

VA



U. S. Department of Veterans Affairs
Office of Information and Technology
Infrastructure Operations (IO)

COMMUNITY BASED OUTPATIENT CLINIC (CBOC)
INSIDE PLANT
INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

DEVELOPED BY:
DATA CENTER AND INFRASTRUCTURE ENGINEERING

DEPARTMENT OF VETERANS AFFAIRS



OFFICE OF INFORMATION AND TECHNOLOGY

INFRASTRUCTURE OPERATIONS - APPLICATION HOSTING, CLOUD AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING

EDICT
ENTERPRISE DATA CENTER
INFRASTRUCTURE COLLABORATION TEAM

PROJECT:

CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK DATE DESCRIPTION

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

ISSUE DATE: May 17, 2023

SHEET TITLE

COVER

SHEET: 1 OF 20

GENERIC TELECOMMUNICATIONS MEDIA AND INTERFACE SPECIFICATIONS FOR TELECOMMUNICATION SPACES

ID	PRIMARY ATTRIBUTE	SECONDARY ATTRIBUTE	SPECIFICATION
1	COPPER PATCH PANELS	PERFORMANCE CATEGORY	CATEGORY 6A (10 GBE)
		POSITION COUNT	48
		FORM FACTOR	ANGLED
		SIZE	ONE RACK UNIT (RU)
		JACK COLOR CODING	A-SIDE BLUE / B-SIDE YELLOW FOR DUAL PATH DISTRO WITHIN COMPUTER ROOMS (DATA CENTERS); UTP DISTRO TO WAOs IS EXCLUDED
2	FIBER DISTRIBUTION PANELS	CASSETTE CAPACITY	12 CASSETTES OR 6 DOUBLE CASSETTES
		CASSETTE USER INTERFACES	LC DUPLEX CONNECTORS / MPO-8
		CASSETTE BACKBONE INTERFACES	MPO-24/ MPO-12
		PERFORMANCE CHARACTERISTICS	OM4 LASER OPTIMIZED 50/125 MULTIMODE (MM) / OS1(OS2) 9/125 SINGLE MODE (SM)
		FORM FACTOR	ONE RU
3	UNSHIELDED TWISTED PAIR (UTP) (HORIZONTAL AND FIRST LEVEL BACKBONE)	PERFORMANCE CATEGORY	CATEGORY 6A (10 GBE); 24-26 GAUGE
		PERFORMANCE SPECIFICATIONS	MEETS OR EXCEEDS TIA-EIA-568-C.2-10, TSB-155.
4	FIBER (HORIZONTAL AND FIRST LEVEL BACKBONE)	PERFORMANCE CATEGORY	OM4 LASER OPTIMIZED / OS1 / OS2
		PERFORMANCE SPECIFICATIONS	LASER OPTIMIZED 50/125 MM FIBERS WITH AT LEAST 4,700 MHZ·KM AT 850 NM / OS1 9/125 SM FIBERS (INTRA-BUILDING) / OS2 9/125 SM (INTER-BUILDING)
		MODE	MULTIMODE/SINGLE MODE
		JACKET COLOR	AQUA (OM4) / LIME (OM5) / YELLOW (SM) / BLACK (OSP)
		MEDIA CONNECTOR	PRE-TERMINATE WITH MULTI-FIBER PUSH ON (MPO), (FIELD TERMINATION AUTHORIZED FOR DISTRIBUTION LEAVING THE COMPUTER ROOM)
		STRAND COUNT	12 OR 24
		BUNDLING	LOOSE TUBE (OUTDOOR)/TIGHT BUFFERED (INDOOR)
5	UTP PATCH CORDS	PERFORMANCE CATEGORY	CATEGORY 6A, 26-28 GAUGE, STRANDED
		PERFORMANCE SPECIFICATIONS	CENTER TUNED TO HORIZONTAL MEDIA
		TERMINATION METHOD	FACTORY PRE-TERMINATED
6	FIBER PATCH CORDS	PERFORMANCE CATEGORY	OM5/ OM4 / OS1 / OS2
		PERFORMANCE SPECIFICATIONS	LASER OPTIMIZED 50/125 MM FIBERS WITH AT LEAST 4,700 MHZ·KM AT 850 NM / OS1 9/125 SM FIBERS (INTRA-BUILDING) / OS2 9/125 SM (INTER-BUILDING)
		MODE	MULTIMODE/SINGLE MODE
		JACKET COLOR	AQUA (OM4) / LIME (OM5) / YELLOW (SM)
		MEDIA CONNECTOR	PRE-TERMINATED WITH DUPLEX LC / MPO-8

DEPARTMENT OF VETERANS AFFAIRS



OFFICE OF INFORMATION AND TECHNOLOGY

INFRASTRUCTURE OPERATIONS - APPLICATION HOSTING, CLOUD AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING



ENTERPRISE DATA CENTER INFRASTRUCTURE COLLABORATION TEAM

PROJECT:

CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

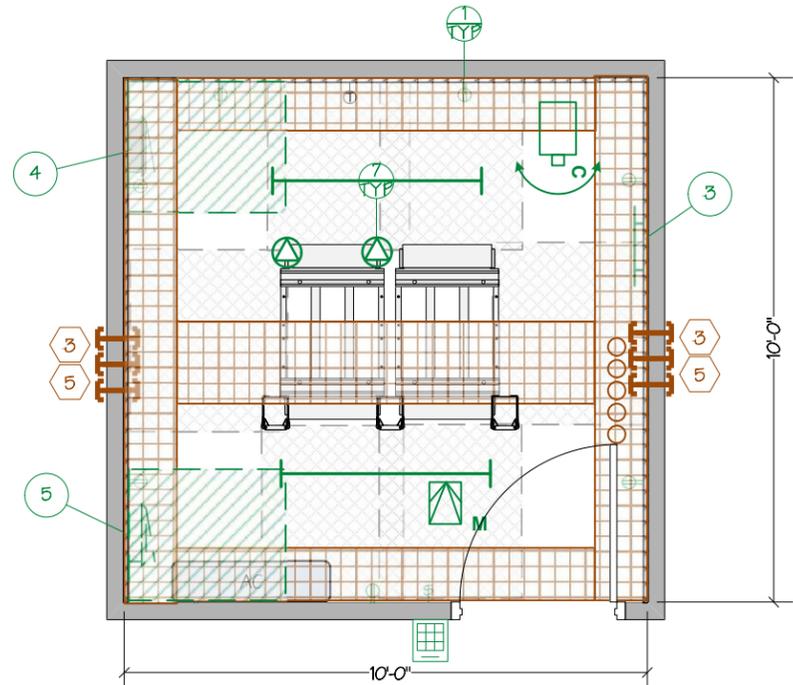
DOC VERSION No: 2

PRINT DATE: May 19, 2023

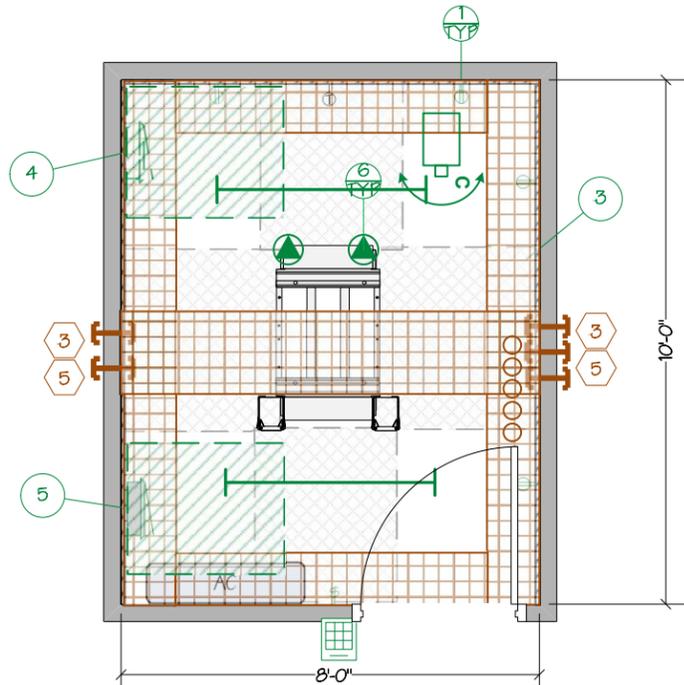
ISSUE DATE: May 17, 2023

SHEET TITLE

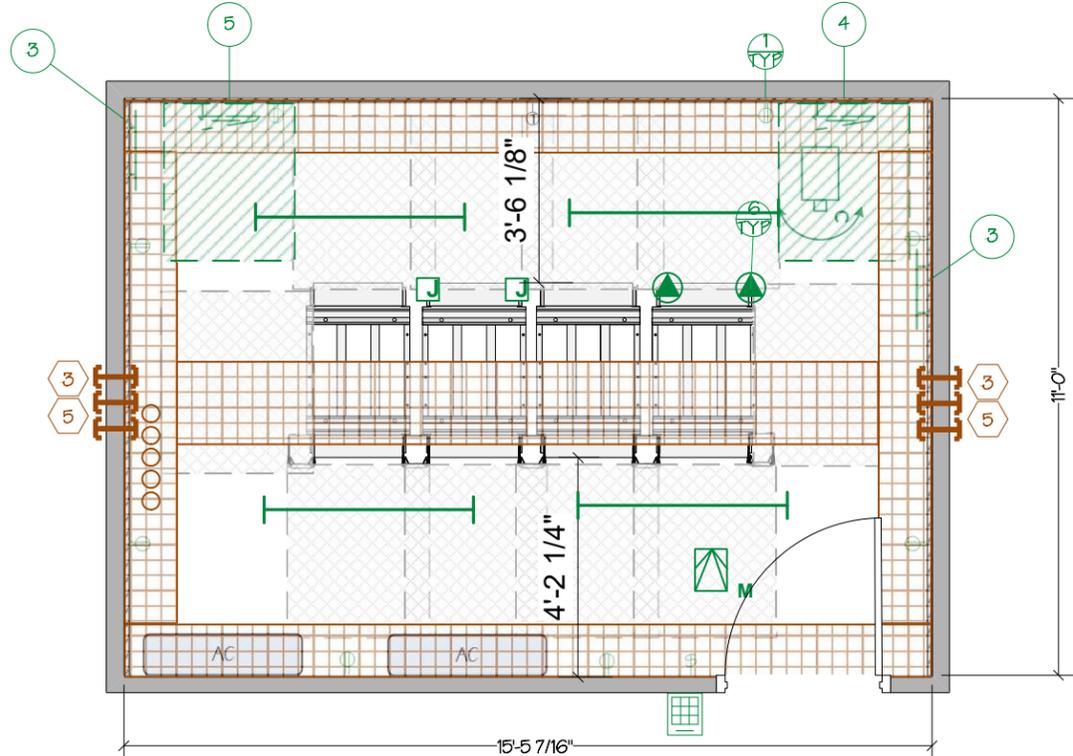
SPECIFICATIONS



3 GENERIC FLOOR PLAN FOR TELECOMMUNICATIONS ROOMS (TWO RACK REQUIREMENT)
(TELECOMMUNICATIONS SPACE SUPPORTING NETWORK DISTRIBUTION TO WORK AREA OUTLETS)
MINIMUM REQUIREMENT FOR HEALTHCARE FACILITY REMODELS



