic Tile	Restroom Walls	Dal-Tile	Almond	135	-	Semi-Gloss	4 1/4" x 4 1/4", 5 foot high
Ceramic Tile	Restroom Walls	Dal-Tile	Denim	DH69	-	Semi-Gloss	4 1/4" x 4 1/4", 2 accent rows

U.S. Immigration and Customs Enforcement

Structured Cable Plant Standard

Version 5.x

Office of Chief Information Officer

Network Engineering Branch

CONTENTS

1.0 INTRODUCTION....4
1.1 Purpose....4
1.2 Background....4
1.3 Scope....4
1.3.1 System....4
1.3.2 Documentation....5
2.0 NETWORK CABLE PLANT OBJECTIVES....5
3.0 STRUCTURED CABLE PLANT DESIGN....5
3.1 Structured Cable Plant Approach....6
3.2 Horizontal Workstation Cabling....6
3.3 Workstation Outlets....8
3.4 Backbone Cabling....11
4.0 SPECIFICATIONS....13
4.1 Horizontal Cables....13
4.2 Information Management Outlets....13
4.3 Backbone Cabling....14
4.3.1 Intra-Building Fiber Optics....15
4.3.2 Inter-Building Fiber Optics....15
4.4 Patch Cables (Workstation and Patch Panel)....16
4.5 Patch Panels....16
4.6 Equipment Racks....16
4.7 Cabinets and Swing Gates....17
5.0 COPPER CABLE INSTALLATION SPECIFICATIONS....17
5.1 Horizontal Cables....17
5.2 Patch Cables (Workstation)....18
5.3 Patch Cables (Rack)....18
5.4 Copper Cable Termination....19
6.0 INSTALLATION OF OPTICAL FIBER CABLES AND CONNECTORS....20
6.1 Fiber Horizontal Workstation Cable....20
6.2 Backbone Fiber Cable....20
6.3 Optical Fiber Cable Jacket....21
6.4 Optical Fiber Connector....21
6.5 Optical Fiber Cable Termination....21
7.0 FACEPLATE CONFIGURATION....21
8.0 PATCH PANELS....21
8.1 Copper Patch Panels....22
8.2 Fiber Optic Patch Panels....22
9.0 EQUIPMENT RACK....22
10.0 GROUNDING....27

11.0 CABLE LADDERS AND FASTENERS 28

12.0 ADMINISTRATION AND LABELING CONVENTIONS 28

12.1 Building Designation 28

12.1.1 Floor 28

12.1.2 Wiring Closets 28

12.1.3 Cable Numbers 29

12.2 Information Outlet 29

12.3 Intra and Inter-Building Backbone Cables 29

12.4 Patch Panel Patch Cables 30

13.0 TEST AND DOCUMENTATION PROCEDURES 30

13.1 Testing of Installed Copper Cable 30

13.2 Testing of Optical Fiber Cables 31

14.0 BUILDING PATHWAYS, CONDUIT, AND CLOSETS 32

14.1 Closet Specifications (MDF and RWC) 32

14.1.1 General Requirements 32

14.1.2 Environmental 32

14.1.3 Construction 33

14.2 Conduits 34

15.0 DOCUMENTATION 34

15.1 Letter of Certification 35

15.2 Implementation Report 35

15.3 Detailed Materials List 35

15.4 Copper Cable Test Results 36

15.5 Fiber-optic backbone Cable Test Results 36

15.6 As-Built Site Drawings 36

EXHIBITS

Exhibit 1: Typical Office Cable Planning....7
Exhibit 2: Workstation Faceplate, Single Gang....9
Exhibit 3: Workstation Faceplate with Optical Fiber Cables....10
Exhibit 4: Backbone Fiber Distribution....12
Exhibit 5: Category 6 Cable Specifications....13
Exhibit 6: T-568B and T-568A Pair/Pin Assignments....20
Exhibit 7: Typical Single Rack Layout for Smaller Installations....24
Exhibit 8: Typical Two Rack Layout....25
Exhibit 9: Typical Three Rack Layout for Larger Installations....26
Exhibit 10: Multimode Fiber Cable Specifications....31
Exhibit 11: Singlemode Fiber Cable Specifications....31

ATTACHMENTS

ATTACHMENT A GLOSSARY
ATTACHMENT B SAMPLE LETTER OF CERTIFICATION
ATTACHMENT C SAMPLE CONTRACTOR INFORMATION FORM
ATTACHMENT D SAMPLE IMPLEMENTATION REPORT
ATTACHMENT E SAMPLE DETAILED MATERIALS LIST
ATTACHMENT F SAMPLE CABLE TEST CERTIFICATION LETTER
ATTACHMENT G SAMPLE CABLE PLANT DATABASE
ATTACHMENT H SAMPLE FIBER CABLE TEST
ATTACHMENT I SAMPLE WIRING CLOSET DETAIL
ATTACHMENT J SAMPLE AS-BUILT DRAWING AND RACK ELEVATION

1.0 INTRODUCTION

1.1 Purpose

This document has been prepared for the Immigration and Customs Enforcement (ICE) with the specific purpose of setting standards for structured cable plants in support of Local Area Network (LAN) and voice connectivity that will function as follows:

- Accommodate the functional requirements of present and future information services.
- Support a multi-product and multi-vendor environment.
- Facilitate the planning and installation of cabling systems that will support the diverse communication needs of building occupants.
- Ensure uniformity of structured wiring and hardware infrastructure installations in all ICE facilities.

The primary focus of this document is to define the standards for material, infrastructure, design, installation, and certification with respect to structured cabling systems for ICE facilities. This document shall replace, modify, or otherwise supersede previous releases of these standards. For questions or comments regarding this document, contact the ICE Network Engineering Implementation Section Chief.

An electronic version of this document resides in the ICE Intranet Enterprise Library, available on the Office of Chief Information Officer (OCIO) Web site.

1.2 Background

Immigration and Customs Enforcement (ICE) is a component of the U.S. Department of Homeland Security (DHS). ICE brings a unified and coordinated focus to the enforcement of federal immigration laws, customs laws, and air security laws. ICE brings to bear all of the considerable resources and authorities invested in it to fulfill its primary mission: to detect vulnerabilities and prevent violations that threaten national security.

Because of increasing demands on Service resources, ICE personnel must be able to share information rapidly and efficiently in order to succeed in fulfilling the Service mission.

In addition to this document, which establishes the cabling standards for ICE, other documents are being developed that provide additional related information such as:

- ICE LAN standards.
- ICE Wide Area Network (WAN) standards.
- Voice Communications standards.

1.3 Scope

1.3.1 System

Typical structured cabling systems include the following elements:

- Horizontal cable.

- Horizontal cross-connects.
- Transition point (optional).
- Main cross-connect (MC).
- Intermediate cross-connect.
- Backbone cabling, intra and inter.
- Workstation locations or information management outlets (IMO).
- Remote wiring closet (RWC).
- Main distribution frame (MDF).
- Entrance facility (EF).
- Grounding
- Administration

1.3.2 Documentation

This document is intended to address the following specifications and installation practices related to structured cable plant installation:

- Recognized media.
- Closet requirements, environmental and design.
- Distribution cabling.
- Cabling specifications and limits.
- Installation practices.
- Performance testing.
- Supporting documentation.

2.0 NETWORK CABLE PLANT OBJECTIVES

The objective of this network approach is to provide ICE with a standardized, cost-effective cable plant infrastructure that will accommodate present and future voice, video, and data requirements. Workstation cabling infrastructure shall support bandwidth demands from 10 Megabits per second (Mbps) to Gigabit speeds. Backbone cable infrastructure shall support bandwidth demands from Gigabit speeds and beyond. The installation of the cable plant infrastructure shall comply with local codes, as well as, industry and Federal standards.

3.0 STRUCTURED CABLE PLANT DESIGN

The network cable plant shall utilize the following cable distribution methods to support connectivity throughout the building:

- Horizontal workstation cabling, which will connect the user workstation, or information management outlet (IMO) to the nearest Remote Wiring Closet (RWC).

- Where appropriate, Intra and Inter-building copper backbone cable, which provides connectivity between wiring centers and the MDF.
- Work zone distribution cabling for open office space.
- Fiber optic intra and inter-building backbone cable, which also provides connectivity between wiring centers and the MDF.

3.1 Structured Cable Plant Approach

This section will describe the approach to structured cabling, identify and describe the various cable types, and provide detailed cable specifications for cable plant installation. These are minimum specifications for new cable plant installations or major renovations. These specifications follow the American National Standards Institute (ANSI)/Telecommunications Industries Association (TIA)/Electronic Industries Association (EIA) recommendations, and in addition, provide specific guidelines unique to ICE. Detailed cable plant material specifications and overall minimum characteristics are provided in Section 4.

3.2 Horizontal Workstation Cabling

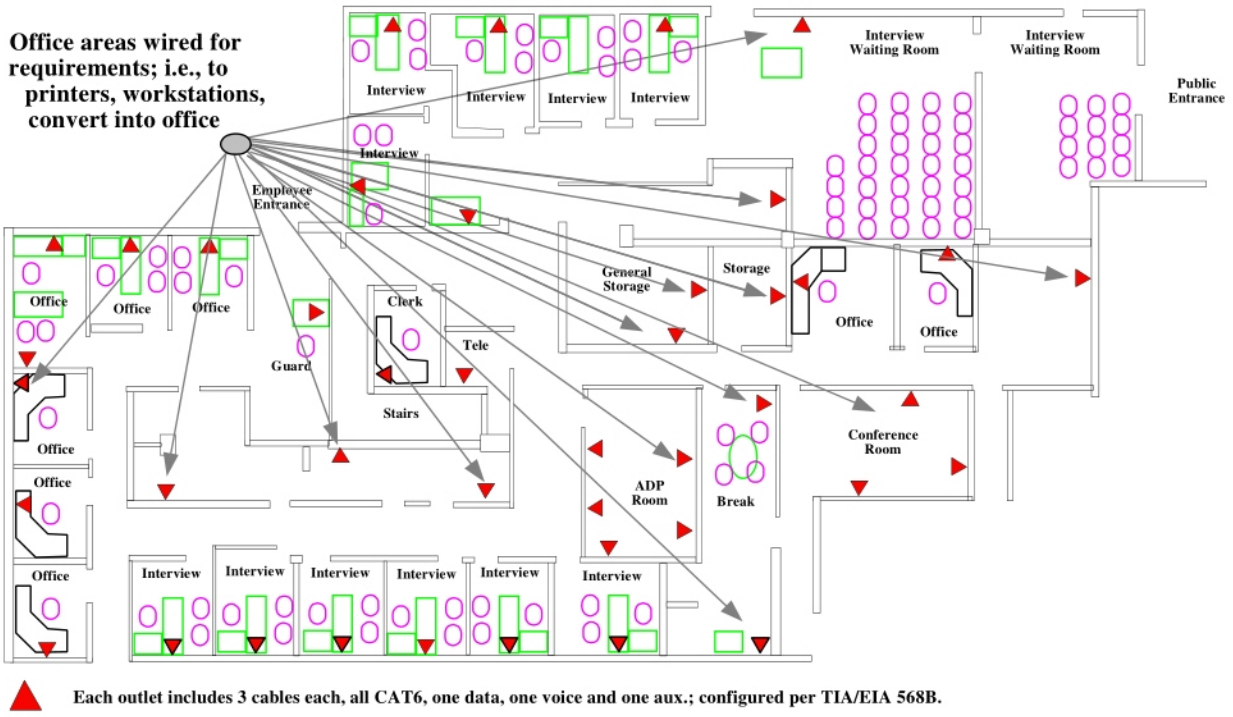
All end-user workstation locations, whether occupied or vacant, shall be cabled to the nearest wiring center. Also, storage rooms, conference rooms and similar space not designated as offices shall be cabled to allow for office expansion, as shown in Exhibit 1.

In general, each RWC equipment rack shall be capable of supporting a maximum of 288 data cables. A second rack is required to support up to 288 voice cables, providing a consolidated voice and data closet. The combined racks provide ample space for a total combined 144 workstation locations (voice and data). In smaller installations, typically less than 72 workstation locations, a single equipment rack will suffice for both voice and data termination.

To comply with ANSI/TIA/EIA-568-B.1 specification distance limits, the cable run from any user workstation location to the nearest wiring center shall not exceed 100 meters (328 feet). The actual length of a cable run is defined as the total combined length of the station cord, workstation cable, and patch-panel cable. When planning or designing office space the communications closets should be located within 90 meters (295feet) of any workstation outlet. This design approach allows the addition of patch cables and workstation cords to connect devices, without exceeding the ANSI/TIA/EIA-568-B.1 specification distance limits.

In a building not exceeding two stories, horizontal workstation cabling may be installed to a single point, such as a computer room, wiring center, or the MDF. This scenario may be used in place of a creating a RWC, thus eliminating any need for backbone cabling systems. This installation method should be utilized when cost is a constraint and the length of the cable run does not exceed the specified distance limits.

Exhibit 1: Typical Office Cable Planning



All drop locations will be configured with three Category 6, plenum rated cables identified as "A", "B" and "C". All cables shall be terminated in the LAN closets on Category 6 compliant Patch Panels. This configuration allows each cable, "A", "B" or "C", to be used for either a voice or data device offering maximum flexibility in deploying devices throughout the facility.

Each workstation cable that is routed through a suspended ceiling area shall be secured in a manner that will keep all cable plant off of any suspended ceiling tiles, sprinkler systems, ceiling suspension hangers, and adhere to local and Federal building codes. Cable plant installed in plenum environments should provide enough slack to facilitate minor construction modifications, or cable re-locations, without the need to install new cable altogether. This installation approach normally requires approximately 20 feet of cable slack, secured in an appropriate manner, to ensure cable is minimized from radio frequency interference (RFI) and electro-magnetic interference (EMI) sources. However, installed cable shall at no time exceed the overall specifications for total lobe length of 100 meters in accordance with the ANSI/TIA/EIA standards. If required, an independent suspension system shall be installed for the cable plant, to keep the cables off of and away from the existing ceiling grid and fixtures.

All end-user workstation locations, whether occupied or vacant, shall be cabled to the nearest wiring closet. Every office should have a minimum of two drops installed. Every cubical should

have a minimum of one drop installed Storage rooms, conference rooms and similar space not designated as offices should be cabled to allow for office expansion.

