VA | U.S. Department of Veterans Affairs

Office of Information and Technology

OIT Design Guide for
Inside Plant Telecommunications Enclosure (TE)
(Telecommunications Wall-Mounted Cabinet)
National Cemetery Administration Specification

DEVELOPED BY:

DATA CENTER AND INFRASTRUCTURE ENGINEERING

OITDataCenterEngineering@VA.Gov

Department of Veterans Affairs

Office of Information and Technology

Enterprise Data Center and Infrastructure Engineering

EDICT

Enterprise Data Center Infrastructure Collaboration Team

PROJECT:

TELECOMMUNICATIONS ENCLOSURE TEMPLATE

PROJECT No:

NCA

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:	
FILE:	Telecommunications Enclosure Standard-NCA 1.4-.vsdx
DESIGN BY:	Michael Julian, RCDD Kevin Grzelka, CTDC
VERIFIED BY:	Kelly Bates; John Wernau; Josh Gardner
DOC VERSION No:	1.4
ISSUE DATE:	SEP 12, 2024

SHEET TITLE

Cover

SHEET: 1 OF 13

LEGEND

ELECTRICAL

- # — DETAIL NUMBER
- # TYP — DETAIL NUMBER TYPICAL THROUGHOUT THIS SHEET
- BONDING BUSBAR
- OR — WIRE MESH CABLE TRAY SIZE COMMENSURATE WITH REQUIREMENTS
- ELECTRICAL SERVICE PANEL
- OVERHEAD POWER DROP CORD WITH L21-20 RECEPTACLE
- OVERHEAD POWER DROP CORD WITH L21-30 RECEPTACLE
- J — POWER JUNCTION BOX FOR 60A CONNECTION
- POWER BUSWAY TAP WITH SINGLE BREAKER 3' DROP CORD WITH L21-20R FOR STANDARD-DENSITY CABINETS
- POWER BUSWAY TAP WITH DUAL BREAKERS AND QTY TWO 3' DROP CORDS WITH L21-20R FOR HIGH-DENSITY CABINETS
- TYPICAL UNSWITCHED 110 VOLT, 20 AMP DUPLEX CONVENIENCE OUTLET
- MOTION SENSOR LIGHT SWITCH
- M — CEILING MOUNTED MOTION SENSOR (LOCATIONS AS REQUIRED FOR FULL ROOM COVERAGE)
- PIV ENABLED TWO-FACTOR AUTHENTICATION KEYPAD
- FIXED CAMERA, PAN/TILT/ZOOM, PASSIVE INFRARED CAMERA - DUAL TECHNOLOGY
- LED LIGHTING
- POWER BUSWAY WITH METERED HEADEND FOR A SIDE POWER DISTRIBUTION
- POWER BUSWAY WITH METERED HEADEND FOR B SIDE POWER DISTRIBUTION
- UPS — MODULAR UPS CABINET (POWER MODULES, BATTERIES, POWER PANELS)

TELECOMMUNICATIONS

- # — DETAIL NUMBER
- # TYP — DETAIL NUMBER TYPICAL THROUGHOUT THIS SHEET
- OR — WIRE MESH CABLE TRAY SIZE COMMENSURATE WITH REQUIREMENTS
- CONDUIT WITH BUSHING FIRESTOP AND INNERDUCT FOR FIBER
- SLEEVE WITH BUSHING FIRESTOP AND INNERDUCT FOR FIBER
- SLEEVE OR CONDUIT WITH BUSHING FIRESTOP AND INNERDUCT FOR FIBER
- TELECOMMUNICATIONS CHANNEL RACK, 19" RAILS, #12-24 TAPPED EIA HOLE PATTERN, 30" DEEP CHANNEL MINIMUM, 7' HIGH, 45RU, WHITE
- VERTICAL CABLE MANAGER WITH DOOR, 6" WIDE MINIMUM (SIZED TO MEET REQUIREMENT)
- SERVER CABINET, 45U, 24" X 48" (NOMINAL), SQUARE PUNCHED RAIL, SINGLE PERFORATED FRONT DOOR, SOLID REAR DOOR (VERTICAL EXHAUST DUCT [VED] IMPLEMENTATION), DOUBLE PERFORATED REAR DOOR (NO VED), TWO-POINT KEYED LOCKS, WHITE, SOLID SIDE PANELS
- TELECOMMUNICATIONS CABINET, 7' HIGH, 45U, 40" X 48" (NOMINAL), SQUARE PUNCHED RAIL, SINGLE PERFORATED FRONT DOOR, SOLID REAR DOOR (VERTICAL EXHAUST DUCT [VED] IMPLEMENTATION), DOUBLE PERFORATED REAR DOOR (NO VED), TWO-POINT KEYED LOCKS, WHITE, SOLID SIDE PANELS

ARCHITECTURAL

- 4' BY 8' AC GRADE ¾" TRADE SIZE PLYWOOD BACKBOARD PAINTED HIGH-GLOSS WHITE WITH TWO COATS OF FIRE RESISTANT PAINT FOR SERVICE PROVIDER / SECURITY / VIDEO / ET CETERA
- 3 FT WIDE, 8 FT HIGH DOOR, FIRE RESISTANT TO ¾ HOUR OR MORE PER AUTHORITY HAVING JURISDICTION (AHJ)
- 6 FT WIDE, 8 FT HIGH DOOR, NO CENTER MULLION, FIRE RESISTANT TO ¾ HOUR OR MORE PER AHJ

MECHANICAL

- STANDARD 25% OPEN PERFORATED FLOOR TILE
- COLD AISLE CONTAINMENT PVC CURTAIN
- RETURN AIR DUCT
- CRAC — COMPUTER ROOM AIR CONDITIONER (CRAC) (SEE COMPUTATIONAL FLUID DYNAMICS REQUIRED FOR SIZING)
- REQUIRED CLEARANCE AROUND CRACS (SIZE VARIES DEPENDING UPON CRAC MANUFACTURER)
- AC — SPLIT PACKAGE AIR CONDITIONER OR EQUIVALENT 24/7 SUPPLY AIR TO REJECT 17,000 BTU/H (5 KW) PER TELECOMMUNICATIONS RACK
- AC — ADDITIONAL SPLIT PACKAGE AIR CONDITIONER AS REQUIRED
- T — AIR CONDITIONER THERMOSTAT