4 GENERIC FLOOR PLAN FOR TELECOMMUNICATIONS ROOMS (ONE RACK REQUIREMENT)
(TELECOMMUNICATIONS SPACE SUPPORTING NETWORK DISTRIBUTION TO WORK AREA OUTLETS)



2 GENERIC FLOOR PLAN FOR HEALTH CARE FACILITY TELECOMMUNICATIONS ROOMS

NOTE:

- THERE SHALL BE A MINIMUM OF ONE TELECOMMUNICATIONS ROOM (TR) PER FLOOR.
- ADDITIONAL ROOMS SHOULD BE PROVIDED WHEN THE HORIZONTAL DISTRIBUTION DISTANCE TO THE WORK AREA EXCEEDS 90 M (295 FT) OR THE ROOM SIZE CAN'T SUPPORT ALL WORK AREA OUTLETS.

FLOOR SPACE REQUIREMENT:

1. FOR FACILITIES FROM 1 TO 3,000 SQ. FT., PROVIDE A STANDARD 26U TELECOMMUNICATIONS ENCLOSURE LOCATED IN A SECURED SPACE THAT IS NOT NECESSARILY DEDICATED TO TELECOMMUNICATIONS PURPOSES. SEE SHEETS 16-19.
2. FOR FACILITIES FROM 3,001 TO 6,000 SQ. FT., PROVIDE A 1-RACK TR (80SF, 10'X8' FORM FACTOR).
3. FOR FACILITIES FROM 6,001 TO 10,000 SQ. FT., PROVIDE A 2-RACK TR (100SF, 10'X10' FORM FACTOR).
4. FOR FACILITIES FROM 10,001 TO 25,000 SQ. FT., PROVIDE A 3-RACK TR (120SF, 10'X12' FORM FACTOR).
5. FOR FACILITIES GREATER THAN 25,000 SQ. FT., PROVIDE TRS IN ADDITION TO THE MCR PER THE SIZING AND QUANTITY DETERMINED BY THE TR DESIGN CHECKLIST IN ACCORDANCE WITH THE SERVING ZONE SIZE OF EACH PLANNED TR.
6. 3' OF CLEARANCE ON THREE SIDES OF THE RACKS MUST BE MAINTAINED.
7. THE FOURTH SIDE MUST BE AT LEAST 12" FROM A WALL.
8. 30" WIDE BY 36" FRONT CLEARANCE REQUIRED AROUND ELECTRICAL PANEL BOARDS.

A MINIMUM OF FIVE METRIC DESIGNATOR 103 (TRADE SIZE 4) CONDUITS OR SLEEVES SHOULD BE PROVIDED TO SERVICE UP TO 40,000 SQ FT OF USABLE FLOOR SPACE. ONE ADDITIONAL CONDUIT OR SLEEVE SHOULD BE PROVIDED FOR EACH ADDITIONAL 40,000 SQ FT OF USABLE FLOOR SPACE.

EACH RACK MUST BE CAPABLE OF SUPPORTING 5KW OF LOAD. HOWEVER, IN AGGREGATE FOR TRS WITH MORE THAN ONE RACK, THE FULL 5KW OF HEAT REJECTION PER RACK IS NOT REQUIRED. SEE BELOW:

- 1 RACK TR = 5KW COOLING
- 2 RACK TR = 7KW COOLING
- 3 RACK TR = 8.5KW COOLING
- 4 RACK TR = 10KW COOLING

TWO L21-20 BRANCH CIRCUITS PER RACK CAN BE USED FOR ALL RACKS ELIMINATING THE NEED FOR ZONE PDUS IF BREAKER SPACE IS NOT AN ISSUE (ALTERNATELY, ZPDUS CAN SUPPORT EITHER TWO OR THREE RACKS EACH)