When routed above a suspended ceiling, horizontal cables should be routed down the inside of walls wherever possible to ensure no exposed cable is visible. If walls cannot be fished, surface mounted (external) raceway may be used to route the cable from the ceiling to the information outlet and installed in a surface-mounted outlet box. All attempts should be made to ensure no horizontal cable is exposed within the building area, providing a neat, professional installation. Horizontal cables shall never be exposed to outdoor elements without being protected in proper conduit/raceway systems and have proper lightning and bonding protection installed.

Optical fiber cable can also be used for horizontal workstation connectivity when the following conditions exist:

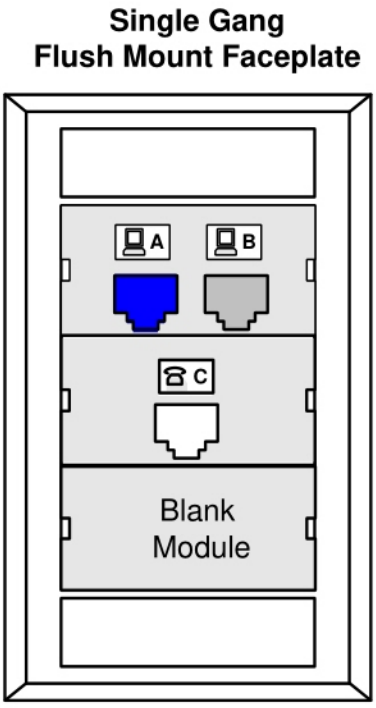
- Distance requirements exceed the 100 meter cable-length specification.
- Known high bandwidth/security requirements that exceed copper cable limitations and business case supports the installation.
- Space inside or outside of the walls to support the minimum fiber cable bend radius.
- Severe EMI or RFI in the copper cable plant.
- Adequate funding.
- Proposed fiber optic to the desktop is approved by the DSB.

If optical fiber cables are used for workstation connectivity, each workstation location shall be cabled with a 4-strand, 62.5/125 micrometer (μm), graded index, multimode optical fiber cable with proper coating to meet local fire and building codes, whereas plenum is recommended. The cable shall be labeled as described in Section 12 of this document.

3.3 Workstation Outlets

Each workstation area shall use a standard faceplate that can support a minimum of three dual-connection interfaces. Regardless of the installation contractor, all voice and data cable shall utilize a singe Information Outlet. Unless otherwise specified, the “A” jack shall be Blue, The “B” jack shall be Gray and the “C” jack shall be Ivory or White. Information outlets must be capable of future growth without the need to replace the entire Information Outlet. Information outlets can be either single gang or dual gang standard size; sizing will be determined by number of cables being installed.

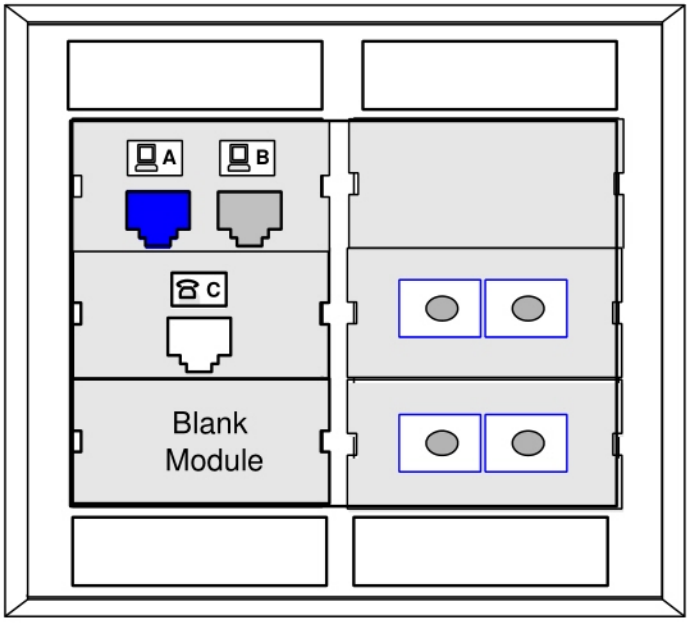
Exhibit 2: Workstation Faceplate, Single Gang



Where fiber-optic cable is installed to the desktop, the corresponding IMO faceplate shall provide space to install at least three RJ-45 jacks and at least two optical fiber connectors (see Exhibit 3).

Exhibit 3: Workstation Faceplate with Optical Fiber Cables

Double Gang Flush Mount Faceplate
Fiber Optic SC connectors



3.4 Backbone Cabling

Intra and Inter-backbone cabling may consist of either or both copper and optical fiber cables and are required where there exists more than one wire center. The intra and inter-backbone shall be installed to provide structured connectivity between closets (see Exhibit 4). The installation provides a star-topology cable infrastructure that is capable of supporting high-speed and high bandwidth requirements between key resources in an enterprise building or campus environment.

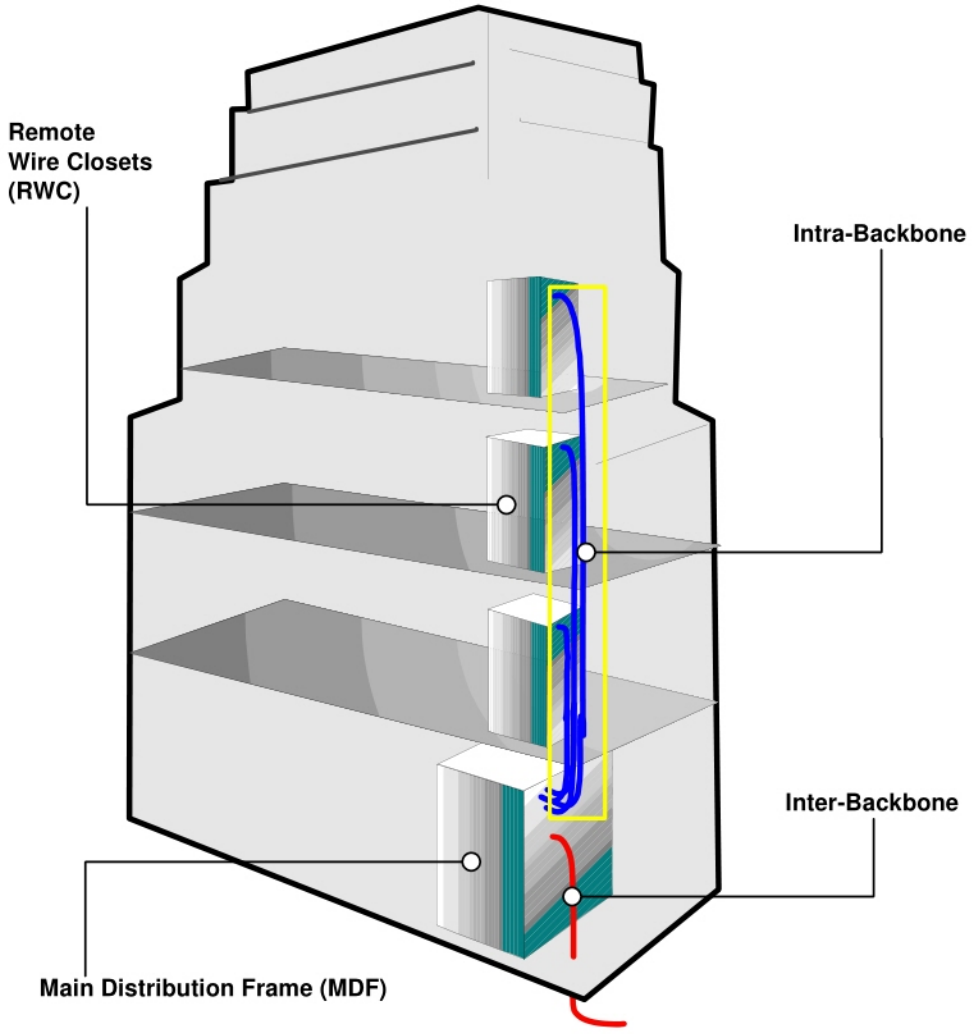
A multimode, singlemode, or combination of fiber-optic backbone structure provides the means of interconnecting all wiring closets to the MDF in a multi-segmented environment. Optical fiber not only provides extensive bandwidth capabilities to the LAN and voice, but it also provides a solution to the distance-related problems encountered with copper cables in large installations and campus environments.

Copper backbone cabling is required to support voice services, however, the specifications and designs are determined on a site-by-site basis. This is due to the variety, funding, capacity and availability of voice services and designs. Copper backbone may also be installed to support networking services, where distance limitations do not exceed the ANSI/TIA/EIA-568-B.1 specifications. Copper backbone cabling provides a redundant connectivity option in the event of a catastrophic fiber failure, and shall be installed where voice and data closets are physically separated.

Each remote wiring closet shall be connected to the MDF with a multi-strand, optical fiber backbone cable that runs directly from the wiring center to the MDF. All strands will be terminated with SC style connectors in accordance with the ANSI/TIA/EIA standards in rack-mounted patch panels. A minimum twelve-strand fiber shall be installed in any facility providing connectivity between communications closets. It is estimated that 12 strands of multimode fiber will meet most of the intra and inter backbone connectivity needs currently deployed and planned for ICE facilities. Considering the myriad of site functions, building designs, physical layout, application requirements and future technologies, backbone design is a critical element in the planning stages. To ensure facilities are properly engineered with respect to backbone fiber types and counts, the Network Engineering Branch will provide engineering design in concert with local IT Field Office (ITFO) support personnel and facilities architects. This ensures both short-term and long-term requirements are met in a cost-effective manner.

The optical fiber Intra and Inter-backbone cabling shall have one port per strand for cross-connection, and will conform to the specifications in Sections 4 and 6 of this document.

Exhibit 4: Backbone Fiber Distribution



4.0 SPECIFICATIONS

This section provides detailed component characteristics and specifications with respect to the materials used to install the structured cable plant.

4.1 Horizontal Cables

All cable, equipment, and materials shall meet applicable ANSI/TIA/EIA-568-B, National Electrical Code (NEC) 770, Institute of Electrical and Electronics Engineers (IEEE) 802 and Underwriters Laboratory (UL) Verification Program standards. All cable equipment and materials must be manufactured by facilities that are International Organization for Standardization (ISO) 9001 registered and certified.

- Shall be Category 6 rating in accordance with ANSI/TIA/EIA-568-B.2
- Four-pair, 100-Ohm, 24 American Wire Gage (AWG).
- The cable should have contiguous, 2-foot segment-length markers printed on the cable jacket. The markings must also show the applicable performance Category 6, as well as the fire rating of the cable being installed.
- The finished cable shall be 100% plenum rated in accordance with the requirements of NEC Article 800, UL 444, NFPA 262, (UL 910), and applicable Canadian Standards Association (CSA) standards.

Note: Category 6 cables types must meet or exceed specifications listed in Exhibit 5.

Exhibit 5: Category 6 Cable Specifications

Specification	Category 6
Frequency Range	1-250 MHz
Attenuation (maximum)	35.8 dB
NEXT (minimum)	33.1 dB
PSNEXT (minimum)	30.2 dB
ACR (minimum)	-2.7 dB
PSACR (minimum)	-5.7 dB
ELFEXT (minimum)	15.3 dB
PSELFEXT (minimum)	12.34 dB
Return Loss (minimum)	8dB
Propagation Delay (maximum)	548 nanoseconds (ns)
Delay Skew (maximum)	50 ns

4.2 Information Management Outlets

- Provide ANSI/TIA/EIA symbol icons for application identification (LAN, Voice, etc).

- Provide individual label window for cable identification.
- Provides a high-density design.
- Offers solutions for secure environments.
- Must match make and model in existing facilities.
- Meets or exceeds ANSI/TIA/EIA Category 6 specifications.
- Mounts to standard electrical 2 inch and 4 inch boxes.
- Allows all modules (jacks) to be loaded and accessed from the front. No need to remove faceplate.
- Meets all Federal Communications Commission (FCC) Part 68 specifications.
- Provides standard 110D type insertion displacement connector (IDC) Printed Circuit Board (PCB) mounted connector.
- Is offered in a multitude of colors.
- Provides interchangeability between modules.
- Offers non-keyed RJ-45 style connectors.
- Offers 568SC modular fiber connectors.
- Is available in the ANSI/TIA/EIA-T568B wiring configuration.

4.3 Backbone Cabling

Backbone cabling shall be a minimum of 12-strand multimode fiber optic. In limited instances, singlemode fiber-optic cable may be used for distances that exceed 500 meters, in accordance with the Institute of Electrical and Electronics Engineers (IEEE) and the Gigabit Ethernet Alliance organizations. The IEEE 802.3z and IEEE 802.3ab published standards apply to gigabit Ethernet and overall specifications.

All fiber cable shall be of interlocking armor construction eliminating the need for conduit or plenum rated inner duct.

Fiber cable shall be colored orange to denote multimode fiber, yellow to denote singlemode.

Plenum rated fiber cable is required by the USICE for backbone cables routed within buildings.

Outside plant fiber cable shall have a water block construction and meet the requirements for compound flow and water penetration.

Category 6 copper backbone cabling shall meet the same specifications as stated in Section 4.1 (Horizontal Cabling), in addition to the multi-pair construction in increments of 25, 50 and 100 pair complements. Voice copper backbone cabling is not specified in this standards document and shall be determined on a case-by-case basis. Voice copper backbone cables are not subject to the same 100 meter distance limitations as specified for networking backbone cabling which is the Category 6 cable plant.

4.3.1 Intra-Building Fiber Optics

Specifications for fiber backbone cabling that will interconnect closets within a single building or high-rise environment are defined in this section.

4.3.1.1 Multimode Fiber Optics

4.3.1.1.1 62.5/125-µm optical fiber plenum (OFNP) or optical fiber riser (OFNR).

- Maximum Attenuation: 3.5/1.0 dB km at 850/1300 nm.
- Minimum Bandwidth: 200/500 MHz km at 850/1300 nm.
- Tight buffered.
- Plenum or riser rated.

4.3.1.1.2 50/125-µm optical fiber plenum (OFNP) or optical fiber riser (OFNR).

- Maximum Attenuation: 3.5/1.0 dB km at 850/1300 nm.
- Minimum Bandwidth: 200/500 MHz km at 850/1300 nm.
- Tight buffered.
- Plenum or riser rated.