NOTES

ELECTRICAL

1. MINIMUM QTY TWO 120 V 20 A CONVENIENCE POWER OUTLETS PER WALL; PLACEMENT DETERMINED BY OTHERS
2. PRIMARY BONDING BUSBAR PLACEMENT DETERMINED BY OTHERS
3. SECONDARY BONDING BUSBAR PLACEMENT DETERMINED BY OTHERS
4. SERVICE PANEL FOR A-SIDE POWER, GENERATOR BACKED IF THE FACILITY HAS GENERATION CAPABILITIES. SHALL BE EQUIPPED WITH POWER METER; PLACEMENT PER OTHERS
5. SERVICE PANEL FOR B-SIDE POWER, GENERATOR BACKED IF POSSIBLE. SHALL BE EQUIPPED WITH POWER METER; PLACEMENT PER OTHERS
6. 30 AMP 120 VOLT SINGLE-PHASE TWIST LOCK RECEPTACLE (L5-30R); CENTERED ON BACK CABINET CUTOUT {L-N-G (3-WIRE)} COORDINATE INSTALLATION LOCATION WITH TELECOMMUNICATIONS CONTRACTOR

LIGHTING:
1. LED LIGHTING PLACED IN AISLES DIRECTLY IN FRONT OF AND BEHIND CABINET ROWS
2. LIGHTING OPERATED BY MOTION SENSOR PER CABINET ROW OR SECTION
3. 500 LUMENS IN THE HORIZONTAL PLANE AND 200 LUMENS IN THE VERTICAL PLANE REQUIRED MEASURED AT 3 FT AFF IN FRONT OF AND BEHIND EQUIPMENT CABINETS

TELECOMMUNICATIONS

1. SERVICE PROVIDER ENTRANCE POINT
2. SERVICE BACKBONE - ENTRANCE ROOM-MAIN COMPUTER ROOM (MCR) WITH DUAL REDUNDANT PATHWAYS
3. MAIN CROSS CONNECT (CAMPUS/BUILDING DISTRIBUTOR) – BACKBONE CABLING (MCR-TELECOMMUNCIATIONS ROOMS)
4. ENTRANCE ROOM INTERCONNECT
5. HORIZONTAL DISTRIBUTION TO WORK AREA OUTLETS (WAO)
6. ADDITIONAL CABINETS OR TELECOMMUNICATIONS RACKS TO MEET REQUIREMENTS.
7. HORIZONTAL DISTRIBUTION AREA (HDA) – SIDE A
8. HORIZONTAL DISTRIBUTION AREA – SIDE B
9. MAIN DISTRIBUTION AREA (MDA) – SIDE A
10. MAIN DISTRIBUTION AREA – SIDE B
11. STANDARD-DENSITY (SD) CABINET SUPPORTING 5KW REDUNDANT
12. HIGH-DENSITY (HD) CABINET SUPPORTING 10KW REDUNDANT
13. 40" NETWORK CABINET WITH HORIZONTAL CABLE CUTOUTS AND APPROPRIATE CABLE MANAGEMENT ACCESSORIES, SUPPORTING 5KW REDUNDANT
14. WIRE MESH CABLE TRAY MINIMUM OF 4" X 12" WITH SECOND LEVEL OF FIBER CHANNEL PATHWAY (4" X 4")
15. BLUE CABLE TRAY PATH FOR CABLES TO THE A-SIDE MDA/HDA
16. YELLOW CABLE TRAY PATH FOR CABLES TO THE B-SIDE MDA/HDA
17. NETWORK CHANNEL RACK

ARCHITECTURAL

FLOOR TO CEILING HEIGHT:
1. TELECOMMUNICATION ROOMS INCLUDING NETWORK SUPPORT CENTERS: MAXIMUM EXTENT POSSIBLE
2. DATA CENTERS EXCLUDING EXTRA SMALL NETWORK SUPPORT CENTERS: MINIMUM 16 FT SLAB TO DECK ABOVE

FLOOR COMPOSITION:
1. STATIC DISSIPATING FLOOR TILE OR COATING
2. CONCRETE SLAB 5" THICKNESS AT GROUND
3. STEEL DECK AND FILL FOR FLOORS ABOVE GROUND
4. AVOID ACCESS FLOOR PLENUMS FOR AIR DISTRIBUTION PURPOSES

WALLS: FULL HEIGHT TO DECK ABOVE FOR ALL TELECOMMUNICATION SPACES

CEILINGS: NO SUSPENDED CEILINGS ALLOWED

DATA CENTER SIZE ALLOCATION PER CHART BELOW:

DATA CENTER SIZE	SQUARE FOOTAGE	FORM FACTOR
EXTRA SMALL	775 (785)	24' X 32.5' (20' X 39.25')
SMALL	1152	24' X 48'
MEDIUM	1760	40' X 44'
LARGE	2464	44' X 56'

CONTACT DATA CENTER AND INFRASTRUCTURE ENGINEERING (OITDATACENTERENGINEERING@VA.GOV) TO DETERMINE WHAT SIZE DATA CENTER IS REQUIRED FOR YOUR FACILITY.