1 TELECOMMUNICATION ROOM NOTES



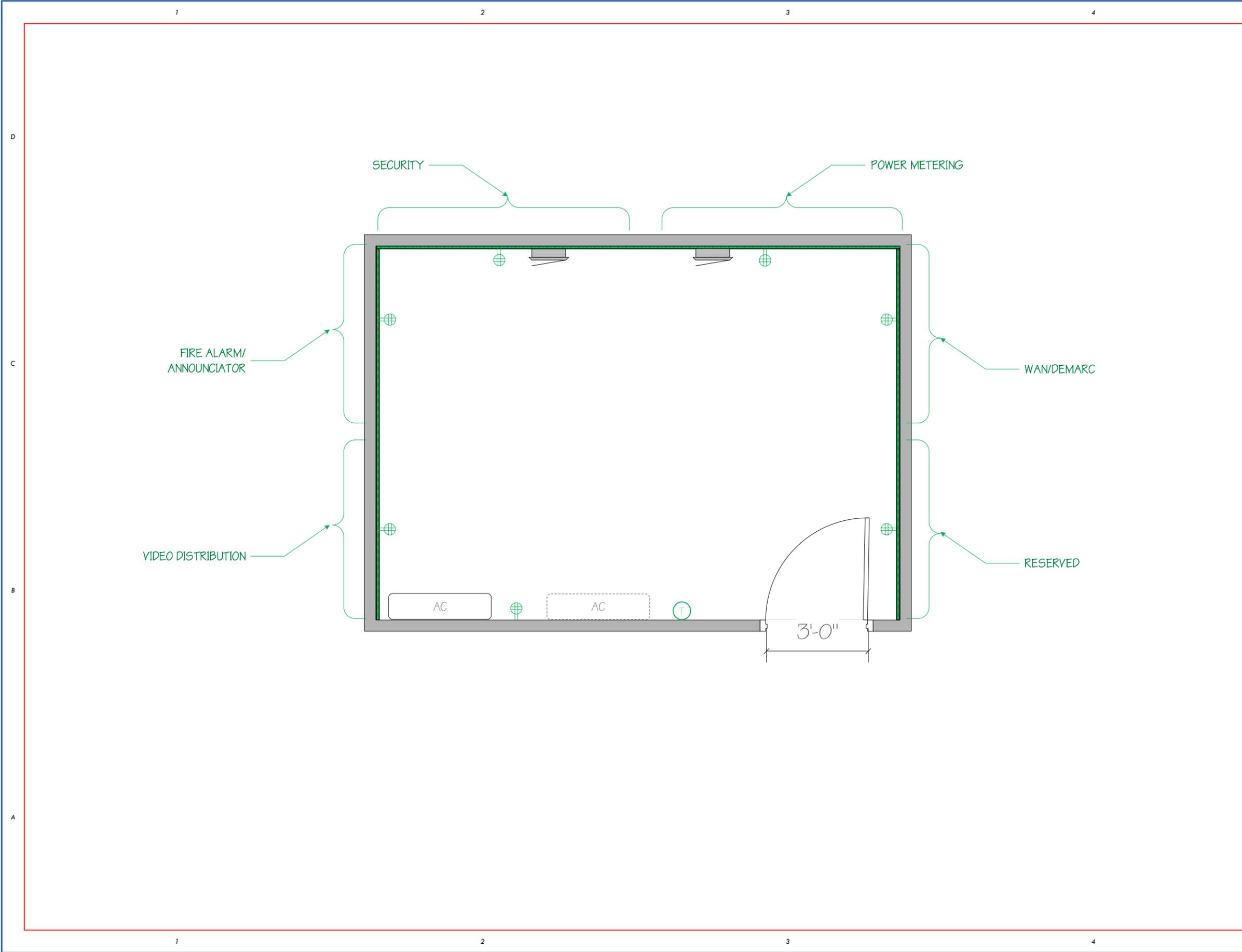
PROJECT:
CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:	
FILE:	CBOC DESIGN TEMPLATE v2.rvt
DESIGNED BY:	KEYVIN GRZELKA, CTDC
CHECKED BY:	MICHAEL JULIAN, RCDD KELLY BATES
DOC VERSION No:	2
PRINT DATE:	May 19, 2023
ISSUE DATE:	May 17, 2023

SHEET TITLE
TELECOMMUNICATIONS ROOMS



DEPARTMENT OF VETERANS AFFAIRS



OFFICE OF INFORMATION AND TECHNOLOGY

INFRASTRUCTURE OPERATIONS - APPLICATION HOSTING, CLOUD AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING



PROJECT:
CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION
------	------	-------------

ISSUE:

DRAWING No:	
FILE:	CBOC DESIGN TEMPLATE-v2.rvt
DESIGNED BY:	KEYIN GRZELKA, CTDC
CHECKED BY:	MICHAEL JULIAN, RCDD KELLY BATES
DOC VERSION No:	2
PRINT DATE:	May 19, 2023
ISSUE DATE:	May 17, 2023

SHEET TITLE
TYPICAL BACKBOARD RESERVATIONS



PROJECT:

CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION
------	------	-------------

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

ISSUE DATE: May 17, 2023

SHEET TITLE

TYPICAL WORK AREA OUTLETS

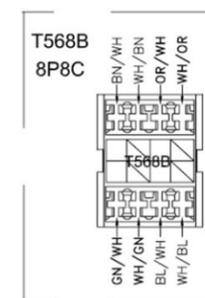
NOTES:

TYPICAL WORK AREA OUTLET FACEPLATE WILL BE INSTALLED WITH CATEGORY 6A COMPONENT-COMPLIANT 8P8C MEDIA INTERFACE CONNECTORS (RJ45). EACH CONNECTOR WILL BE TERMINATED TO HIGH QUALITY CATEGORY 6A HORIZONTAL CABLING WHICH WILL TERMINATE IN THE TELECOMMUNICATIONS ROOM AS SPECIFIED ELSEWHERE IN THIS DESIGN PACKAGE.
ALL HORIZONTAL UTP SHALL BE CATEGORY 6A AND TERMINATED TO T568B.

TYPICAL FACEPLATE WILL BE INSTALLED WITH TWO RJ45s. HIGH DENSITY FACEPLATES WILL BE INSTALLED WITH FOUR RJ45s.

FACEPLATE MATERIAL AND COLOR DETERMINED BY OTHERS.

THIS SHEET DETAILS A GENERIC FACEPLATE SPECIFICATION.



ONE CATEGORY 6A 8P8C OUTLET ACTIVE FOR TELEPHONY

3 TYPICAL WALL MOUNT PHONE VOIP OUTLET

4 TYPICAL WORK FLOOR MOUNT OUTLET

MINIMUM OF FOUR CATEGORY 6A 8P8C OUTLETS FOR DATA OR TELEPHONY

2 HIGH DENSITY WALL MOUNTED WORK AREA OUTLET CONFIGURATION

SINGLE GANG WORKBOX WITH TWO CONNECTOR CHASSIS.

FOUR CATEGORY 6A 8P8C OUTLETS ACTIVE FOR TELEPHONY/DATA

FOUR POSITION FACEPLATE MOUNTED ON SINGLE GANG WORKBOX. FACEPLATE COLOR SPECIFIED BY OTHERS.