4.3.1.2 Singlemode Fiber Optics

4.3.1.2.1 8 µm to 10 µm OFNP or OFNR.

- Maximum Attenuation: 1.0/0.5 dB km at 1310/1550 nm.
- Tight buffered.
- Plenum or riser rated.

4.3.2 Inter-Building Fiber Optics

Specifications for fiber backbone cabling that will interconnect building within a campus environment are defined in this section.

4.3.2.1 Multimode Fiber Optics

4.3.2.1.1 62.5/125-µm OFN, OFNP, or OFNR.

- Maximum Attenuation: 3.5/1.0 dB km at 850/1300 nm.
- Minimum Bandwidth: 200/500 MHz km at 850/1300 nm.
- Loose Tube.
- Gel-filler or water blocking equivalent.

4.3.2.1.2 50/125-µm OFN, OFNP, or OFNR.

- Maximum Attenuation: 3.5/1.0 dB km at 850/1300 nm.

- Minimum Bandwidth: 200/500 MHz km at 850/1300 nm.
- Loose Tube.
- Gel-filler or water blocking equivalent.

4.3.2.2 Singlemode Fiber Optics

4.3.2.2.1 8 µm to 10 µm OFN, OFNP, or OFNR.

- Maximum Attenuation: 1.0/0.5 dB km at 1310/1550 nm.
- Loose Tube.
- Gel-filler or water blocking equivalent.

4.4 Patch Cables (Workstation and Patch Panel)

- Shall conform to the ANSI/TIA/EIA Category 6 specifications.
- 4-pair, UTP stranded cable.
- RJ-45 connectors on both ends.
- The patch cables shall be wired in accordance with the ANSI/TIA/EIA-568-B.2 and ANSI/TIA/EIA-568-B.3 specifications.
- Certified by the manufacturer as compliant with the ANSI/TIA/EIA Category 6 criteria.
- Cables shall be available in a wide variety of colors and lengths.

4.5 Patch Panels

- Shall conform to the ANSI/TIA/EIA Category 6 specifications.
- The patch panel wiring shall be in compliance with the ANSI/TIA/EIA T568B wiring configuration.
- Provide back wire management hardware.
- Provide modular design to facilitate field repairs.
- Provides standard 110D type IDC PCB mounted connector.
- Available in low and high-density configurations.
- Meet the standard EIA-310 rack spacing specifications.
- Provide RJ-45 interface.
- Meets all FCC Part 68 specifications.
- Available in 12, 24, and 48 port capacities.
- Match make and model within existing facilities, where possible.

4.6 Equipment Racks

- Shall conform to the ANSI/TIA/EIA standards.

- Conform to the standard EIA-310 mounting specification.
- Provide pre-tapped 10-32 threading.
- Provide a flexible modular concept.
- Provide vertical wire management.
- Provide floor-mounting hardware except for swing gate style hardware.
- Match make and model within existing facilities, where possible.

4.7 Cabinets and Swing Gates

- Shall conform to the ANSI/TIA/EIA standards.
- Conform to the standard EIA-310 mounting specification.
- Provide pre-tapped 10-32 threading.
- Provide a flexible modular concept.
- Provide vertical wire management.
- Provide floor-mounting hardware except for swing gate style hardware.
- Match make and model within existing facilities, where possible.
- Available in depths of 24 inches or more.
- Available in heights of 48 inches or more.
- Allow fan assembly installation.
- Lockable and offer matching key/lock design where multiple cabinets are installed.
- Are of a welded, uni-body construction.
- For areas located within seismic activity, meet Zone 4 earthquake vibration test conditions in accordance with National Electrical Bell Standards (NEBS) document TR-NWT-000063, Issue 4, 1992

5.0 COPPER CABLE INSTALLATION SPECIFICATIONS

This section details the specifications that are to be used when installing all copper cabling. All work shall be ANSI/TIA/EIA–568-B, ANSI/TIA/EIA-569-A, ANSI/TIA/EIA-606-A, NEC 770 and IEEE 802 standard specification quality (as applicable).

5.1 Horizontal Cables

Unless otherwise specified, horizontal cable shall be provided color coding the different jack designations. The “A” cables shall be Blue. The “B” cables shall be Gray. The “C” cables shall be white.

These are cables installed from a typical workstation location back to a central point within a building or facility. These cables connect the Information Outlet (IMO), back to a central point, the closet. The closet may be the MDF or an RWC. These cables shall be installed in

compliance with ANSI/TIA/EIA, building and industry practices. Cables should never be exposed nor create any safety hazards for the public.

All copper cables shall be positioned at a minimum distance of 4 inches from any EMI device (such as a light ballast, electrical motor, or power line). If contact is unavoidable (as in modular furniture), the copper cables shall not run more than 5 feet in parallel with the interference-generating medium. If traversing is necessary, all copper cables shall cross power lines and electrical conduits at a 90-degree angle to minimize interference.

Copper cables installed in a suspended ceiling environment shall at all times be self-suspended in the plenum air space by the use of a separate suspension system or installation in the building construction frame at the top of the permanent ceiling, if it exists. At no time shall cables be secured to the suspended ceiling grid, water pipes, or electrical conduits.

All cables should be installed as far above the suspended ceiling as possible, and should be bundled together with tie-wraps at intervals no less than 6 feet unless a dedicated cable tray system is available to support the cable. The tie-wraps should not be installed so tight as to "dent" or compress the cable jacket because this could create excessive crosstalk in the cables, causing failure during the testing of the cable to meet Category 6 specifications.

5.2 Patch Cables (Workstation)

The workstation patch cable connects the end user devices (personal computer, terminals, etc.) to the IMO. For most installations, these patch cables will be provided and left on-site for the deployment team or local ADP to install when setting up workstations and are not included in the overall cable plant certification. The workstation patch cable may be any length as long as the combined length of the workstation patch cable, the horizontal workstation cabling, and the patch-panel cable does not exceed 100 meters (328 feet). These cables are normally pre-constructed, certified and ordered in standard one-foot incremental lengths. If the installation vendor chooses, custom-length, certified station cables can be used.

5.3 Patch Cables (Rack)

The patch-panel cable connects the horizontal cable port to the voice and data electronics within a central wire center or closet, typically a RWC or MDF. These cables are identical to the workstation cables and are pre-constructed and certified by the manufacturer. It is the cable installer's responsibility for patching all active cable locations into active ports, unless otherwise directed by the ICE manager or designated representative. These cables are pre-certified by the manufacturer; therefore, it is unnecessary to include them in the cable plant certification. Wire management and organization is important to facilitate troubleshooting, repair, and documentation and, as such, there are key elements to ensure patch cords are properly installed. The following requirements shall be followed for patching workstation ports to electronics:

- The patch-panel cable may be any length, provided that the combined length of the workstation patch cable, the horizontal workstation cabling, and the patch-panel cable does not exceed 100 meters (328 feet).
- If the installation vendor chooses, custom-length, certified station cables can be used.
- Patch cables must be labeled and matching on both ends, in a standard one-up numeric convention. An example would be a closet that has 100 active workstations, thus 100 patch

cables are installed, one for each active node, starting with cable identification (ID) number one and ending with ID number 100. Any support personnel would be able to view the station patch panel and electronics equipment to determine which specific port a particular station is connected.

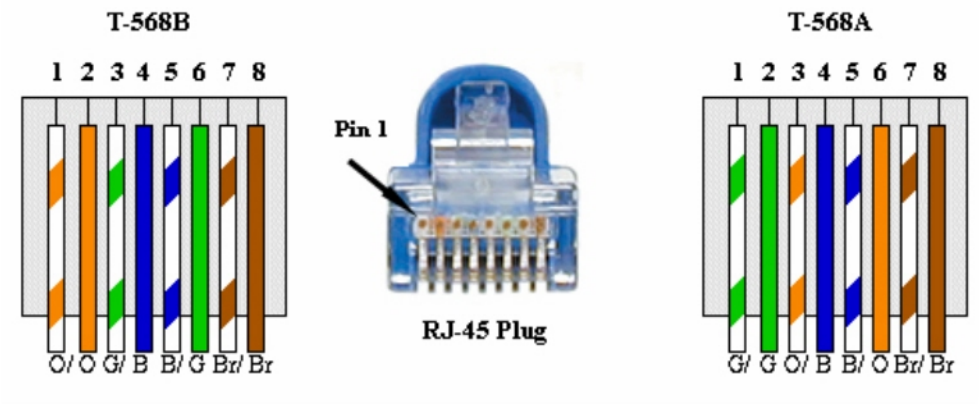
- Patch cable numbering shall be affixed to both ends of each patch cord approximately one inch from the terminator or mod plug.
- Label IDs must be legible and produced with indelible ink. The preferred method is a printed label. Installers must avoid the use of materials that will distract from the appearance of the installation, or any temporary marking.
- Ensure patch cables are installed in a manner that does not require support personnel to "tug" or "trace" cables in order to determine the active port.
- Cables must be dressed utilizing available horizontal and vertical wire management.
- Patch cables should provide a neat and organized appearance, eliminating large bundles of cables in single locations, preventing tangles and using incorrect or oversized cables that produce excess slack.
- Cables shall never exceed the minimum bend radius or have kinks or nicks in accordance with the ANSI/TIA/EIA specifications.
- Cables should utilize left and right vertical wire management to reduce cable patch congestion produce and even cable distribution within a given cabinet.
- Patch cables shall never create a trip hazard or other risk to equipment, services or personnel.

5.4 Copper Cable Termination

This section applies to both the workstation and closet cable termination practices. All copper cable terminations shall conform to ANSI/TIA/EIA-568-B standards. The key areas and specifications are highlighted below:

- Pair twists shall be maintained as close as possible to the point of termination. Untwisting shall not exceed 13mm (0.5 in.) for Category 6 links.
- Strip back only as much jacket as is required to terminate individual pairs.
- All connecting hardware shall be installed to provide well-organized cable management in accordance with manufacturer's guidelines.
- All four pairs must be terminated.
- Pin/Pair assignments shall follow the T-568B configuration (see Exhibit 6).

Exhibit 6: T-568B and T-568A Pair/Pin Assignments



6.0 INSTALLATION OF OPTICAL FIBER CABLES AND CONNECTORS

This section provides the specifications to be used when installing all optical fiber cabling.

6.1 Fiber Horizontal Workstation Cable

The fiber horizontal workstation cable connects the workstation to the wiring center. This cable shall be four-strand, multimode, 62.5/125 µm or 50/125 µm, optical fiber cable with graded index 250 or 900 µm buffer. Contiguous, 2-foot, segment-length markers shall be printed on the cable jacket.

The bend radius of any optical fiber cable installed shall be at least eight times the outside diameter of the cable. For example, a six-strand optical cable with an outside diameter of .30 inches and shall have a minimum bend radius of 2.40 inches.

Pulling tension for optical fiber cables must adhere to and not exceed manufacturer specifications.

6.2 Backbone Fiber Cable

The optical fiber home-run backbone cable shall connect each remote wiring closet to the MDF. This cable shall be 12-, or 24-, or more strand, multimode, 62.5/125 µm or 50/125 µm, optical fiber cable with graded index, 250 or 900 µm buffer, and contiguous, 2-feet, segment-length markers printed on the cable jacket. Optical fiber cables shall be of interlocking armor construction eliminating the need for conduit or plenum rated inner duct.

Fiber-optic cable shall not share conduits with copper medium unless separation between copper and fiber is maintained. For large campus or complex backbone fiber installations where multiple conduits or pathways exist, fiber-optic cable shall be separated from the copper cable installation, wherein fiber-optic cable is dedicated to one conduit, copper to another. In retrofit or existing buildings, where pathways are insufficient to maintain separation between copper and fiber, ICE OCIO NEB shall review and approve the design prior to installation.

6.3 Optical Fiber Cable Jacket

All overhead or above-ceiling installations shall use optical fiber cable with a plenum-graded jacket that is marked with a UL rating of "OFNP" or equivalent. All non-air-return (non-plenum) installations can use optical fiber cable with either a plenum or non-plenum jacket (such as PVC) that is marked with a UL rating of "OFNR" or equivalent.

6.4 Optical Fiber Connector

The optical fiber connector for workstation or backbone connections shall follow the ANSI/TIA/EIA standards for installation.

New buildings shall use SC type connectors for workstation and/or backbone installation.

In retrofit buildings, fiber connectors should match the existing installed connectors.

6.5 Optical Fiber Cable Termination

All optical fiber cables shall be light tested prior to installation. This is typically done while the cable is still on spools or reels and only ensures all strands pass light prior to pulling cable into conduits and pathways.

The minimum termination shall be four strands for a horizontal cable. When installing fiber-optic backbone cabling, all strands will be terminated with the appropriate connectors and capped with a dust boot. All strands shall be terminated and tested.

All optical fiber cables shall have a twenty foot storage coil (wrapped in an appropriately sized loop for the minimum bend radius of the cable) positioned at each end, where possible before being terminated with connectors. All intermediate slack in the optical fiber cable shall be loosely coiled and suspended to avoid hard bends or kinks.

7.0 FACEPLATE CONFIGURATION

Workstations that are not connected to an optical fiber cable typically utilize a single-gang faceplate that can support up to six connection ports (see Exhibit 2). Blank inserts shall be installed in all remaining positions.

Workstations that are connected to optical fiber cables shall have a double-gang faceplate and junction box installed that can support up to 12 connection ports (see Exhibit 3).

8.0 PATCH PANELS

Patch panels, both fiber and copper are the approved methods of providing connectivity between horizontal cables, Intra and Inter-backbone copper, fiber backbone, and common network service devices, such as switches, PBX, routers, and other electronics.

Patch panel installation must adhere to manufacturer specifications and installed utilizing all wire management hardware, both front and back. Panels shall be installed to best utilize both vertical and horizontal wire managers, and should be separated by horizontal wire managers. There should be a minimum of one horizontal wire manager for each horizontal patch panel. Panels must be clearly marked as to the outlet designation. Labels must be of permanent indelible typed materials.

8.1 Copper Patch Panels

Each panel will be installed to provide the maximum use of rack space. Each panel will be mounted in an equipment rack that shall conform to the EIA-310 mounting-hole spacing standard.