FLOORPLANS ARE NOT TO SCALE (NTS)
DOCUMENTS ARE NOT TO BE USED FOR CONSTRUCTION

MECHANICAL

CHANGES TO DESIGN WILL REQUIRE A NEW COMPUTATIONAL FLUID DYNAMICS (CFD) ANALYSIS TO BE PERFORMED

DEPARTMENT OF VETERANS AFFAIRS

OFFICE OF INFORMATION AND TECHNOLOGY

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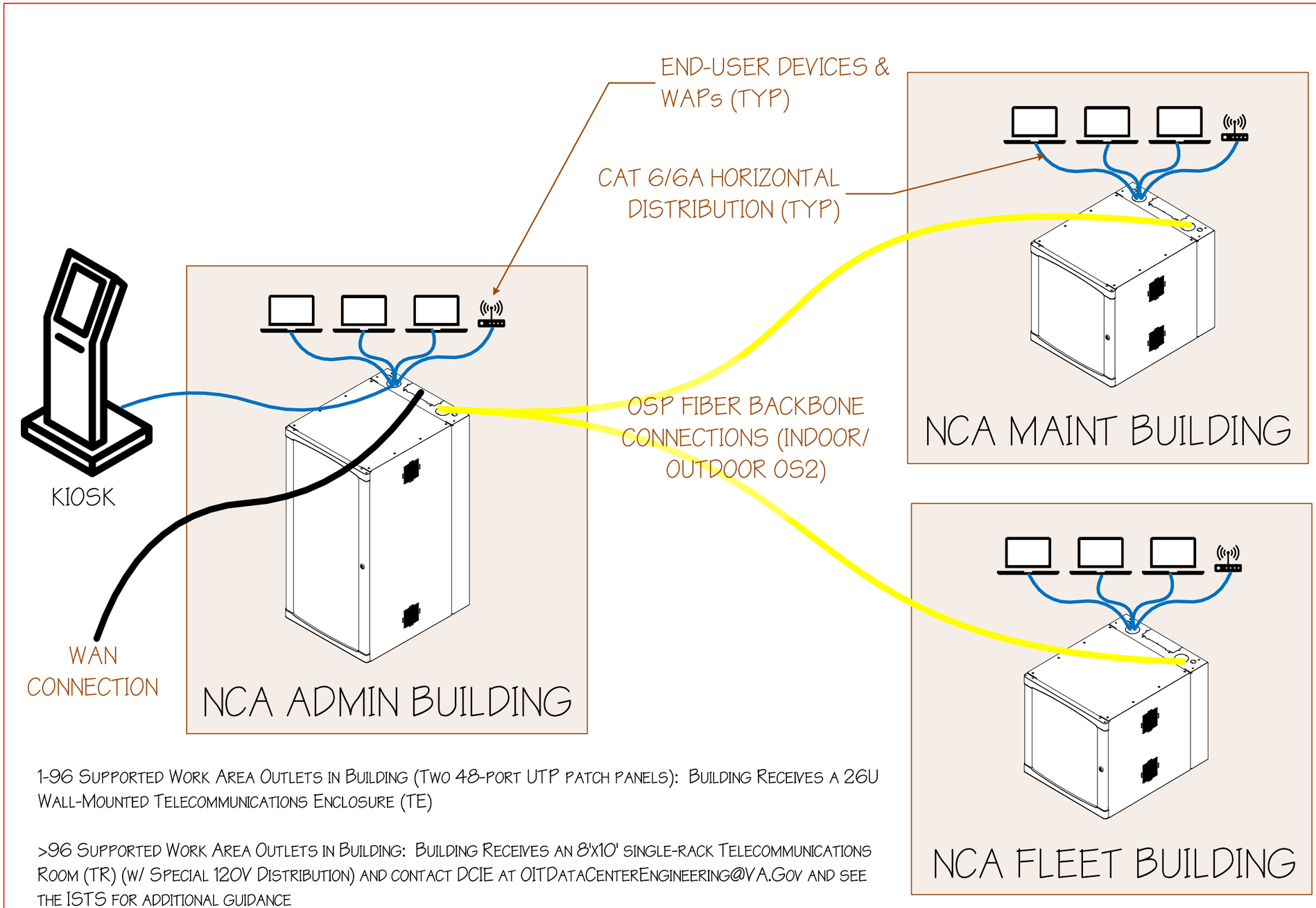
LEGEND

SHEET: 2 OF 13



1-96 SUPPORTED WORK AREA OUTLETS IN BUILDING (TWO 48-PORT UTP PATCH PANELS): BUILDING RECEIVES A 26U WALL-MOUNTED TELECOMMUNICATIONS ENCLOSURE (TE)

>96 SUPPORTED WORK AREA OUTLETS IN BUILDING: BUILDING RECEIVES AN 8'X10' SINGLE-RACK TELECOMMUNICATIONS ROOM (TR) (W/ SPECIAL 120V DISTRIBUTION) AND CONTACT DCIE AT OITDATACENTERENGINEERING@VA.GOV AND SEE THE ISTS FOR ADDITIONAL GUIDANCE

SECONDARY BUILDINGS SHOULD RECEIVE SMALLER 12RU TES

1 NCA CAMPUS TELECOMMUNICATIONS CONCEPT
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NCA CONCEPT

SHEET: 3 OF 13

Space classification. TEs may be deployed to the following types of non-healthcare spaces:

(A) Parking structures,
(B) technical spaces such as warehouses, kitchens, laundries, mechanical/electrical plant buildings, chiller or boiler plants, garages, and paint shops,
(C) historical quarters converted to administrative use,
(D) buildings with no VA staffing presence and no requirements for connectivity to the VA LAN or guest WiFi,
(E) temporary modular trailers,
(F) NCA field facilities,
(G) Fisher House buildings,
(H) VHA mental health admin facilities (vet centers).

Temporary buildings and trailers must be validated to be actually temporary (including a stipulated duration of operation and planned date of removal) and no history of previous deferred or cancelled removal plans.

- Usage. A maximum of 96 Work Area Outlets (WAOs) can be supported by a standardized TE. Each data jack in a workspace telecommunications outlet, wired back to the patch panels in the TE, is considered a WAO for these purposes. Where 1-48 WAOs are planned, a 12RU (half-height) standardized TE is used. Where 49-96 WAOs are planned, a 26RU (full-height) standardized TE is used.
- Services. No services other than VA LAN horizontal distribution can be supported from a standardized TE, except in a building with no VA staffing presence and no requirements for VA LAN but where guest WiFi is provided.
- Environment. TEs may be deployed to spaces falling within the environmental envelope conditions for a TR, as described in the Infrastructure Standard for Telecommunications Spaces. Ambient air conditions in the space are between 41°F-95°F dry bulb, 8-80% RH, and a dew point less than 82.4°F.
- Non-standard environmentally conditioned TEs may be approved by variance for use in spaces where the ambient air conditions extend outside of these limits.
- All knockouts and cable entry points shall be sealed to prevent liquid and dust entry.
- Accessories. Cable port brush kit. Low-noise dual fan & filter kit. Replacement filter kit. Shelf(ves). Vertical rail-mounted cable managers. LED light kit.

Criteria Requirements for Diverse Path Backbone

- Supports VA clinical staff function in a healthcare setting.
- Supports VA clinical-supporting staff function with end-user desktop and/or VOIP phone requirement.
- Supports VA administrative staff function with end-user desktop and/or VOIP phone requirement (reduced fiber count routing may be considered if space cannot be used for a healthcare/clinical function, e.g. Washington DC administrative buildings, VBA regional office buildings).
- Not required for patient-only areas without any VA staffing function presence (non-diverse and reduced fiber count routing may be considered).
- Not required for VA technician/maintenance/trades areas/facilities (non-diverse and reduced fiber count routing may be considered).