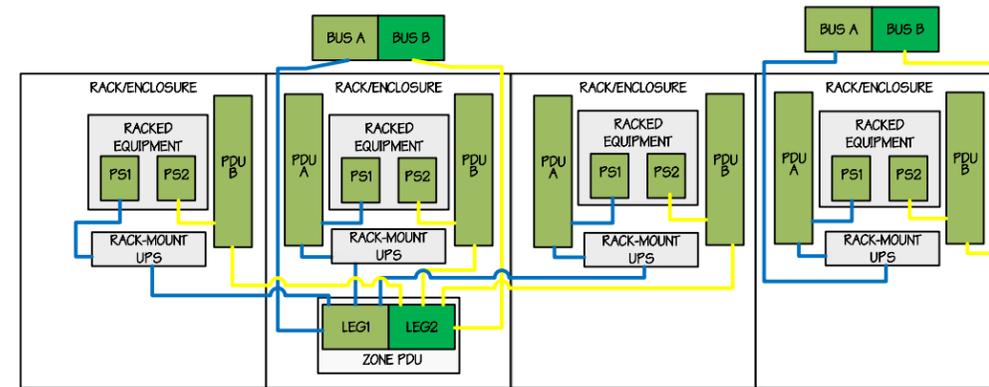
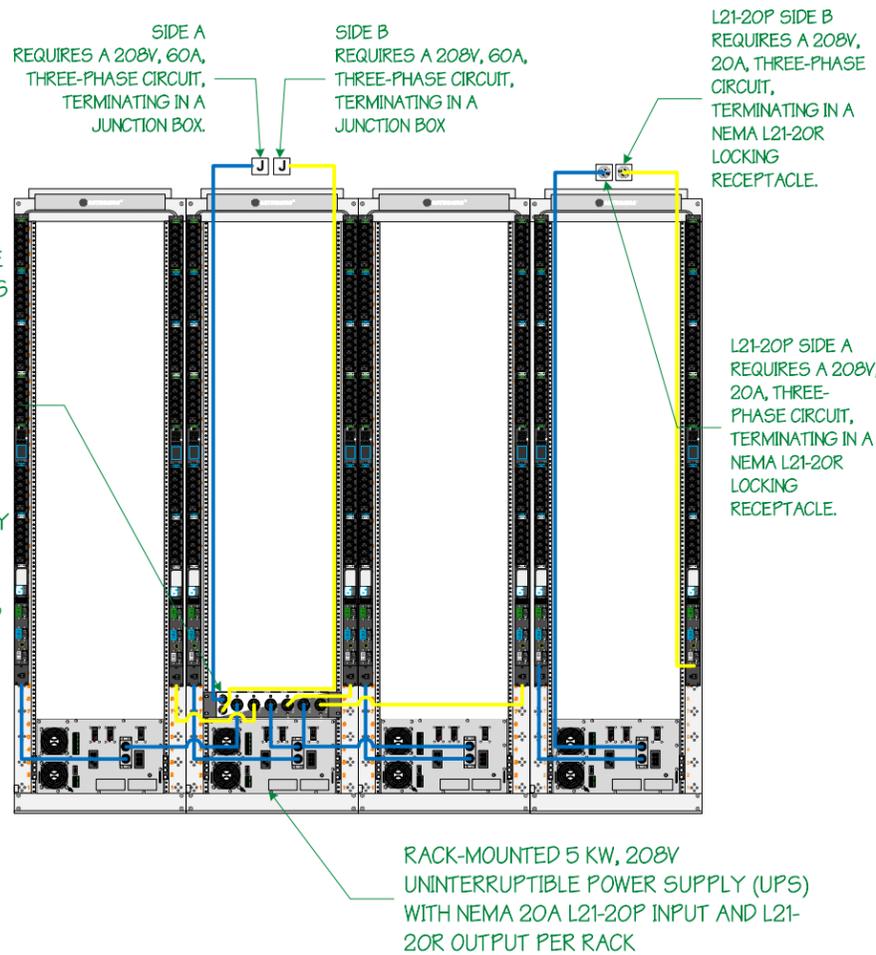
1 TYPICAL STANDARD DENSITY WALL MOUNTED WORK AREA OUTLET CONFIGURATION

SINGLE GANG WORKBOX WITH ONE CONNECTOR CHASSIS.

TWO CATEGORY 6A 8P8C OUTLETS ACTIVE FOR TELEPHONY/DATA

FOUR POSITION FACEPLATE MOUNTED ON SINGLE GANG WORKBOX. FACEPLATE COLOR SPECIFIED BY OTHERS.

ALL LABELING SHALL BE ANSI/TIA/EIA/606C COMPLIANT. BLACK LETTERING ON WHITE FIELD. MACHINE PRINTED. FURTHER GUIDANCE ON ADMINISTRATION MAY BE SPECIFIED IN OTHER SECTIONS OF THIS DESIGN PACKAGE.



ONE ZONE PDU
60A 3-PHASE ZONE PDU BASE UNIT -
REQUIRES TWO 60A 3-PHASE (WYE)
CIRCUITS HARD-WIRED IN JUNCTION BOX TO
SUPPORT THREE RACKS

REQUIRES TWO 20A 3-
PHASE (WYE) CIRCUITS
TERMINATING IN L21-20R_s

1 POWER ELEVATION AND SCHEMATIC FOR A FOUR RACK TR



PROJECT:

CBOC INFORMATION
TRANSPORT SYSTEMS
SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