Separate patch panels will segregate “A”, “B” and “C” cables. The upper patch panel will be used for “A”, the middle patch panel will be used for “B” and the lower patch panel will be used for “C”. In addition, and depending on the number of total cables, all cables may also share a single standard 7-foot equipment rack, swing gate or cabinet enclosure. Exhibits 7, 8, and 9 shall be used as a model for all new installations, and should be followed as close as possible for major retrofits and renovations with respect to existing cable plant configurations. Deviations to these layout exhibits shall be reviewed and approved by the NEB.

8.2 Fiber Optic Patch Panels

Optical fiber cable patch panels for workstation connections (also called fiber cabinets) shall provide 568SC couplers. Optical fiber cable patch panels for backbone cabling (also called fiber cabinets) shall provide 568SC couplers. The color scheme and the port numbering scheme on the patch panel shall be consistent in any given installation to reduce confusion and to prevent mistakes in making cross-connections. Fiber patch panels shall be installed in standard increments of six-position; 568SC loads or interconnect couplers, as required in each wiring closet and MDF.

9.0 EQUIPMENT RACK

There are a multitude of equipment racks and cabinets that are acceptable for use in ICE installations. Wherever possible, separate secure communication closets are recommended and are the preferred method for voice and data installation. In these dedicated communications closets, open racks, cabinets and swing gates may be used to meet the needs of the installation.

When open racks or swing gates are used, they shall be located within the wiring closets, and they shall provide structural support for the patch panels and required electronics. The open rack will be a standard 19 inches wide by 7 feet tall when used in a floor mount configuration. When space considerations mandate, it is acceptable to use an open, wall-mounted equipment rack (swing gate). If a wall mount configuration is used, the rack must be hinged, and space must be provided so that the rack can swing fully open and provide full access to the back of the rack.

All floor or wall-mounted equipment racks, cabinets and swing gates installed in earthquake-prone geographic areas shall be installed in compliance with specific seismic guidelines, regulations and codes. Special attention must be taken to ensure the proper installation techniques are followed to minimize risk to electronics and cable plant, and most importantly prevent the mounting hardware from toppling over during seismic activity.

Equipment shall be mounted on the rack via holes in the frame or by using mounting hardware that conforms to the EIA-310 mounting-hole spacing standard. As an alternative for non-rack devices, equipment may be placed on flat shelves that are attached to the rack. All racks shall be secured either to the floor or wall with bolts or other fasteners that are rated to withstand the recommended weight limits and shear loads for the rack. Each rack shall include all mounting and assembly hardware (such as nuts and bolts) for full configuration use. When multiple racks

and/or cabinets are used and they are butted together in the closet, they shall be bolted together for additional stability.

Exhibit 7: Typical Single Rack Layout for Smaller Installations

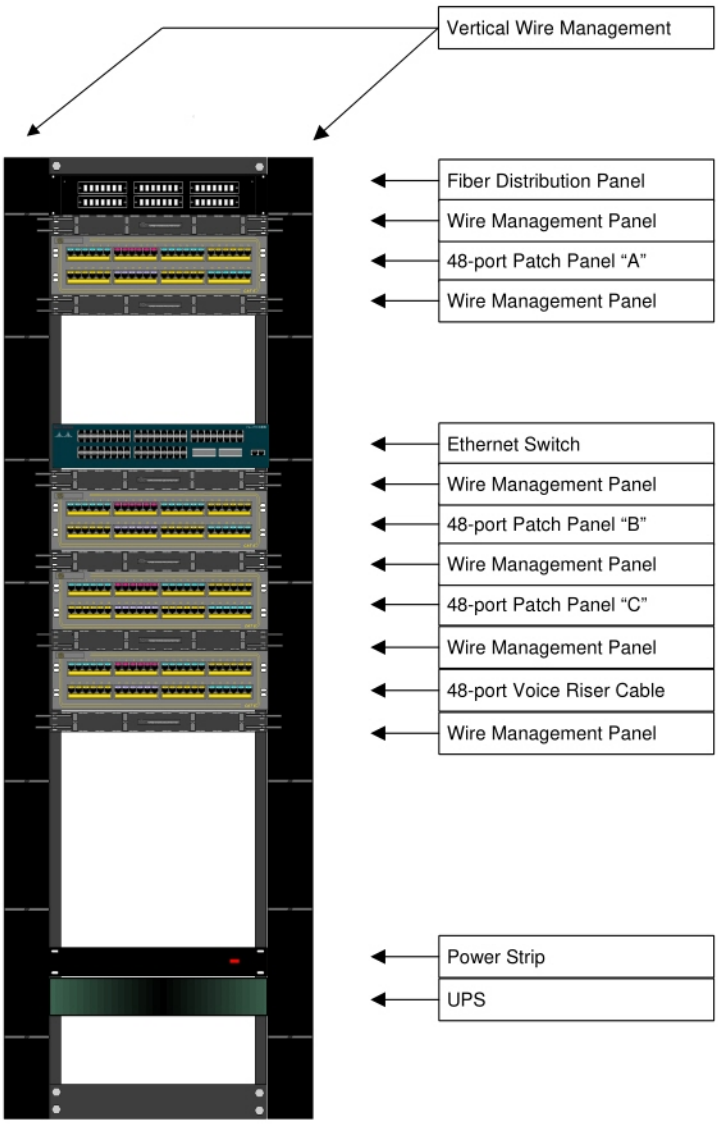


Exhibit 8: Typical Two Rack Layout

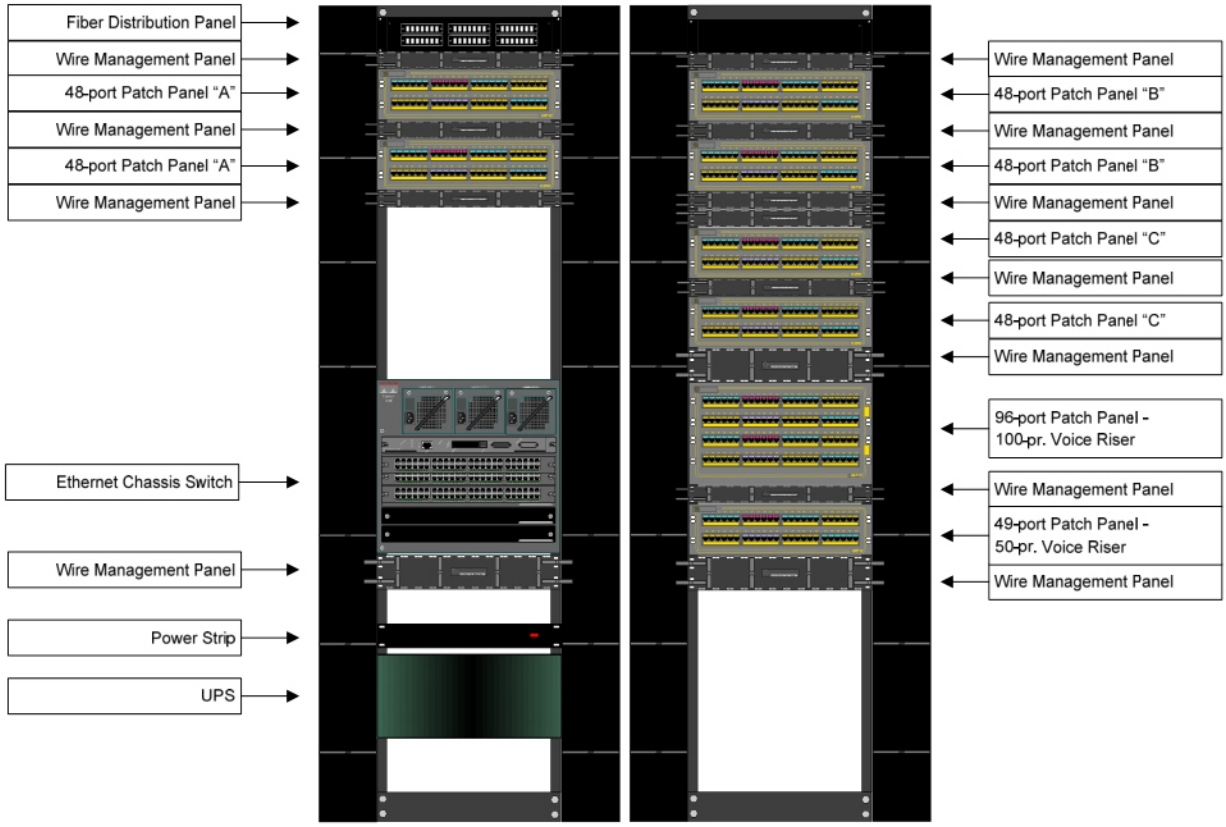
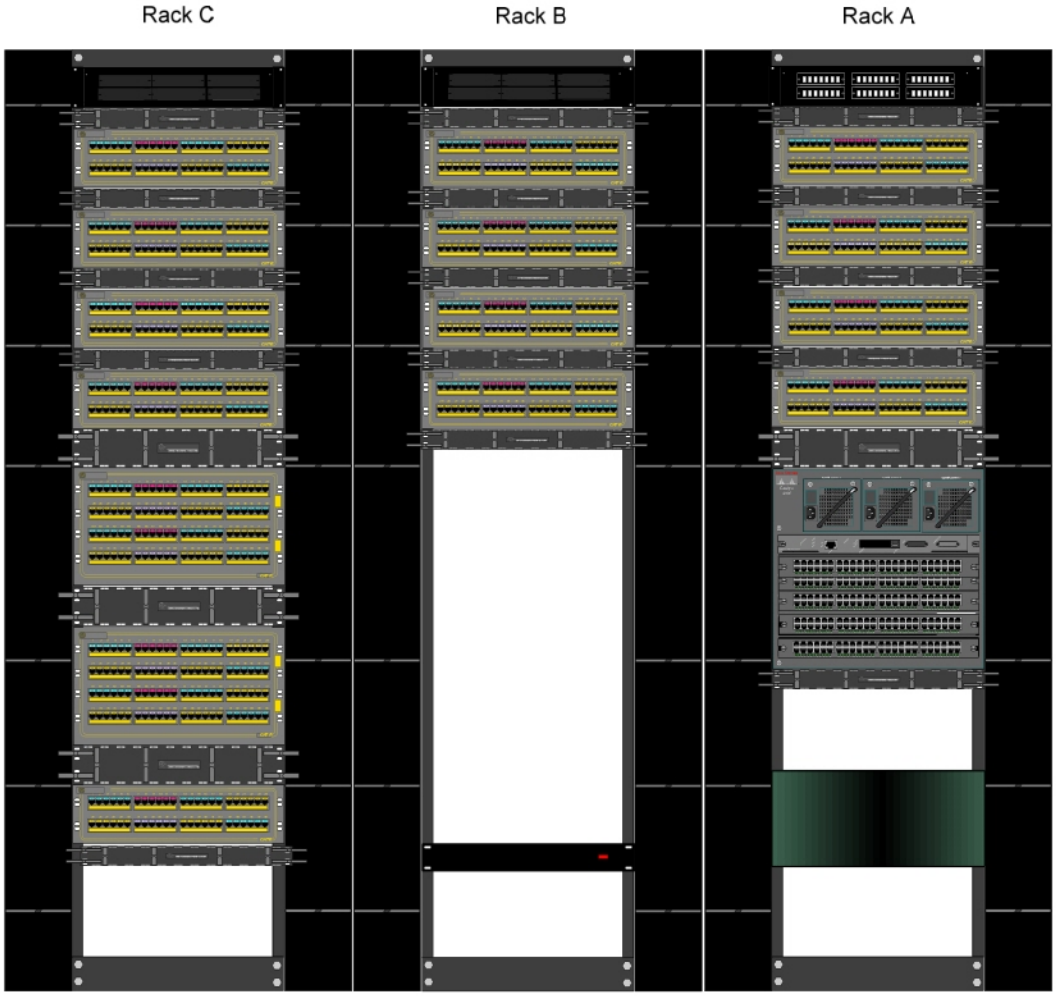


Exhibit 9: Typical Three Rack Layout for Larger Installations



Floor mounted racks and cabinets shall have a minimum of 36 inches of clearance in front of, behind, and on at least one side. Where space or room layouts limit the minimum clearances required, the installation contractor shall notify the NEB or designated representative for technical direction.

Equipment layout, specifically with respect to rack, cabinet, and swing gate location are critical design elements that ensure future growth, maintenance and flexibility are protected. Proper clearances also allow installers and maintenance personnel the required room to perform work safely and ensure electronics environmental conditions are maintained.

The patch cables shall run neatly through the wire management panels above the electronics, run down the sides of the rack, run below the electronics, and plug neatly into the respective port. The cables between the patch panels and the electronics shall not be excessively long nor shall they lie on the floor. The patch cables shall be secured and bundled using Velcro securing straps.

Caution: The use of tie-wraps is not acceptable when bundling and securing patch cables on the rack.

A power strip with surge suppression and an on/off switch shall be mounted to the back of the rack to supply at least six outlets for AC power (120-volt, 20-amp service).

10.0 GROUNDING

The NEC provides guidelines to ensure that electrical installations in buildings meet the necessary safety practices to prevent electrical shock hazards to personnel, ensure fault clearance of unintentional electrical breakdowns that could cause fire, and prevent transient voltages from causing electrical damage to installed network components. NEC Article 800 pertains to telecommunications industry and should be consulted for specific guidelines related to this topic. Article 800 also has references to other articles as the need arises.

In all new buildings and major retrofit projects an independent ground bus, installed in each communications closet, shall be provided. The independent ground bus in each closet should be installed by a certified electrician, or properly licensed installer. The independent ground buses are designated for, and utilized exclusively, by the communications equipment. In existing buildings, an independent ground is certainly desirable. In general, all communications systems, cable plant devices, equipment, and components shall be properly grounded and bonded.

All grounding shall be performed to meet the following published standards and guidelines:

- ANSI/TIA/EIA 607
- ANSI/IEEE C-142
- Federal Information Processing Standard (FIPS) 94
- NEC Articles 250 and 800
- UL
- ANSI CI-1978

All equipment racks, cabinets and systems must be properly connected to the independent ground bus per the ANSI/TIA/EIA 607 specifications. It is the responsibility of the cable

installer to connect all common closet equipment racks and cabinets to the provided ground bus. It is also the responsibility of the cable installers to report to the ICE Program Manager any discrepancies with respect to improper or omitted grounding systems.