1 TELECOMMUNICATIONS ENCLOSURE USE CASES
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Telecommunications Enclosure Use Cases

Wall-mount Telecommunications Enclosure (TE) Salient Characteristics

- NEMA-1 or equivalent construction. Dust seals and replaceable inlet/outlet filters for vents/airflow openings/fans provided. This is required regardless of planned installation environment.
- Filters shall be commercially widely available and initially provided with the TE.
- Environmentally controlled enclosures are acceptable; consider when the conditions where the TE is to be installed are outside of allowable TR environmental limits.
- 24" minimum width to allow for power and telecommunications cabling management to the sides of rack-mounted equipment.
- 30" minimum depth to allow for structured cabling and power distribution at the rear of the rack.
- Primary Full-height TEs shall be 26RU in height or larger as needed to meet the specific implementation requirements. Secondary half-height TEs for outbuildings shall be a minimum of 12RU in height (24") .
- Unit mounts to ¾" plywood backboard via 16" on center (OC) mounting for standard stud construction.
- Unit opens in rear (swings open) for access to rear of installed equipment. Unit opens in front (swinging front door) for access to front of installed equipment. Both sections are able to be physically locked.
- Adjustable 19" EIA/TIA rack rails. Rear rail kits are required.
- Top and bottom knockouts for cable/conduit entry. All knockouts must be sealable and sealed for liquid, dust, and rodent entry resistance. The use of a knockout kit to create larger penetrations is acceptable.
- 120V fans to remove heat generated in TE are required. Whether these are used as exhaust, intake, or both is not specified.
- Provide TEs with fiber distribution cabinets, fiber cassettes, UTP patch panels, horizontal cable management units, and shelves as required for the specific implementation.

1 SALIENT CHARACTERISTICS OF TELECOMMUNICATIONS ENCLOSURES
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SALIENT CHARACTERISTICS

Telecommunications Enclosure Layout Standards	Shell	• NEMA-1 or equivalent • Tempered glass front door • Dust seals and replaceable inlet/outlet vents/airflow openings/fans
	Access	• Cabinet swings open to access rear of installed equipment • Swinging front door to access front of installed equipment • Both sections able to be physically locked
	Racking Rails	EIA-310-D 19" front and rear adjustable rails
	Height	• 12RU (Horizontal Distribution Only) for up to 48 Work Area Outlets (WAOs) • 26RU (Main Distribution Area Function) for up to 96 Work Area Outlets (WAOs)
	Width	24" minimum
	Depth	30" minimum
	Mounting	16" on-center for standard stud construction
Outfitting of TEs	Input Power	A/B redundant L5-30 120V 30A circuits
	UPS	• Rack-mounted 2880VA metered L5-30 input/output • Dual/delta conversion not required • Connected to A-side input power circuit
	Rack Power Distribution	• A/B redundant 1RU horizontal rack-mounted PDUs • L5-30 input, minimum 8 each 5-15R or 5-20R outlets
	Heat Dissipation	120V Fans
	Fiber Backbone	• 1RU fiber distribution cabinet • Flat cabinet authorized
	Horizontal Distribution	• 1RU UTP patch panels • Flat patch panels authorized • Maximum 1 patch panel for 12RU TE, 2 patch panels for 26RU TE
	Network Switches	• Standard 1RU 48-port network switches • Maximum 1 switch for 12RU TE, 2 switches for 26RU TE
	IT Equipment Power Cord Type	• 120V 15A • C13 at IT equipment power supply and NEMA 5-15 at Rack PDU
	IT Equipment Power Cord Color Code	• A-side: Black • B-side: A distinctly different color (white or gray preferred) • Differentiated by source bus (jacket or other marking) • Comply with any established local color schema
	Bonding	Standard equipment and interconnections as per a TR and network channel rack

Electrical Distribution	Distribution Paths	• Two simultaneously active (A/B) distribution from distribution panelboard • UPS on the A side distribution upstream of Power Distribution Unit (PDU).
WAOs*	≤96 WAO	Telecommunications Enclosure (when meeting other TE criteria)
	>96	1-rack TR. See the ISTS and contact DCIE at VAITESEDatacenterEngineering2@va.gov
Busbars	PBB, and SBB	• Provided with holes for use with correctly matched listed lugs and hardware • Copper, or copper alloys having a minimum of 95 % conductivity when annealed • As specified by the International Annealed Copper Standard (IACS) • Minimum dimensions of 0.25 in. thick x 4 in. wide and variable in length • Maximum 5.0 Ω to ground system resistance (from any point in the system, including IT equipment chassis)

UPS (in rack/ enclosure)	Mounting	19 in. rack mount
	AC Voltage Input	120V
	Current Input	30 A
	Current Output	30 A
	Output Receptacle	L5-30R
	Input Plug	L5-30P
	Phase Type	Single-phase
	Connectivity	Network interface card required for connection and monitoring by the BAS and set for alarming on certain battery conditions
	Battery Capacity	Sufficient capacity to provide minimum 10 min runtime at current full loading levels
	kW Rating	2.88kW

1 ATTRIBUTES FOR TELECOMMUNICATIONS ENCLOSURES
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Primary and Secondary Attributes

SINGLE MODE FIBER OPTIC	PERFORMANCE CATEGORY	(OS1/OS2 TO BE FIELD SELECTABLE)
	PERFORMANCE SPECIFICATIONS	LASER OPTIMIZED 9/125 µM WITH EFFECTIVE MODAL BANDWIDTH OF AT LEAST 850 MHZ·KM AT 1310 NM
	COMBUSTION RATING	• RISER CABLE FOR VERTICAL RUNS THROUGH FLOORS • PLENUM RATED FOR PLENUM SPACES • TIGHT-BUFFERED FOR OS1 • LOOSE-TUBE GEL-FILLED FOR OS2 RISER RATED WHEN USED FOR OSP INDOOR/OUTDOOR TRANSITION • OR AS PER AHJ REQUIREMENT
	JACKET COLOR	YELLOW
	TERMINATION METHOD	FIELD TERMINATED (CONNECTIONS BETWEEN TELECOMMUNICATIONS SPACES)
	MEDIA CONNECTOR	LC ON FRONT OF SPLICE CASSETTES
	STRAND COUNT	• 12 OR 24 PER ASSEMBLY • CONSTRUCTED IN STRAND BUNDLES OF 6 OR 12 FOR COMPATIBILITY WITH SPECIFIED SPLICE CASSETTES
	CABLE LENGTH	CABLES NOT TO EXCEED 6 FT (2 M) OF EXCESS LENGTH ON EACH END
	BUNDLING	DIELECTRIC • TIGHT-BUFFERED – ISP USE • LOOSE-TUBE GEL-FILLED – OSP USE
	POLARITY	• STRAIGHT (OR TYPE A-KEY UP ONE END & KEY DOWN ON THE OTHER) • TYPE B WITH "UNIVERSAL" CASSETTES
FIBER OPTIC DISTRIBUTION CASSETTES	FORM FACTOR	1 RU
	CAPACITY	3-12 CASSETTES
	USER INTERFACES	LC CONNECTORS (6/12 DUPLEX PER CASSETTE)
	BACKBONE INTERFACES	12-STRAND OR 24-STRAND FUSION SPLICED TO SPLICE CASSETTES
	TYPE	OS1/OS2 SINGLE MODE TO MATCH MEDIA