ISSUE DATE: May 17, 2023

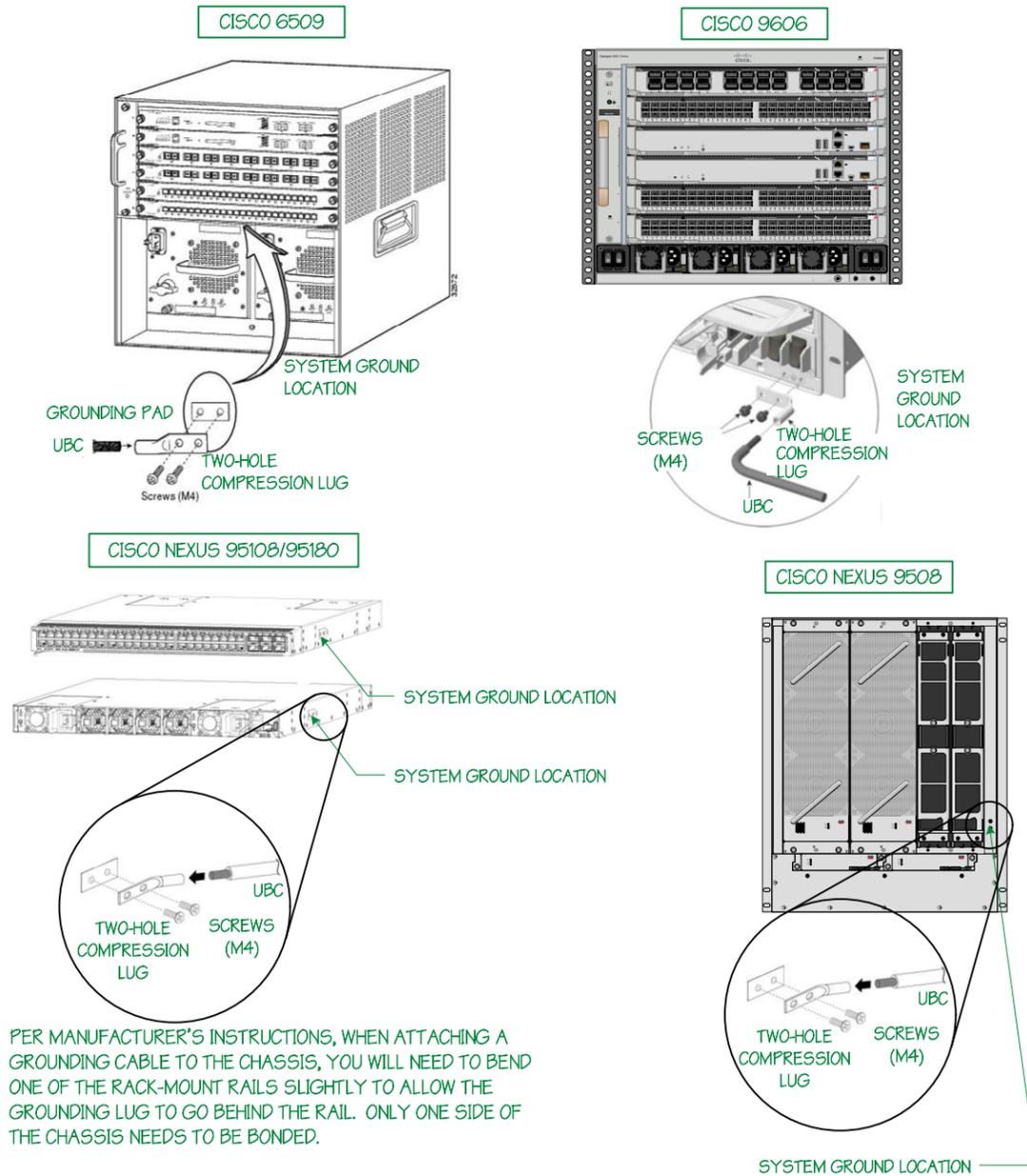
SHEET TITLE

POWER DISTRIBUTION (4 RACK
TR)

NOTES: ALL GROUNDING SHALL BE DONE IN ACCORDANCE WITH ANSI/TIA-607-D "COMMERCIAL BUILDING GROUNDING (EARTHING) AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS", NFPA 70, AND IN COMPLIANCE WITH LOCAL CODES.