For connecting equipment within the telecommunications/data wiring closets to the ground bus, a number six wire with green insulation should be used. This ground wire should be no longer than 30 feet.

All ground wire should be routed straight, with sweeping bends, neat, and orderly. Ground wire should be routed in the most direct fashion possible to the equipment. Ground wires should be supported by tie-wraps at 12-inch intervals.

The manufacturer instructions and recommendations shall be followed when grounding the electronic equipment installed in the telecommunications/data wiring closets.

11.0 CABLE LADDERS AND FASTENERS

All cables installed in overhead spaces (such as above ceiling panels) shall be securely strapped to ceiling slab fasteners or cable ladders that are fastened to the ceiling slab to avoid contact with lighting equipment or drop ceiling supports. Wire management channels or cable ladders shall be used to provide orderly arrangement of all installed cables in and around the equipment racks.

As a general rule, all cables shall be securely suspended, fastened, tied, and bundled firmly (without damaging the cable jackets or creating kinks in the cable) to minimize the amount of space required for cabling.

12.0 ADMINISTRATION AND LABELING CONVENTIONS

Label conventions shall apply to all sites, regardless of the number of buildings at the site. This section describes the ICE standard labeling convention for all cable installations, whether new or retrofit.

12.1 Building Designation

The designation for the building shall be a two to four character alphanumeric scheme. Buildings typically have unique names/numbers, whether in multi-story complexes or in campus environments. The first designation should represent the unique building the cable plant is wired within. This nomenclature will rarely change throughout the life of the building and allows a structured naming convention to be used for Inter-building backbone cable installations.

12.1.1 Floor

The designation for the floor shall be a two-digit number. If the floor is a single number such as "4," place a leading zero before the single-digit, for example "04."

12.1.2 Wiring Closets

The designation for a wiring center is a single letter. The Computer Room or MDF shall always have the wiring closet designation of "M." Remote wiring closets that are all located on the same floor shall be labeled A-L and N-Z ("M" is reserved for the MDF). Closets that stack directly on top of each other shall have the same letter designation.

12.1.3 Cable Numbers

The designation for the cable shall be a three-digit number, followed by an "A", "B" and "C". Use leading zeros as necessary. For example, the designation for drop #3A would become 003A.

12.2 Information Outlet

The IMO is the interface for the workstation cable and the horizontal workstation cable, which terminates in a wiring closet. This is typically referred to as the "jack" in the industry, also an enhancement to the Bell Labs Universal Service Order Code (USOC) specifications. These specifications also referenced the RJ pin assignments. The ANSI/TIA/EIA now prefers to use the term 8-pin modular plug or connector when describing jack pin-outs. Each information outlet should be labeled according to the following guidelines:

The designations on single-gang and double-gang faceplates will be as follows:

- Building (AANN, or combination).
- Floor (NN, with a leading zero).
- Wiring center (A).
- Cable drop (NNN, with leading zeros).

For example: "TW-12-C-111"
where: TW = TechWorld building
12 = 12th floor
C = wiring center and
111 = cable drop #111.

12.3 Intra and Inter-Building Backbone Cables

These backbone cables interconnect wiring closets either within a building or interconnect buildings in a campus environment.

The naming convention applies the same for Intra and Inter backbone cable labeling. Standard nomenclature for backbone cabling shall be as follows:

- First Building (4–6 alphanumeric characters).
- First wiring closet (includes floor, closet and pair or strand designations).
- Second Building (2–4 alphanumeric characters).
- Second wiring closet (includes floor, closet and pair or strand designations).

For example, "TW801I-06-W-001 – TW800K-01-M-001"
where: TW801I = TechWorld building 801 I is the first building (origination point)
6 = 6th floor
W = wiring center, closet W
001 = cable pair (copper) or strand (fiber)
TW800K = TechWorld building 800 K is the second building (destination point)
1 = 1st floor
M = wiring center, Main Distribution Frame
001 = cable pair (copper) or strand (fiber).

The cable label shall be affixed to both ends of the cable, approximately 2 to 3 inches from the termination point. Heat shrink labels are preferable. Wrap-around labels are permissible as long as they are printed using indelible ink and the labels are easily read.

12.4 Patch Panel Patch Cables

The patch panel patch cord connects the horizontal workstation cable to the network electronics. Patch cables in each wiring closet should be identified on each end of the patch cable in a standard, one-up, numeric order, so that an individual patch cable can be easily identified without having to physically "tug" the cable to follow and identify it.

The cable label shall be affixed to both ends of the cable, approximately one inch from the termination connector or modular plug. The labels should be printed using indelible ink, and the labels should be positioned so they can be easily read.

13.0 TEST AND DOCUMENTATION PROCEDURES

The installation contractor shall complete all testing of the cable plant. The installation contractor is responsible for providing all personnel, equipment, instrumentation, and supplies that are necessary to perform the required testing.

13.1 Testing of Installed Copper Cable

All installed copper cables shall be tested with a Level III cable tester to certify that the cable conforms to ANSI/TIA/EIA-568-B specifications. The test device shall provide printed and electronic (soft) Pass/Fail test results that show the following:

- Electrical length in feet (accurate to 0.5 feet).
- Cross-talk in dB for each of the four pairs.
- End-to-end attenuation in dB for each of the four pairs.
- Drop number.
- Continuity (for all eight wires).
- Capacitance
- DC resistance
- Impedance
- Date of test
- Name and model of the field tester (i.e. Fluke OMNIScanner 2).
- Software version or level.
- Date the field tester was last calibrated.
- Which test was being performed (permanent link test, channel test).

13.2 Testing of Optical Fiber Cables

Testing shall be of the optical link as specified in ANSI/TIA/EIA-568-B.3 for multimode fiber optics and ANSI/TIA/EIA-526-7 method A for singlemode fiber optics. An optical fiber link is defined as the passive cabling network between two optical cross-connects (patch panels or outlets). This includes cable, connectors and splices but does not include active components. The link test contains the representative connector loss at the patch panel associated with the mating of patch cords, but does not include the performance of the connector at the equipment interface.

If the manufacturer of cables or connecting hardware has supplied post-manufacture performance data, copies of such data are to be included in the documentation.

Testing of installed multimode fiber cable shall meet or exceed the specifications in Exhibit 10.

Exhibit 10: Multimode Fiber Cable Specifications

Horizontal Fiber	Attenuation 850 nm	Attenuation1300 nm
≤ 90 m	≤ 2.0 dB	≤ 2.0 dB
Backbone Fiber		
≤ 2000 m (6560 ft)	≤ fiber length (km) x 3.75 dB/km + number connector pairs x 0.75 dB + number of splices x 0.3 dB	≤ fiber length (km) x 1.5 dB/km + number connector pairs x 0.75 dB + number of splices x 0.3 dB

Testing of installed singlemode fiber cable shall meet or exceed the specifications in Exhibit 11.

Exhibit 11: Singlemode Fiber Cable Specifications

Length	Attenuation1310 nm	Attenuation1550 nm
≤ 90 m (295 ft)	≤ 2.0 dB	≤ 2.0 dB
91-1000 m (3281 ft)	≤ 3.0 dB	≤ 3.0 dB
1001-2000 m(6562 ft)	≤ 3.3 dB	≤ 3.3 dB
2001-5000 m (16404 ft)	≤ 4.7 dB	≤ 4.7 dB

Test reports shall include the following information for each cabling element tested:

- Actual measured and maximum allowable attenuation (loss) at the specified wavelengths.
- Reference method.
- Number of mated connectors and number of splices (if any).
- Actual length and maximum allowable length.
- Group refractive index (GRI) for the type of fiber tested, if length was optically measured.
- Tester manufacturer, model, serial number and software version.

- Fiber ID number and project/job name.
- Link criteria used.
- Overall pass/fail indication.
- Date and time of test.

Test reports may be submitted in hardcopy , electronic, or both formats. ICE prefers these reports to be provided in the electronic format over hardcopy.

14.0 BUILDING PATHWAYS, CONDUIT, AND CLOSETS

14.1 Closet Specifications (MDF and RWC)

Typical communications closets house common equipment required to support both voice and data connectivity to workstations. Communication closets/rooms are typically centrally located on the floor, and adhere to the ANSI/TIA/EIA specifications for cable lobe lengths (e.g. maximum cable from closet to workstation will not exceed 100 meters, end-to-end). Closets/rooms should be vertically stacked, with a sufficient number of sleeves interconnecting each closet. All wiring centers shall comply with or support the following specifications and requirements:

14.1.1 General Requirements

- The space should be environmentally temperate, convenient, and professional looking.
- The communication closets must have sufficient infrastructure required to support the variety of communication services provided to ICE and contractor staff. Typically this includes items such as conduits, cable trays, building grounding system, etc.
- Communications closets should be designed for growth, and flexibility supporting new technologies without the need for major room modifications and rearrangements.

14.1.2 Environmental

- Room should be dust free with positive air pressure where possible and meet Federal guidelines for specified material to reduce airborne contaminants caused by off gassing.
- Ceilings should be finished with similar drop tiles used throughout the floor.
- Overhead lighting sufficient to provide 80 candle feet measured five feet above the finished floor, is to be switched controlled and is not to be connected to communications equipment circuits.
- Care must be taken to avoid structural columns, ductwork, other building structures, which would restrict the functionality of the space.
- Ceiling space above communications closets should be open and clear of major Heating, Ventilation, and Air Conditioning (HVAC) systems and ductwork, including major motors, elevator motors, generators, or equipment that induce excessive EMI and/or RFI to communications equipment or systems.

- Room temperature must be maintained between 65 to 85 degrees Fahrenheit, with a relative humidity range of 20 to 60 percent. When heat-generating equipment is placed into communication closets, maintaining environmental parameters is essential, thus avoiding down time due to equipment failures caused by equipment over heating. Where the building HVAC is insufficient to maintain these parameters a standalone HVAC system should be considered to maintain these environmental ranges for 24 hour, 7 days a week (24/7) schedule.
- Where no dedicated HVAC system is required for plenum air return buildings, there should be a minimum of two diffusers for fresh HVAC air intake, with a minimum of two air return vents, vented door and a positive air flow maintained. Buildings without air return systems should provide clean air 24/7. Additionally, rooms without dedicated HVAC systems should have a continuous airflow 24/7.

14.1.3 Construction

- Closets vary in size depending on their function. However, minimum communications closet size should never be less than specified in the applicable ANSI/TIA/EIA specifications. ICE typical closet minimum size should be no less than 80 square feet, whereas the recommended size is calculated by the ANSI/TIA/EIA specifications.
- Door locks for all communications rooms will conform to local security requirements.
- Door must be a minimum 36 inches wide by 80 inches high. The door should swing out to facilitate equipment installation and provide maximum space utilization by allowing higher density equipment designs and configurations without the concern of lost space due to door travel.
- Floor should be rated to withstand 100 pounds per square foot and should be covered with appropriate tile or linoleum. Carpets are not acceptable in communications closets.
- Each communications closet should have a minimum of 2 separate 120 Volt @20A circuits installed for cable plant electronics. Preferred outlets are the National Electrical Manufacturers Association (NEMA)-20 5 quad receptacles. Outlets should be installed at heights that adhere to the building electrical codes, typically 18 inches above finished floor. Additional circuits may be required as equipment density is increased.
- A certified electrical ground and buss shall be installed into each closet for communications equipment grounding and be connected to a dedicated building ground, that is compliant with the ANSI//TIA/EIA 607.
- For the MDF, a pre-treated, fire-rated, plywood backboard (3/4 inches by 4 feet by 8 feet sheets) shall be fastened properly to the wall for riser cable control, where required.
- All cable shall be neatly tie-wrapped and anchored every 3 feet on the backboard
- ICE occupied floors that are contiguous, with stacked closets, should have a minimum of two 4-inch sleeves between closets for ICE Data and Voice cables. Additional sleeves will be required for the building voice riser system. Where ICE data and voice cables must pass through communications closets not controlled by ICE or the US government, mechanical protection must be provided. Thin wall ridged conduit will be sufficient for this requirement.

14.2 Conduits

Conduit installations shall comply with all ANSI/TIA/EIA-569-A specifications. Highlights of that specification are as follows:

- A maximum fill factor of 40% per conduit shall be adhered to for new conduits. If possible, installers shall avoid using those conduits that have exceeded the 40% fill factor.
- A pull-box shall be installed every 100 feet and every two 90-degree turns.
- All bends in the conduit must be made hydraulically to create smooth, sweeping turns.
- All pull-boxes shall be sized to allow for the largest minimum bend radius for any of the cables that are used.
- Where local codes mandate that rigid conduit must be installed from the distribution closet to the IMO, a minimum of one 1-inch diameter conduit from wiring center to workstation IMO is required. This single, 1-inch conduit will support both voice and data grade cabling to the workstation and requires a consolidated voice and data closet.
- In buildings, which local codes do not mandate rigid conduit from the distribution closet to the IMO, a minimum of one 1-inch diameter conduit from above ceiling grids to respective IMO is recommended. These conduits are referred to as "ring and string" within the industry, and typically provide a pathway for plenum cable installation into the outlet box. Although many local codes do not require rigid conduits for low voltage wiring, ICE DSB recommends the general contractor install these for each IMO.
- Open office space (e.g., systems furniture where two or more IMO's are fed by a single column or feed) typically does not require conduit stubs or home-run conduits. If conduits or stubs are installed, then conduit sizing shall ensure fill factor does not exceed 40%.
- A minimum of two 4-inch diameter sleeves shall be provided for vertically stacked closets. In open plenum environments, where access to closets are not blocked by building structures or fixtures, and a clear pathway exists, conduit installation is not required to interconnect closets. Exceptions will be made by the ICE Project Manager
- A minimum of two 4-inch diameter conduits shall be provided in any building or campus environment where cable is subject to damage or there is no clear pathway for installation. These may be areas such as underground parking garages, outside cable routes, pathways through office space not under ICE control, or areas that prevent cable installation at future dates, such as main building lobbies, under-floor pathways, etc.
- A minimum of two 4-inch diameter conduits between buildings in a campus environment.