1 FIBER SPECIFICATIONS
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Equipment Labeling	Attachment	Permanent
	Position	• Readily visible • Horizontal orientation where feasible • Top right corner of equipment faceplate where feasible • Shall not interfere with operation of labeled equipment
	Materials	• Appropriate for the installation environment • Durable and permanent • Heat resistant in high-temperature areas
	Coloration	Not specified
Power Distribution Labeling	Label Location	Top right front door, top right back door, top right front inside cabinet, top right back inside cabinet
	Label Location	Both ends of all installed cables and cords
	Coloration	Following local site schema
	Label Location	• Both ends of all installed cords • Within 36 in. of leaving distribution panel enclosure • Within 12 in. of the point-of-use end of conduit
	Coloration	• No enterprise specification is prescribed • Colors shall be used to differentiate electrical bus power sources

UTP Performance Characteristics (Horizontal and First Level Backbone)	Performance Category	Cat 6/6A (10 GbE)
	Conductor Size	22 AWG to 24 AWG
	Termination Method	• Pre-terminated, 8P8C with TIA-568-B termination method preferred, OR • Field-terminated with TIA-568-B termination method where distances cannot be precisely calculated
UTP Patch Panels	Termination Method	Factory pre-terminated
	Performance Category	Cat 6/6A (10 GbE)
	Position Count	24/48
	Form Factor	• 1RU • Flat
	Components	Rear cable manager

1 LABELING & UTP SPECIFICATIONS
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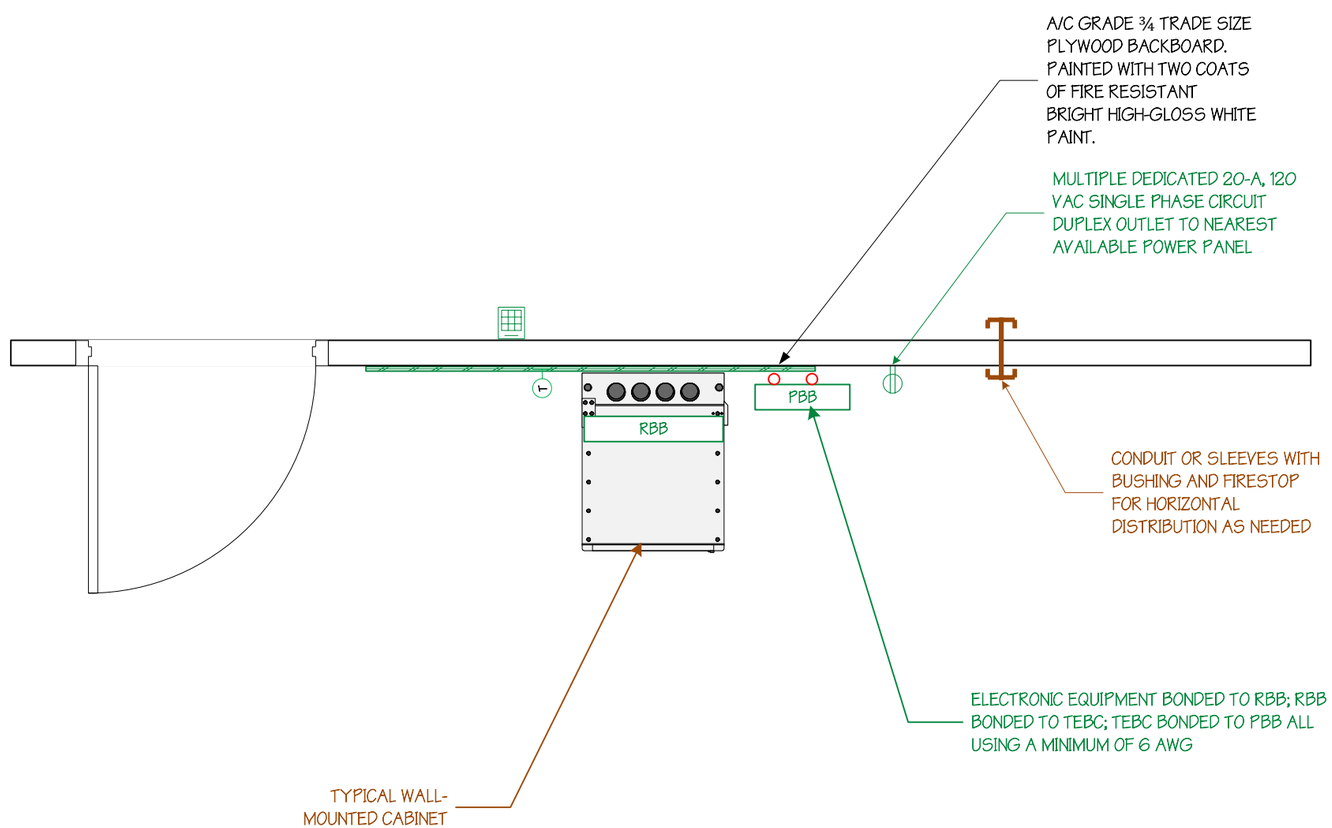