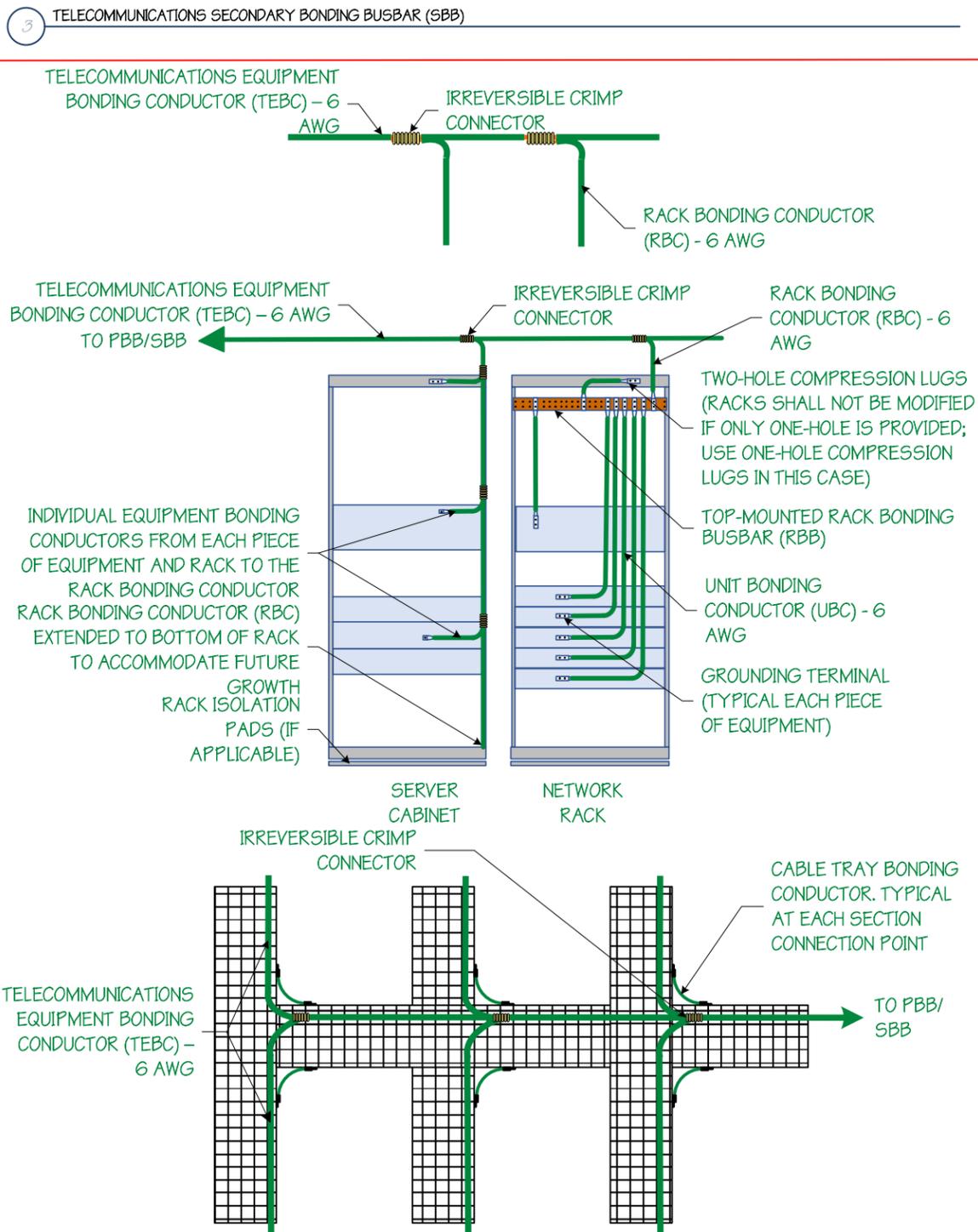
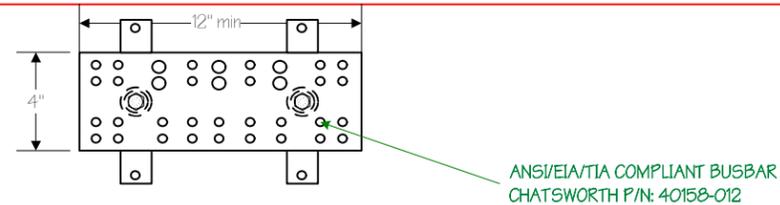
ALL EQUIPMENT SHALL BE GROUNDED PER MANUFACTURER'S INSTRUCTIONS.

NETWORK EQUIPMENT MUST BE GROUNDED. NEVER DEFEAT THE GROUND CONDUCTOR OR OPERATE THE EQUIPMENT IN THE ABSENCE OF A SUITABLY INSTALLED GROUND CONDUCTOR. THESE DEVICES WILL BE BONDED TO THE RACK BONDING BUSBAR (RBB) IN THE SAME RACK. EACH DEVICE WILL HAVE A DEDICATED UNIT BONDING CONDUCTOR (UBC). THE UBC WILL NOT BE SHARED.



PER MANUFACTURER'S INSTRUCTIONS, WHEN ATTACHING A GROUNDING CABLE TO THE CHASSIS, YOU WILL NEED TO BEND ONE OF THE RACK-MOUNT RAILS SLIGHTLY TO ALLOW THE GROUNDING LUG TO GO BEHIND THE RAIL. ONLY ONE SIDE OF THE CHASSIS NEEDS TO BE BONDED.

2 EARTHING EXAMPLES
Ref: CISCO PRODUCT INSTALLATION GUIDE



1 PATHWAY, RACK, BONDING CONDUCTOR JOIN REQUIREMENTS



PROJECT:

CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:	
FILE:	CBOC DESIGN TEMPLATE-v2.rvt
DESIGNED BY:	KEYIN GRZELKA, CTDC
CHECKED BY:	MICHAEL JULIAN, RCDD KELLY BATES
DOC VERSION No:	2
PRINT DATE:	May 19, 2023
ISSUE DATE:	May 17, 2023

SHEET TITLE

BONDING

- RACK = RK1 THROUGH RK4. LABELED LEFT TO RIGHT WHEN LOOKING AT THE FRONT OF THE RACK. APPLIES TO RACKS AND CABINETS.
- UTP PATCH PANEL = CPL-RACK NAME-01 THROUGH 45. EXAMPLE: CPL-RK1-01 FOR THE PANEL LOCATED IN RACK UNIT #1 IN RACK #1.
- UTP PATCH PANEL POSITION = PANEL ID.01 THROUGH 24. EXAMPLE CPL-RK1-01.01
- FIBER DISTRIBUTION PANEL = FDP-RACK NAME-01 THROUGH 45. EXAMPLE: FDP-RK1-01 FOR THE PANEL IN RACK UNIT #1 RACK #1.
- FIBER DISTRIBUTION CASSETTE = FDC-RACK NAME-01 THROUGH 45.1 THROUGH 3. EXAMPLE: FDC-RK1-01.1 FOR THE CASSETTE IN POSITION #1 IN PANEL LOCATED IN RACK UNIT #1 IN RACK #1.
- UTP PATCH CORDS = CCA[SOURCE.PORT]/[DESTINATION.PORT]. EXAMPLE CCA[CPL-RK1-01.01]/[CPL-RK2-02.02] AS A PATCH CORD CONNECTING PORT #1 IN THE COPPER PATCH PANEL LOCATED IN RACK #1, RACK UNIT #1 WITH PORT 2 LOCATED IN RACK 2, RACK UNIT #2.
- FIBER PATCH CORDS = FCA[SOURCE.PORT]/[DESTINATION.PORT]. EXAMPLE FCA[FDP-RK1-01.01.01]/[FDP-RK2-02.02.02] AS A PATCH CORD CONNECTING PORT #1 IN THE FIBER PATCH PANEL LOCATED IN RACK #1, RACK UNIT #1 WITH PORT 2 LOCATED IN RACK 2, RACK UNIT #2.
- FACEPLATE = TR ROOM NUMBER-PATCH PANEL ID.PORT. EXAMPLE. 1A-CPL-RK1-01.1 FOR TELECOMMUNICATIONS ROOM 1, UTP PANEL IN RACK #1, RACK UNIT #1, PORT POSITION #1.