15.0 DOCUMENTATION

Upon completion of the cable plant installation, a documentation package shall be completed within 30 calendar days that shall include the following items:

All of this information shall be provided in both hardcopy and electronic formats, except as follows:

Cable Installation Report	Electronic Format
Letters of Certification	Microsoft Word 2003 or lower
Implementation Report	Microsoft Word 2003 or lower
Detailed Materials Listing	Microsoft Excel 2003 or lower
Cable Plant Database/Cut Sheet	Microsoft Excel 2003 or lower
Wiring Closet Detail	Microsoft Visio 2003 or lower
As-built Site Drawings	Autodesk AutoCAD Version 2004 or lower
Cable Plant Test Results	Fluke Networks Linkware 2.3 or equivalent
PDF Cable Installation Report and Test Results	Adobe Acrobat 7.0 or lower

15.1 Letter of Certification

A letter of certification shall be supplied to the designated ICE Program Manager from the authorized project supervisor. A sample of the recommended letter of certification is included as Appendix B of this document. A letter of certification shall be supplied to the designated ICE Program Manager from the authorized project supervisor. A sample of the recommended letter of certification is included as Appendix B of this document. The letter of certification should be submitted in electronic format using word Processing software compatible with Microsoft Word 2003 or lower.

15.2 Implementation Report

A brief implementation report shall be submitted as part of the completed documentation package. This implementation report, at a minimum, should include the following information:

- Installing company name and address.
- Contract number and Task or Delivery Order, if any.
- Beginning and ending dates of the installation project.
- Names of personnel assigned to the installation project.
- Installation summary, including deviations from the original task order.
- Responsible party names, address, and phone number.

The electronic version of this report shall be submitted using word Processing software compatible with Microsoft Word 2003 or lower. A sample implementation report is provided as Appendix D of this document.

15.3 Detailed Materials List

A detailed materials list shall be included as part of the completed documentation package. At a minimum, this list shall include all materials originally called for from the site survey report,

actual materials used for the installation project, and a column that shows the deviation between the two. Any unusual deviations in required quantities should be explained in the implementation report, as described previously.

The detailed materials list should be completed and submitted using spreadsheet software compatible with Microsoft Excel 2003 or lower. A sample form to be used for this list is provided as Appendix E of this document.

15.4 Copper Cable Test Results

Test results for all cables shall be included in electronic format (ASCII text format) within the completed documentation package upon completion of the project. The cable test results shall be provided in numeric order on a per closet basis for horizontal cables. All copper tie and backbone cables shall be included as a sub-section and also numbered.

15.5 Fiber-optic backbone Cable Test Results

A hard copy of all fiber-optic cable test results shall be included as part of the completed documentation package. Opposite ends of each fiber strand tested should be included side by side or in direct sequential order. The fiber optic test results shall be submitted in a closet by closet format.

The electronic trace version of the test results should also be included. If a specific executable program is required to view the trace on a personal computer, a copy of this executable file shall be included with the electronic files.

15.6 As-Built Site Drawings

Complete as-built site drawings of the cable plant shall be included as part of the completed documentation package. At a minimum, the following information shall be included on the drawing:

- Accurate, reasonable facsimile of the building floor plan.
- Room and area numbers assigned for identification purposes.
- Location and designation of all wiring closets.
- Location and designation of all information outlets installed
- Routes for all cables, including horizontal, tie, and backbone.
- Location of all vertical penetrations.
- Location of horizontal penetrations through firewalls.
- Any special service application notes.
- Backbone and tie cable lengths between closets.

These as-built site drawings shall be completed using computer-aided drawing software that produces vector graphics data files, preferably AutoCAD version 2004 or lower.

Attachment A

Glossary

AC	Alternating Current
ACR	Attenuation to crosstalk ratio
ADP	Automated Data Processing
ANSI	American National Standards Institute
AWG	American Wire Gauge
CAT	Category
CSA	Canadian Standards Association
dB	Decibel
DO	District Office
DHS	Department of Homeland Security
EF	Entrance Facility
EIA	Electronic Industries Association
ELFEXT	Equal Level Far End Cross-talk
EMI	Electromagnetic Interference
FCC	Federal Communications Commission
FIPS	Federal Information Processing Standard
GRI	group refractive index
HVAC	Heating, Ventilation, and Air Conditioning
ICE	Immigration and Customs Enforcement
ID	Identification
IDC	Insertion Displacement Connector
IEEE	Institute of Electrical and Electronics Engineers
IMO	Information Management Outlet
ICE	Immigration and Customs Enforcement
ISO	International Organization for Standardization
km	Kilometers
LAN	local area network
µm	Micrometer
Mbps	Megabits per second
MC	Main cross-connect
MDF	Main Distribution Frame
MHz	MegaHertz
NEC	National Electrical Code
NEBS	National Electrical Bell Standards
NEMA	National Electrical Manufacturers Association
NEXT	Near End crosstalk

NFPA	National Fire Protection Agency
ns	Nanosecond
OFNP	Optical Fiber Plenum
OFNR	Optical Fiber Riser
OFN	Optical Fiber, not rated
OCIO	Office of Chief Information Officer
OTDR	Optical Time Domain Reflectometer
PCB	Printed Circuit Board
PS ACR	Power sum attenuation to crosstalk ratio
PS NEXT	Power sum near-end crosstalk
PS ELFEXT	Power sum
RFI	Radio Frequency Interference
RJ	Remote Jack
RWC	Remote Wiring Closet
TIA	Telecommunications Industries Association
TR	Technical Reference
TSB	Telecommunications Services Bulletin
UL	Underwriter's Laboratory
USOC	Universal Service Order Code
UTP	Unshielded Twisted Pair
WAN	Wide Area Network

ACR	Measurement of NEXT-Attenuation
Attenuation	The decrease in magnitude of a wave as it travels through any transmitting medium, such as a cable or circuitry. Attenuation is measured as a ratio or as the logarithm of a ratio decibel.
Category 5e	Currently defined in TIA/EIA-568-B. Provides performance of up to 100 MHz, and is used for both 100 Mbit/s and gigabit ethernet networks.
Category 6	Currently defined in TIA/EIA-568-B. It provides performance of up to 250 MHz, more than double category 5 and 5e.
Conduit	A pipe, usually metal, that runs either from floor to floor or along a floor or ceiling to protect cables.
Cross-talk	A type of interference caused by audio frequencies from one line being coupled into adjacent lines. The term is loosely used also to include coupling at higher frequencies.
Delay Skew	The propagation delay difference between the slowest and fastest cable pair.
EIA	Electronic Industries Association: the US national organization of electronic manufacturers. It is responsible for the development and maintenance of industry standards for the interface between data processing machines and data communications equipment.
EMI	"Noise" generated in copper conductors when electromagnetic fields induce current. External signals that disrupt the data transmitted on the local area network or electronic device being operated.
End-To-End Connection	A continuous connection, for example, from a workstation to a concentrator.
FC Connector	A type of optical fiber connector identifiable by its round, screw-operated locking nut. It is usually metal. Its ruggedness leads it to be widely used in test equipment. (Source BICSI Telecommunications Dictionary)
FEXT	Cross-talk measured at the opposite end from which the disturbing signal is transmitted.
Frequency	The number of times a periodic action occurs in a unit of time. The number of cycles that an electrical current completes in one second, expressed in Hertz.
Frequency Range	The range, measured in Hertz of a test signal.
Hertz	The unit of frequency, one cycle per second.
IEEE	Institute of Electrical and Electronics Engineers: An international professional society that issues its own standards and is a member of ANSI and ISO.

LAN	A geographically limited communications network intended for the local transport of data, video, and voice. Often referred to as a customer premises network.
Loose Tube	The fiber is contained in a plastic tube for protection. To give better waterproofing protection to the fiber, the space between the tubes is sometimes gel-filled. Typical applications are outside installations. One drawback of loose buffer construction is a larger bending radius. Gel-filled cable requires the installer to spend time cleaning and drying the individual cables, and cleaning up the site afterwards.
Megabits	A million bits per second: A unit of data transmission speed.
MDF	The main distribution frame, where central networking components are located. This refers to closets and large computer rooms and in most cases houses the WAN equipment and circuits. These rooms are the core rooms in a building or campus environment.
Nanosecond	One billionth of a second (10^{-9} seconds).
NEXT	Crosstalk measured at the end from which the disturbing signal is transmitted. Near End crosstalk is a measure of how much energy is coupled at the near end in a pair that is adjacent to an energized pair, and FEXT is the same measure at the far end from the transmitter. When all pairs are energized, as with Gigabit Ethernet, NEXT and FEXT are generated by each disturbing pair and must be power-summed to obtain a true measure of the coupled energy.
OFN, OFNP, OFNR	Type of optical fiber cable construction, which stands for: general purpose, plenum(P) or Riser (R)
Patch Panel	A modular termination and connection point for horizontal distribution cabling.
Plenum	A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system. (Source National Electric Code)
Protocol	The means used to control the orderly exchange of information between stations on a data link or on a communications network or system.
Propagation Delay	The amount of time that passes between when a signal is transmitted and when it is received at the opposite end of a cable or cabling.
PS NEXT	Power sum near end crosstalk. Measurement
PVC	Polyvinyl Chloride: A type of plastic material used to make cable jacketing.
Return Loss	Return loss is a measure of the signal reflections occurring along a channel or basic link and is related to various electrical mismatches along the cabling.

RJ-45 Keyed Connector	An eight-conductor modular phone-style receptacle with a plastic tab on the side. This type of connector can only be inserted into a keyed jack.
RJ-45 Non-Keyed Connector	An eight-conductor modular phone-style receptacle without a plastic tab. This type of connector can be inserted into either a keyed or non-keyed jack.
SC connectors	Fiber connector that is duplexed into a single connector clip with both transmit and receive fibers.
ST connectors	Keyed, bayonet-style connector.
TIA	Telecommunications Industries Association: The US national organization of telecommunications manufacturers. It is responsible for the development of data processing machines and data communications equipment.
Tight Buffered	Buffer layers of plastic and yarn material are applied over the fiber. Results in a smaller cable diameter with a smaller bending radius. Typical applications are patch cords and local area network connections. At least one mfr. Produces this type of cable for inside/outside use.
UTP	A cable with multiple pairs of twisted insulated copper conductors bound in a single sheath. An unshielded twisted pair Category3, 5, 5e or 6 cable usually contains four pairs of wire in a single jacket.
WAN	Wide Area Network: A network that uses common-carrier-provided lines, usually to connect two or more LANs.

Attachment B

Sample Letter of Certification

[*Use Corporate letterhead*]

[*Title*]

Date: [Current date]

To: [Full name of individual to whom the letter is being sent]

Address [of individual to whom letter is addressed]

Re: Cable Plant Installation

Task Order No.: [XXX-xxx]

Dear [*Mr., Ms., or Dr. and last name*]:

I hereby certify that the cabling installation completed for the above referenced ICE site was completed by our firm, according to the ICE Structured Cabling Standards, on [*date of installation in Month Day, Year*].

Our firm has tested each unshielded twisted pair copper cable wire (not just cable pairs) we installed, as well as any previously installed cable, if applicable, which will be re-used as part of this Task Order. I hereby certify that every wire and cable was tested and meets or exceeds the Category 6 ANSI/TIA/EIA-568-B.2 transmission test requirements.

Our firm also tested each fiber-optic cable and strand we installed, as well as previously installed fiber-optic cable that will be used as part of this Task Order. I hereby certify that each strand of every cable meets or exceeds the required standards for fiber-optic cable.

[*Mr., Ms., or Dr. and full name*]
[*Title*]

Attachment C

Sample Contractor Information Form

CONTRACTOR INFORMATION

JOB NAME: LOCATION:

DATE: **PROJECT:** Cable Plant Installation

FIBER CONTRACTOR

NAME: PHONE:

ADDRESS:

CITY, STATE, ZIP:

CONTACT NAME:

COMPLETION DATE:

SCOPE OF WARRANTY RESPONSIBILITY:
In accordance with Existing Contract

SUPPLIED MATERIALS:
In accordance with Task Order XXX-xxx

COPPER CONTRACTOR

NAME: PHONE:

ADDRESS:

CITY, STATE, ZIP:

CONTACT NAME:

COMPLETION DATE:

SCOPE OF WARRANTY RESPONSIBILITY:
In accordance with Existing Contract

SUPPLIED MATERIALS:
In accordance with Task Order XXX-xxx

Attachment D

Sample Implementation Report

PROJECT IMPLEMENTATION REPORT
SITE C

INTRODUCTION

Company A under sub-contract to Company B, and working under Task Order Number XXX-xxx, recently performed a local cable plant installation at Site C. The project was begun on Monday July 7, 2003, and the installation was completed on Wednesday, July 23, 2003.

PROJECT PERSONNEL
The following ABC Cabling personnel participated in the installation project at the Central City FPS, Central City,

Mr. Clark Kent	Senior Communications Specialist
Mr. Bruce Wayne	Senior LAN Technician
Mr. Barry Allen	Senior LAN Technician
Mr. Dick Grayson	LAN Technician
Ms. Dianna Prince	Senior Technical Draftsman

INSTALLATION SUMMARY

(The following is an example of the expected format. It does not contain all examples of work that may be site specific. Be sure to include all work performed at the site.)

The network installation was completed per the Statement of Work. Per the design documentation, the Federal Protective Services (FPS) area at the Central City Federal Building was cabled for a total of 15 Category 6 drops. All cabling was run through a self-suspended overhead routing system above the acoustic ceiling tiles.

Remote wiring closet 01-M serves the workstation connectivity needs for Rooms 1264 and 1267 on the first floor. Labels starting with 01-M-001 identify these cables. Eight drops are terminated on three 24-port patch panels in the equipment racks located in Room 2235, which also serves as the main computer room. The eight drops are patched to a Cisco 24-port switch in rack.

Remote wiring closet 0B-A serves the workstation connectivity needs for Room B222 in the basement. Labels starting with 0B-A-001 identify these cables. Seven drops for closet 0B-A are terminated on three 24-port patch panels in the equipment rack located in Room B247. The Seven drops are patched to a Cisco 3550 24-port switch in the rack.

A 12-strand optical fiber cable was installed connecting the MDF to the RWC in the basement.

A 25-pair copper tie cable for voice was installed connecting the MDF to the RWC in the basement.

All materials were provided and installed per the materials listing in the report.