1 TYPICAL TOP-DOWN VIEW
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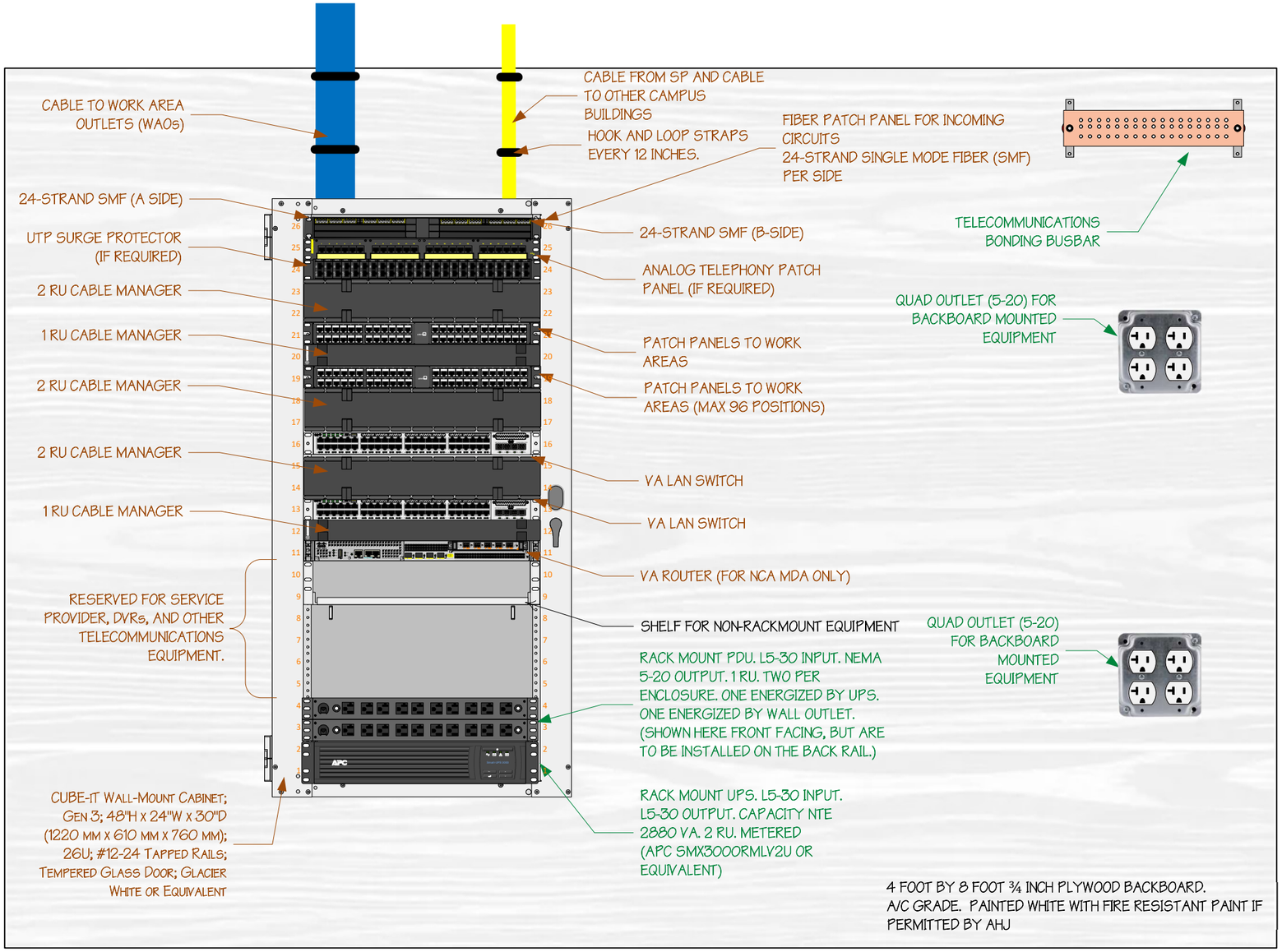
TOP VIEW - TYPICAL

LOCKING 120 VOLT 30 AMP OUTLETS (L5-30) ON THE WALL BEHIND THE RACK ALIGNED WITH THE CUTOUT ON THE ENCLOSURE. ONE OUTLET ASSIGNED TO PDU. ONE OUTLET ASSIGNED TO UPS. EACH ENERGIZED BY SEPARATE ONE-POLE 30 AMP BREAKERS.



1 ELEVATION FOR 26RU PRIMARY ENCLOSURE
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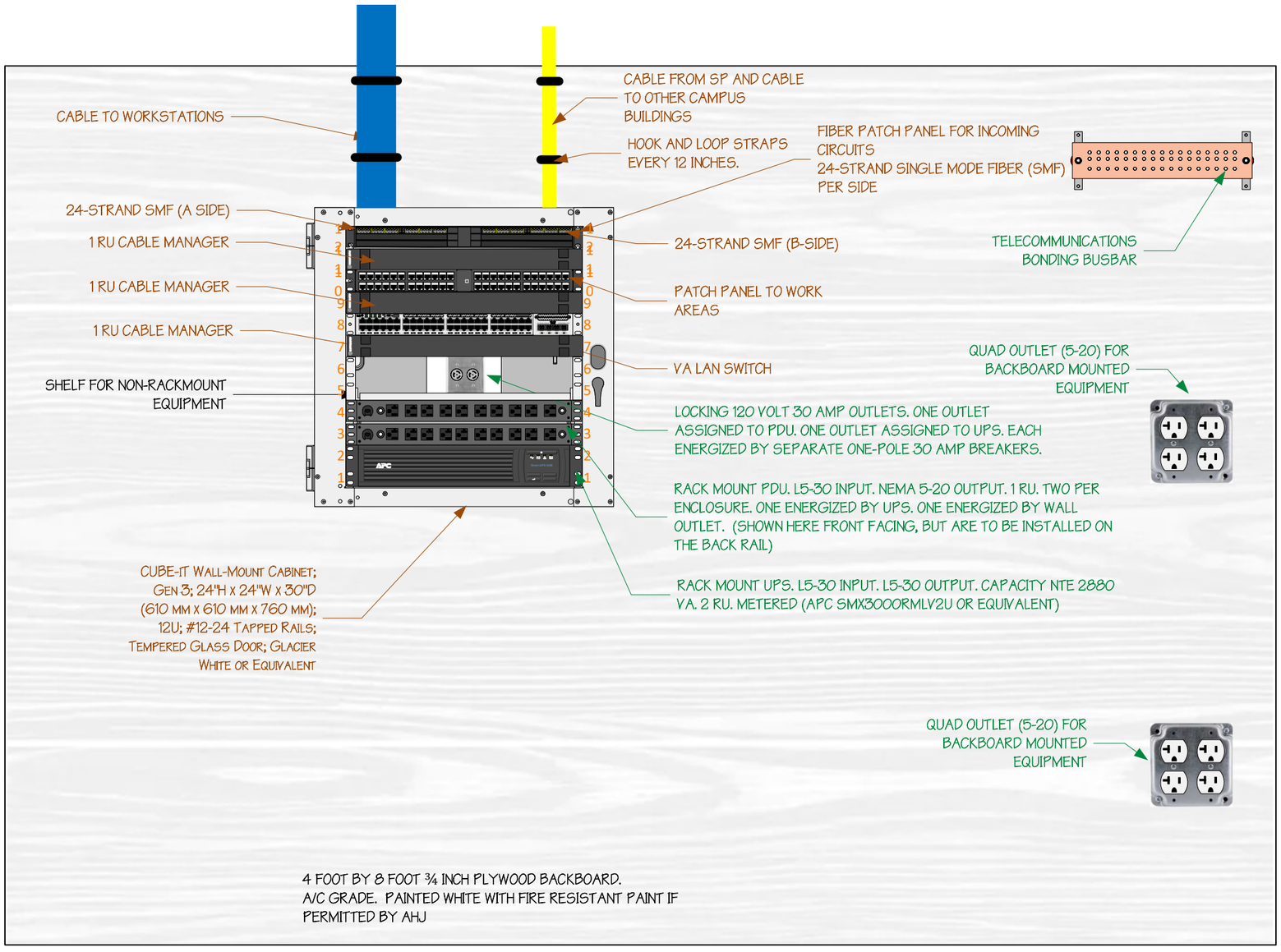
DRAWING No:	
FILE:	TELECOMMUNICATIONS ENCLOSURE STANDARD-NCA 1.4-.VSDX
DESIGN BY:	MICHAEL JULIAN, RCDD KEVIN GRZELKA,CTDC
VERIFIED BY:	KELLY BATES; JOHN WERNAU; JOSH GARDNER
DOC VERSION No:	1.4
ISSUE DATE:	SEP 12, 2024