PROJECT DOCUMENTATION

Included within the Cable Installation Package, both in hard copy and electronic format, is the following information:

Cable Installation Report	Electronic Format
Letters of Certification	Microsoft Word 2002
Implementation Report	Microsoft Word 2002
Detailed Materials Listing	Microsoft Excel 2002
Cable Plant Database /Cut Sheet	Microsoft Excel 2002
Wiring Closet Detail	Microsoft Visio 2000
As-built Site Drawings	Autodesk AutoCAD 2002
Cable Plant Test Results	Fluke Networks Linkware 2.3
PDF of Cable Installation Report	Adobe Acrobat 7.0

CONCLUSION

The installation project was completed on Wednesday, July 23, 2003.

All materials and workmanship provided by Company A are fully warranted under the terms of the existing contract between Company B and Company A.

Any questions concerning the project installation, documentation, and warranty may be addressed to Mr. Y of Company A. Mr. Y can be reached at (000) 555-0000.

Attachment E

Sample Detailed Materials List

Item No.	Description	Projected Quantity	Actual Quantity	Variance
1	Wire Management Panel	8	8	0
2	48 Port Patch Panel	4	4	0
3	24 Port Patch Panel	4	4	0
4	Single Gang Faceplate, 6-plex	25	25	0
5	Workstation Blank Insert	25	26	0
6	Dual CAT-6 RJ-45 Jack, 568B, non-keyed	25	25	0
7	Single CAT-6 RJ-45 Jack, 568B, non-keyed	25	25	0
8	CAT-6 Cable, 24-4/P, plenum, feet	15000	15000	0
9	Patch Cord, yellow, 14 feet	30	30	0
10	Patch Cord, yellow, 10 feet	70	70	0
11	Open Rack, self support, double sided	1	1	0
11	Rack Mount Power Outlet Strip	2	2	0
13	Catalyst 4500 Chassis (6-Slot)	1	1	0
14	Catalyst 4500 1300W AC Power Supply	1	1	0
15	Catalyst 4500 Supervisor IV	1	1	0
16	Catalyst 4500 48-Port 10/100/1000 Base-T	2	2	0
17	1000BASE-SX "Short Wavelength" GBIC	1	1	0
18	WS-C3550-12T	1	1	0
19	19" Clear Vented Double Sided Rack Tray	1	1	0
20	0.9" x 1.5" Latching Duct, 6 foot lengths	8	8	0
21	Data Tab (Computer Icon) 100/PACK	2	2	0
22	Fiber-optic cable, Twelve-Strand, feet	600	300	300
23	Box Eliminators	50	50	0
24	Surface Mount Box	14	14	0
25	0.53"x1.01" Latching Duct, 6 foot lengths	14	14	0
26	Fiber Distribution Center	2	2	0
27	FDC Connector Panel, Preloaded w/ 6 SC	2	2	0
28	Dual Fiber Jumper Cable, SC to SC, 3 meter	2	2	0

Attachment F

Sample Cable Test Certification Letter

[*Use Corporate letterhead*]

April 5, 2005

Project Manager
DHS-ICE, (b) (6), (b) (7)(C)
801-I Street NW
Washington, DC 20001

Re: DHS-ICE Cable Plant Installation at the **Central City FPS**

Purchase Order #
Work Request #

Dear Mr.:

This letter is to certify that all cable test results included for the above mentioned project have been completed by ABC Cabling personnel who have been trained, and are competent in the use of the test equipment used on the project. [State type of equipment used for testing] These test results conform to ANSI/TIA/EIA 568-B requirements.

Please accept this letter as certification of the accuracy of the test results furnished in lieu of individual signatures on each cable test result.

Sincerely,

Clark Kent,
Program Manager

Attachment G

Sample Cable Plant Database

ROOM	USER NAME	DEPT. NAME	CIRCUIT ID	SERVER	DATA A	DATA B	SWITCH ID	MOD/BLADE	PORT	PATCH ID

Attachment H

Sample Fiber Cable Test

Cable ID: IDF-A07-01 Test Summary: PASS

Date / Time: 04/07/2005 07:07:49am
Headroom: 0.94 dB (Loss)
Test Limit: TIA568B HRZ

Cable Type:	Multimode	
Operator:	(b) (6), (b) (7)(C)	
Software Version:	V02.10	
Model:	CertiFiber	
Main S/N:	55A97L00406	
Remote S/N:	55B97L00431	
Project:	FED.31038	
certifiber	4-07-05 fiber.flw	
n = 1.4966		
Propagation Delay (ns)	320	
Length (ft),	Limit 295	210 PASS
Direction	A-B	A-B
Wavelength (nm)	850	1300
Result	PASS	PASS
Loss (dB)	1.06	0.62
Loss Limit (dB)	2.00	2.00
Loss Margin (dB)	0.94	1.38
Direction	B-A	B-A
Wavelength (nm)	850	1300
Result	PASS	PASS
Loss (dB)	0.37	0.00
Loss Limit (dB)	2.00	2.00
Loss Margin (dB)	1.63	2.00

Compliant Network Standards:

TIA568B HRZ	TIA568B CNT	100BASE-FX	10BASE-FL
1000BASE-SX	1000BASE-LX	3M VOLITION	ATM155 1300
ATM155 850	ATM622 850	FDDI ORIG	TOKEN RING
FIBCHN266			

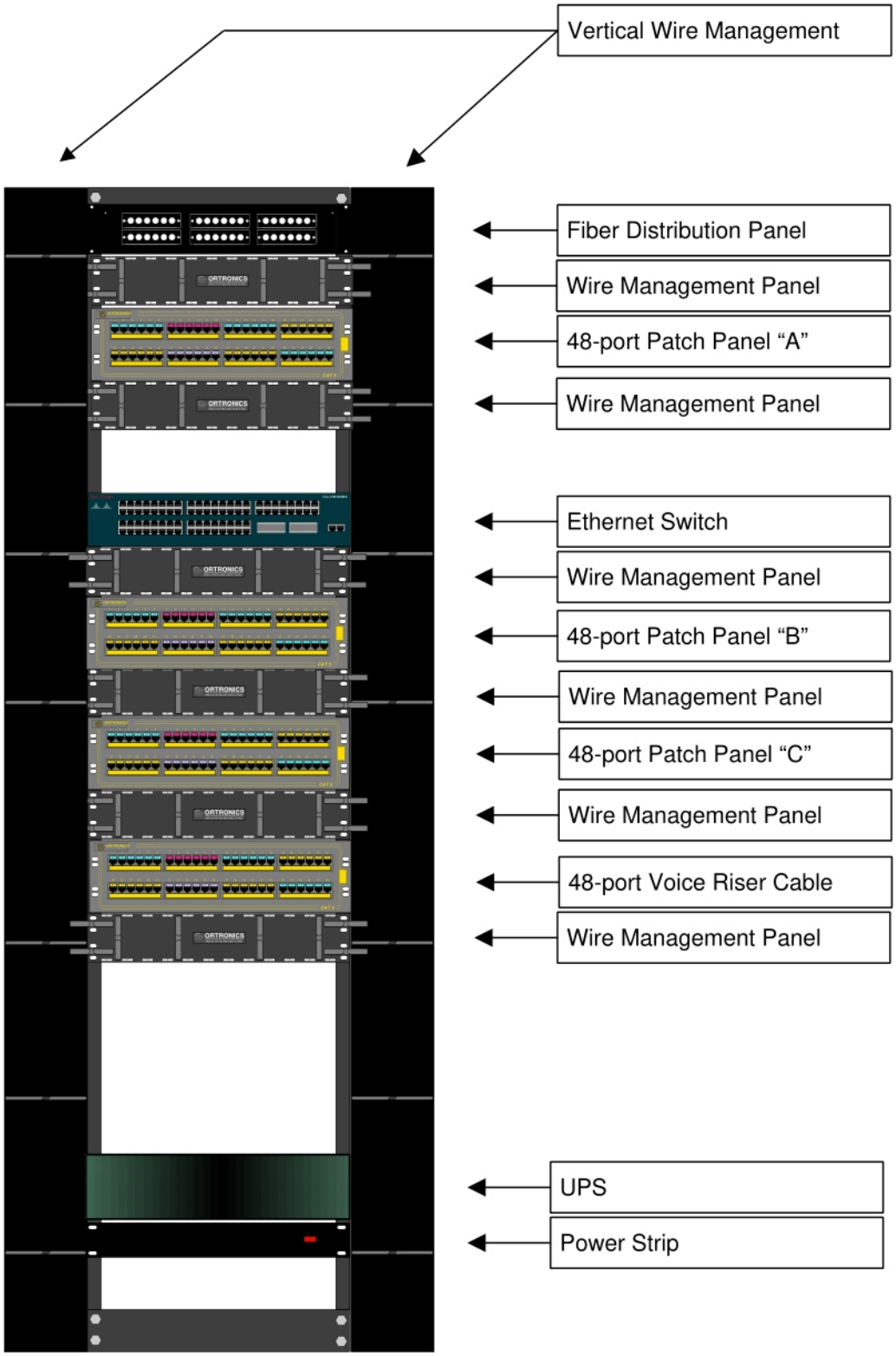
Attachment I

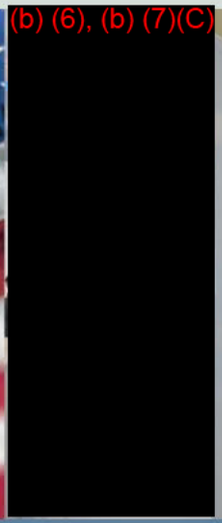
Sample Wiring Closet Detail

Wiring Closet:	TR-02	Segment ID:	1		
EQUIPMENT	MANUFACTURER	LOCATION	SLOT	SERIAL AND SWITCH NUMBERS	NETWORK ADDRESS
4506 Switch	Cisco			FOX07130054 CS274589 INS# SINR01M-1	
Supervisor Engine				CNS8XY6AAA	
Blades				CNS6BJ0AAA	
Power Unit				CNMVW00CRA	
Router 2600	Cisco			JMX0705L16Z CS308364 INS# RINR01	
Modem	Paradyne			CKT#636834396 HCGS672953	

Attachment J

Sample As-Built Drawing and Rack Elevation


Vertical Wire Management
Fiber Distribution Panel
Wire Management Panel
48-port Patch Panel “A”
Wire Management Panel
Ethernet Switch
Wire Management Panel
48-port Patch Panel “B”
Wire Management Panel
48-port Patch Panel “C”
Wire Management Panel
48-port Voice Riser Cable
Wire Management Panel
UPS
Power Strip




U. S. Department of Homeland Security
Immigration and Customs Enforcement

Contractor Owned/Contractor Operated for Health Services Design Standards

March 11, 2005

FINAL

U.S. Department of Homeland Security

IMMIGRATION & CUSTOMS ENFORCEMENT

Health Services

DESIGN STANDARDS

March 11, 2005

Table of Contents

Page

1. INTRODUCTION....1.1

2. ORGANIZATIONAL REQUIREMENTS....2.1

3. FUNCTIONAL REQUIREMENTS....3.1

4. SPACE REQUIREMENTS....4.1

5. DEPARTMENTAL REQUIREMENTS....5.1

6. APPENDIX....6.1

1. INTRODUCTION

Health Services (HS)
- History and Mission

Health Services (HS)
- Design Standards

Health Services

HISTORY

The Immigration and Naturalization Service, now known as the Department of Homeland Security (DHS)/Bureau of Immigration and Customs Enforcement (ICE), has had a relationship with the United States Public Health Service (PHS) dating from 1891, when the Immigration Act authorized the PHS to examine and quarantine immigrants at Ellis Island. Today, that historic link is maintained by an interagency agreement between ICE and the Division of Immigration Health Services (DIHS), an agency of the PHS, and its parent organizations the Department of Health and Human Services (DHHS), Health Resources Services Administration (HRSA), Bureau of Primary Health Care (BPHC).

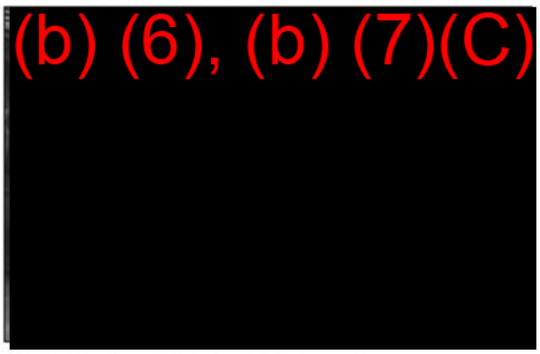
MISSION

The mission of the DIHS is to protect America by providing primary health care and public health services in support of immigration law enforcement. This mission is accomplished through a comprehensive delivery system that emphasizes disease screening and preventive health services and incorporates the provision of high quality, necessary and appropriate medical, dental, and mental health services in a cost-effective manner. Each DIHS medical facility operates in adherence to nationally established ICE Detention Management Standards for health care, as well as the standards of the National Commission on Correctional Health Care (NCCHC), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the American Correctional Association (ACA).

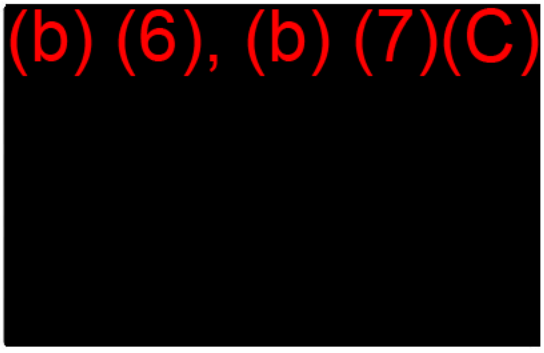
FUNCTION

The DIHS has experienced phenomenal growth in recent years. That growth has accompanied the increased detainee population that followed changes in U.S. immigration law enacted by Congress in 1996. As recently as 1995, health care to detainees was provided almost exclusively between the hours of 8 AM and 5 PM, Monday through Friday, in eight medical facilities located in Services Processing Centers (SPC). At that time, the average detained population barely exceeded 5,000 per day.

DIHS medical staff currently provide direct services to an average daily detained population of well over 20,000 individuals, 24 hours a day, seven days a week, in fourteen DIHS medical facilities nationwide, located in ICE Service Processing Centers, Staging Facilities, and Contract Detention Facilities (CDF).

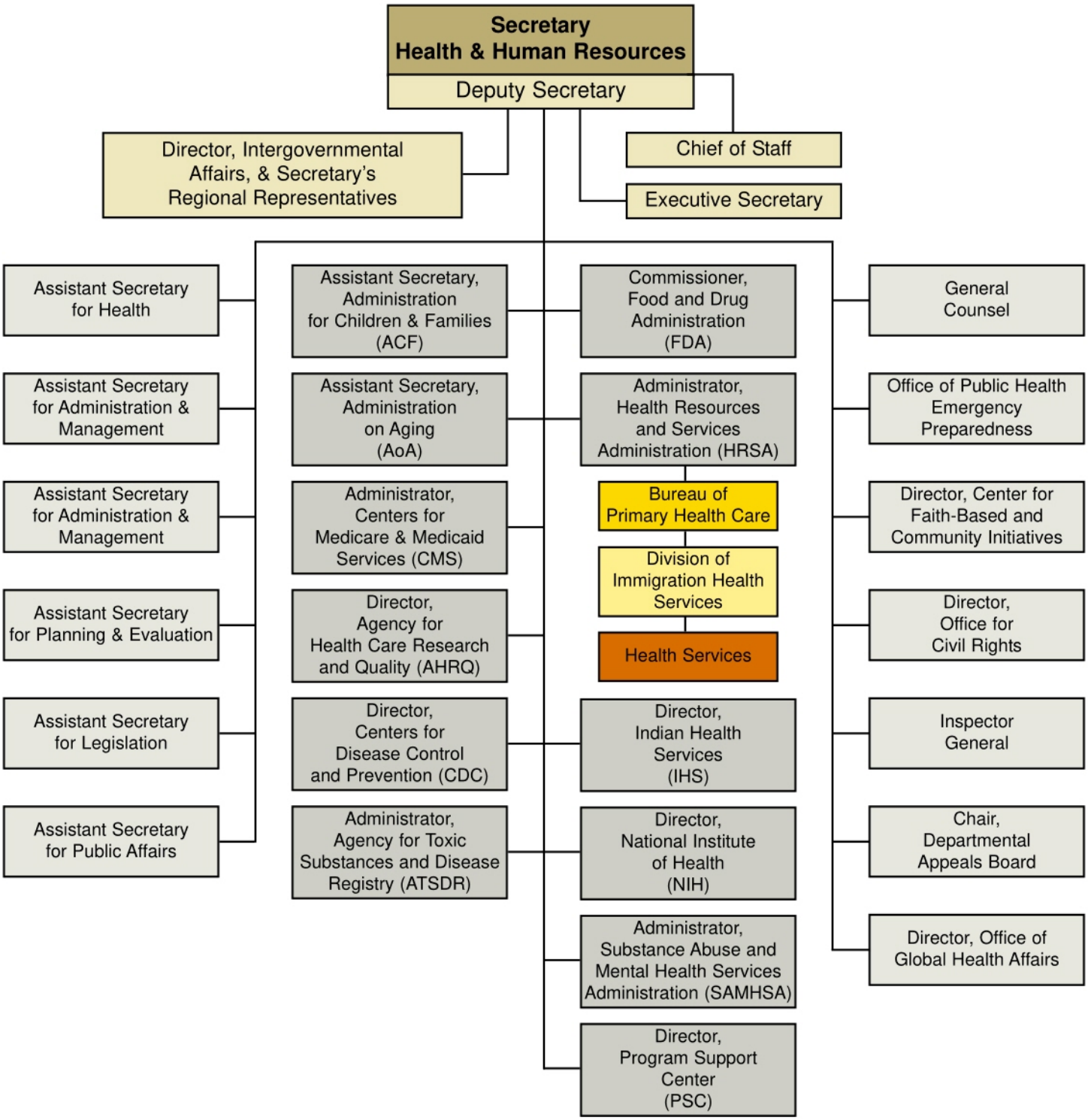


Health Check at Ellis Island - Early 1900's



Port Isabel Service Processing Center Groundbreaking - 2004

Administration Organization - HS within U.S. Department of Health and Human Services



Health Services (cont.)

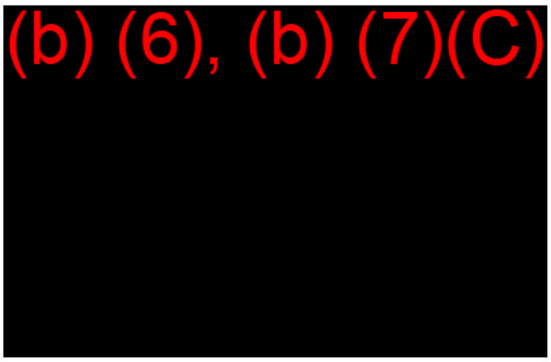
Five of the facilities have inpatient Short Stay Units. One additional medical facility, Pearsall in Texas, is scheduled to open in 2005. Based on the increasing detainee population it is anticipated that ICE will continue to expand bed capacity by opening new facilities as needed. The rapid increase in the detained population of the late 1990s far exceeded occupancy limits of existing ICE facilities. Inter-governmental service agreements (IGSAs) between ICE and various local and county governmental entities were expanded in scope and number to provide bed space in their jails for ICE detainees. As hundreds of IGSAs were enacted, the need to strengthen controls and accountability measures for the expenditure of health care funds was recognized. DIHS answered the challenge by forming the Managed Care Branch.

The Managed Care Branch was composed of a cadre of health care professionals (PHS officers), who established a mechanism for IGSA facilities to request approval for health services to detainees. These Managed Care "Coordinators" operated from an established set of principles and criteria whereby requested services would be individually considered and authorization would be granted or denied. A network of providers was developed. Contracts, memorandums of agreement, or other blanket purchase agreements were established to maximize return on health care dollars expended.

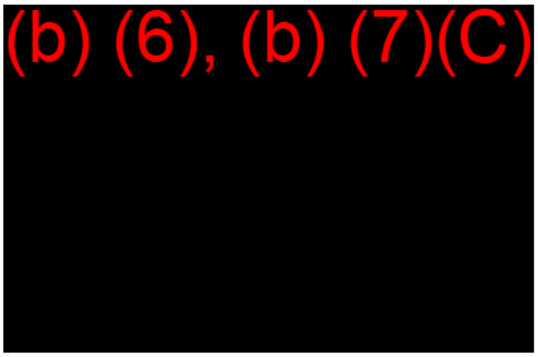
The Managed Care Branch has continued on a track of development and refinement with automation, information technology applications, and sub-contracting (ongoing) network development and claims adjudication processes. Claims reimbursement is based upon the provisions of Title 18 (18 U.S.C. 4006b) except where there is a blanket purchase agreement with a given provider or vendor. The Veterans Administration Financial Center in Austin, Texas currently pays claims.

The DIHS' value to ICE is enhanced by the newly created responders. This corps of deployable DIHS uniformed officers are available to assist with mass migration influxes, staging operations, and evacuation drills. This has proven invaluable on numerous occasions in recent years, including Tinian (Northern Mariana Islands), the Florida Keys, Guatemala, metropolitan New York City, the U.S./Mexican border, and the Port of San Diego.

An even more recent development has been the formal establishment of the DIHS Aviation Medicine Program. Some DIHS officers have successfully completed the U.S. Air Force's Aviation Medicine Academy at Brooks Air Force Base, Texas, creating a highly skilled cadre of health professionals to assist ICE with the removal of individuals to their countries of origin when medication or sedation is required.

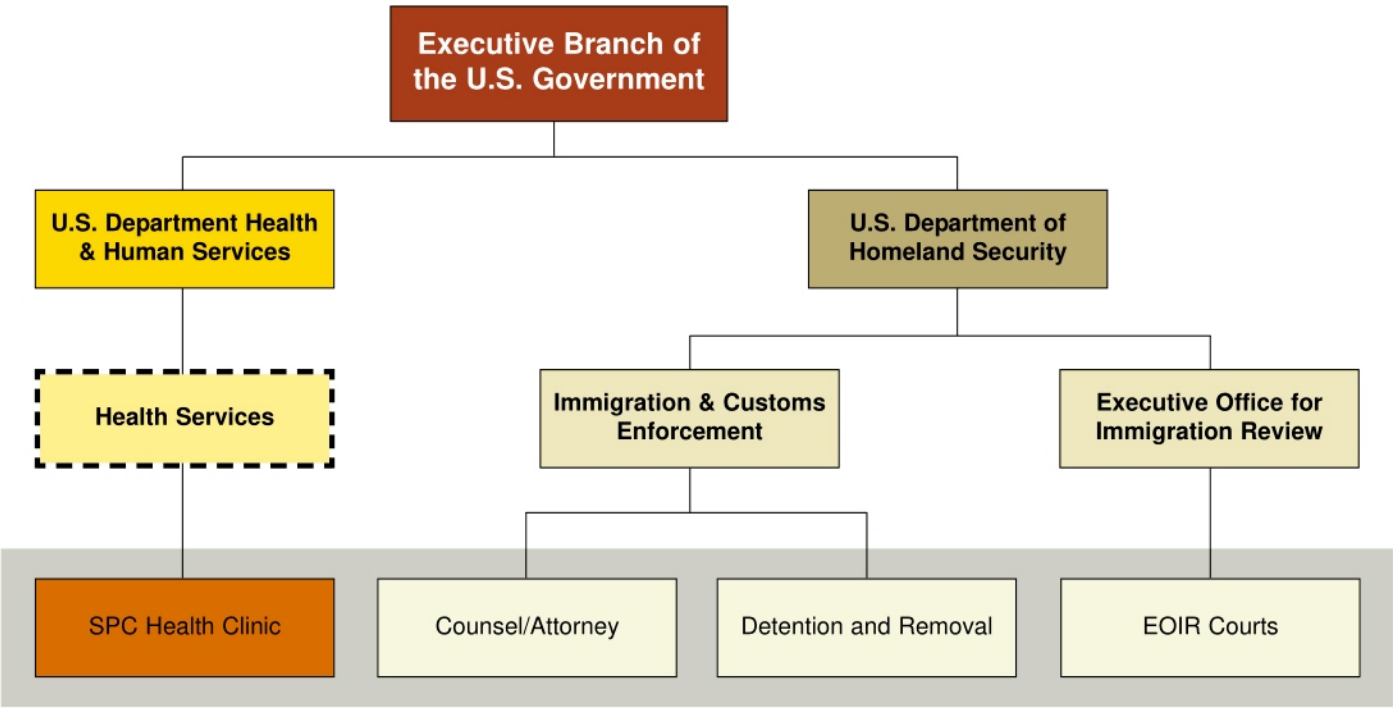


Health Inspection Aboard a Ship, Coast of Guatemala - 2003



Commonwealth of Northern Mariana Islands, Tinian - 1999

Administration Organization - HS within Service Processing Center



Three agencies are present within the SPC: Detention and Removal Operations (DRO), Executive Office of Immigration and Review (EOIR) and Health Services (HS). These groups' respective areas of responsibility are:

1. Detention and Removal Operations (DRO), which is responsible for managing the detainees, presenting cases for deportation and executing deportations.
2. Executive Office of Immigration Review (EOIR), which is part of the Department of Justice, is responsible for conducting the court hearings.
3. Health Services (HS), which is part of the Department of Health and Human Services, is responsible for providing health services.

Health Services Design Standards

DESIGN STANDARDS PURPOSE

The intent of the HS Design Standards is to provide uniform guidelines for the planning and design of new and renovated health services facilities, whether DRO owned and operated or contractor owned and operated. This document should be used as a tool for designers and DIHS staff as they plan, program, design, and build HS facilities. It provides general recommendations that should be used and adopted to fit the specific ICE mission at the location of the planned facility. The standards contained within this document should be continually upgraded as HS organizational, operational, and functional philosophies change and as new technologies become available.

DESIGN STANDARDS DEVELOPMENT PROCESS

The design standards documented herein have been developed by selected representatives of ICE and DIHS. The standards development team evaluated existing HS standards and existing HS facilities with the intent of developing HS standards that will enhance their organizational, operational, and functional efficiencies within an HS unit.

DESIGN STANDARDS DOCUMENT

The design standards document is organized for ease of use. The standards are organized into six sections. Each section is designed to stand alone so it may be extracted for use in the planning and design process.

The chart to the right briefly outlines the contents of each section of this document.

Report Sections

1. Introduction
The Introduction includes Health Services history, mission and the purpose of the Standards with a brief description of each section.

2. Organizational Requirements
This section includes the HS organization, staff forecasts, and roles/responsibilities. A staffing model illustrates the number of staff by position based on detainee population. It also illustrates the type of space based on staff function.

3. Functional Requirements
This section diagrams basic functional relationships of HS within the overall Service Processing Center (SPC) or Contract Detention Facility (CDF), and relationships among the four components within a HS Unit.

4. Space Requirements
The rationale for determining the size of a facility is dependent on the number of detainees held. The number of staff is predicated on the number of detainees and the services offered. Size of facilities are determined by the number of staff and detainees served as well as specific functional requirements of the Service Processing Center (SPC) or CDF. The space analysis is based on four capacity levels of detainee population. These were determined to be representative population levels based on DHS input. Detainee population levels were defined as <200, 200-450, 450-900, and 900-2000. As a general rule, functional spaces within PHS units are similar for each range in detainee population. There may, however, be configuration variations depending on operations and clinical staff mix.

5. Departmental Requirements
This section contains detailed information for each of the four components which makes up the HS unit. For each component you will find its organizational model/concept, critical workflow patterns, and room data sheets.

6. Appendix
This section contains a listing of reference publications and standards as well as two existing HS case studies.

Health Services (HS)
- History and Mission

Health Services (HS)
- Design Standards

Health Services (HS)
- Space Requirements Spreadsheet

Health Services (HS)
- Organization

Health Services (HS)
- Organizational Requirements

Health Services (HS)
- Space Components

1.0 Administration and Common Support

2.0 Medical Intake and Processing

3.0 Ambulatory Care Unit

4.0 Short Stay Unit (Infirmary)

Health Services (HS)
- Inter-Departmental Adjacencies

Health Services (HS)
- Intra-Departmental Adjacencies

Reference Publications

Health Services (HS)
- Case Studies

2. ORGANIZATIONAL REQUIREMENTS

Health Services (HS)
- Organization

Health Services (HS)
- Staff Requirements