SHEET TITLE

ELEVATION FOR 26RU PRIMARY ENCLOSURE

SHEET: 10 OF 13



1 ELEVATION FOR 12RU SECONDARY ENCLOSURE

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ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING

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ELEVATION FOR 12RU SECONDARY ENCLOSURES

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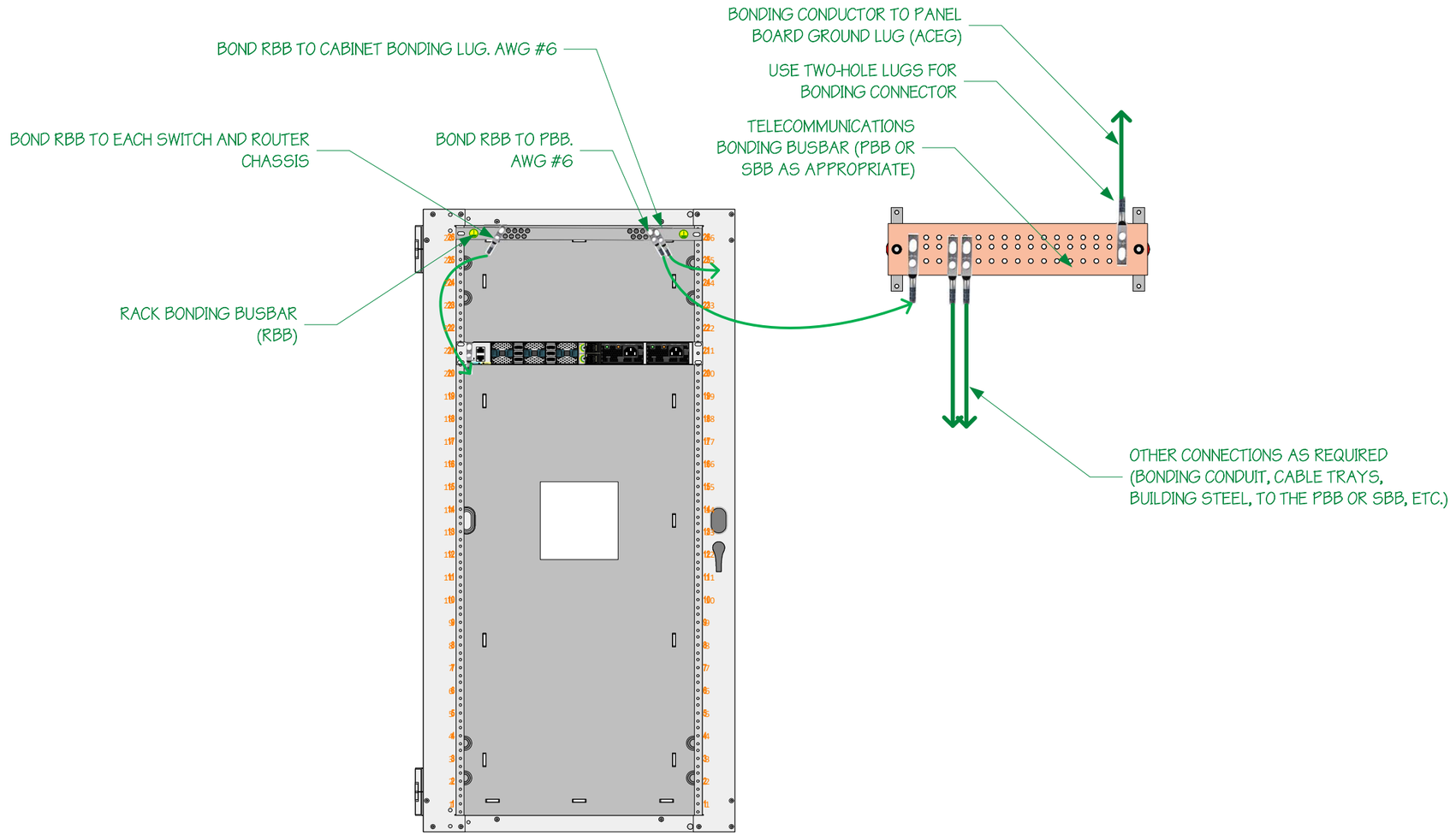

1 BONDING TOPOLOGY FOR TELECOMMUNICATIONS ENCLOSURES
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BONDING FOR TELECOMMUNICATIONS

SHEET: 12 OF 13

SPECIFICATIONS

DESCRIPTION:
WALL-MOUNT ENCLOSURE WITH LOCKABLE FRONT DOOR AND SWING-OUT REAR ACCESS TO EQUIPMENT. TEMPERED GLASS FRONT DOOR.

26RU PRIMARY:
CUBE-IT WALL-MOUNT CABINET; GEN 3; 48"H X 24"W X 30"D (1220 MM X 610 MM X 760 MM); 26U; #12-24 TAPPED RAILS; TEMPERED GLASS DOOR; GLACIER WHITE. 12419-E48 CUBE-IT OR EQUIVALENT

12RU SECONDARY:
CUBE-IT WALL-MOUNT CABINET; GEN 3; 24"H X 24"W X 30"D (610 MM X 610 MM X 760 MM); 12U; #12-24 TAPPED RAILS; TEMPERED GLASS DOOR; GLACIER WHITE. 12419-E24 CUBE-ITOR EQUIVALENT.

USE:
FOR INDOOR USE ONLY, IN ENVIRONMENTALLY CONTROLLED AREAS; MAY NOT BE USED OUTDOORS, IN HARSH ENVIRONMENTS, OR IN AIR-HANDLING SPACES
SIZE:
- HEIGHT: 48" (1220 MM)
- WIDTH: 24" (610 MM); 19" EIA RACK-MOUNT
- DEPTH: 30" (760 MM)

INTERIOR:
- HEIGHT: 26U
- WIDTH: 19" EIA RACK-MOUNT
- THREADED #12-24 EQUIPMENT MOUNTING HOLES
- 19"W, EIA-310-D COMPLIANT
- FAN ASSEMBLIES WITH FILTER KITS

SPECIFICATIONS

Equipment Mounting Rail Kit for CUBE-iT Wall-Mount Cabinet
- Use with equipment that needs front and rear support
- Sold in pairs
- Aluminum material

Part Number	Description	Shipping Weight lb (kg)
12787-524	12U; For 24"H (610 mm) cabinet	4 (1.8)
12787-536	19U; For 36"H (910 mm) cabinet	6 (2.7)
12787-548	26U; For 48"H (1220 mm) cabinet	8 (3.6)

9 FRONT AND REAR RAIL KIT

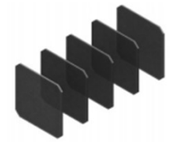
Low-Decibel Dual-Fan and Filter Kit for CUBE-iT Wall-Mount Cabinet
- Pressurizes interior of the cabinet, forcing warm air out of open vents
- Assembly includes 2 fans and 2 filters
- Noise Level: 31 dB (measured at 3' (1 m) distance)
- Recommended placement on bottom right and left sides of the cabinet
- Airflow: 120 CFM (204 CMH)
- 50/16 Hz
- 6'L (1.8 m) NEMA 5-15P/6-15P Power Cord

Part Number	Description	Shipping Weight lb (kg)
40975-001	115 Volt, 5-15P power cord	4 (1.8)
40975-002	230 Volt, 6-15P Power cord	4 (1.8)

8 FAN KIT QTY 1 PER CABINET

Replacement Filter Kit for CUBE-iT Wall-Mount Cabinet
- Compatible with Low-Decibel Dual-Fan and Standard Fan kits

Part Number	Description	Shipping Weight lb (kg)
40973-001	Pack of 5	2 (0.9)



LED Light Kit for CUBE-iT Cabinets
- Attaches to the bottom, top or side of CUBE-iT Cabinets
- Toggle switch, 4W LED light
- Detachable, 120 VAC with NEMA 1-15P Power Cord

Part Number	Description	Shipping Weight lb (kg)
12803-701	LED Light Kit, 4W, 120 Vac	2 (0.9)

FAN FILTER KIT AND LIGHT KIT (ONE PER CABINET).

- RACK MOUNT PDU.
- L5-30 INPUT.
- NEMA 5-20 OUTPUT.
- 1 RU.
- TWO PER ENCLOSURE.
- ONE ENERGIZED BY UPS.
- ONE ENERGIZED BY WALL OUTLET.
- (APC AP9560 OR EQUIVALENT)

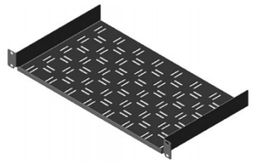
6 POWER STRIP (TWO PER CABINET)

Cable Port Brush Kit for CUBE-iT Wall-Mount Cabinet
- Optional cover when rectangular knockout on the rear panel is removed
- Seals opening around cables with brush seal
- Sold in pairs

Part Number	Description	Shipping Weight lb (kg)
25190-000	0.8"H x 10.6"W x 2.9"D (20 mm x 268 mm x 74 mm)	2 (0.9)

5 BRUSH KIT (ONE PER CABINET)

- FOR USE WITH SMALL EQUIPMENT SUCH AS MODEMS, ROUTERS AND FIBER MODULES IN 19" EIA RACKS
- 1U; INCLUDES MULTIPLES TIE-DOWN POINTS
- SUPPORTS UP TO 20 LB (9.1 KG) OF EQUIPMENT



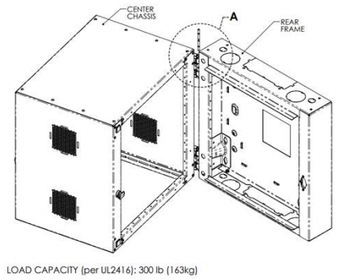
SHELF (TWO PER CABINET)

Vertical Cabling Section for CUBE-iT Wall-Mount Cabinet
- Attaches to the outside edge of equipment mounting rails
- 4U height; openings align with rack-mount unit spaces on equipment mounting rails
- Sold in pairs
- Order additional kits as-needed per cable management requirements

Part Number	Description	Shipping Weight lb (kg)
40970-704	4U, 7"H x 0.5"D (178 mm x 13 mm)	3 (1.4)
40970-707	7U, 12.3"H x 0.5"D (311 mm x 13 mm)	3 (1.4)
40970-711	11U, 19.3"H x 0.5"D (489 mm x 13 mm)	4 (1.8)

Color is black.

VERTICAL CABLE MANAGEMENT. TWO KITS FOR 26RU TE. ONE KIT FOR 12RU TE.



LOAD CAPACITY (per UL2416): 300 lb (163kg)

2 REAR HINGE AND PANEL

Ground Jumpers
- Provide common bonding from equipment rack or cabinet to halo conductor
- Available individually or in packages of 10
- Constructed of UL Listed components

Part Number	Description	Shipping Weight lb (kg)
40159-009	9' (2.7 m) Ground Jumper, 1 Each	2 (0.9)
40159-019	9' (2.7 m) Ground Jumper, 10 Each	20 (1.9)

1 REQUIRED GROUND JUMPERS

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WALL-MOUNT CABINET SPECS

SHEET: 13 OF 13