① EXAMPLE INSIDE PLANT LABELING REQUIREMENTS

DEPARTMENT OF VETERANS
AFFAIRS



OFFICE OF INFORMATION AND
TECHNOLOGY

INFRASTRUCTURE OPERATIONS -
APPLICATION HOSTING, CLOUD
AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND
INFRASTRUCTURE ENGINEERING

EDCT
ENTERPRISE DATA CENTER
INFRASTRUCTURE COLLABORATION
TEAM

PROJECT:

CBOC INFORMATION
TRANSPORT SYSTEMS
SPECIFICATIONS

MARK	DATE	DESCRIPTION
------	------	-------------

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

ISSUE DATE: May 17, 2023

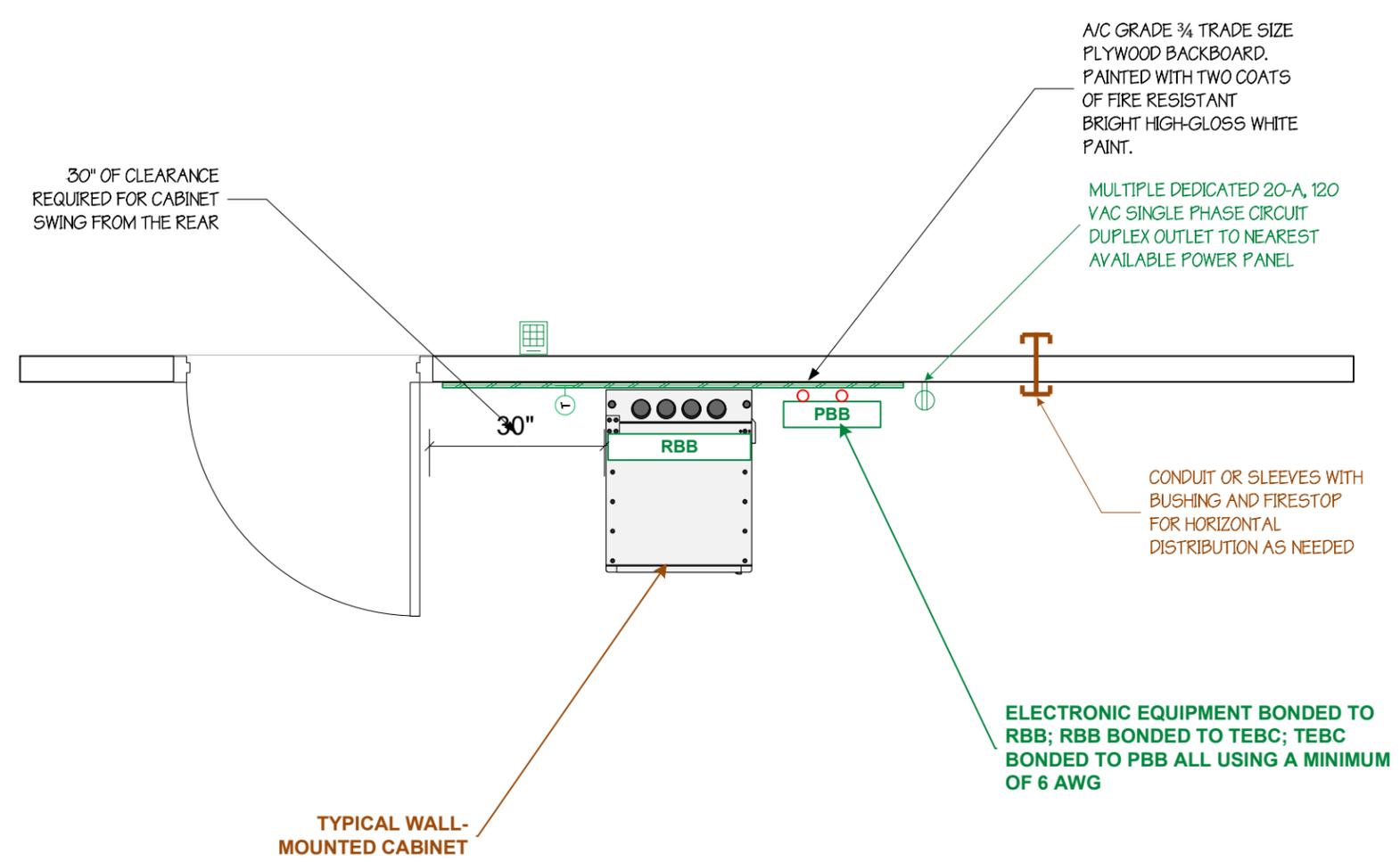
SHEET TITLE

CBOC ITS NAMING STANDARDS

SHEET: 15 OF 20

1 2 3 4

D
C
B
A



1 TYPICAL TOP-DOWN VIEW
NTS

1 2 3 4

DEPARTMENT OF VETERANS AFFAIRS



OFFICE OF INFORMATION AND TECHNOLOGY

INFRASTRUCTURE OPERATIONS - APPLICATION HOSTING, CLOUD AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING

EDCT
ENTERPRISE DATA CENTER
INFRASTRUCTURE COLLABORATION TEAM

PROJECT:
CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

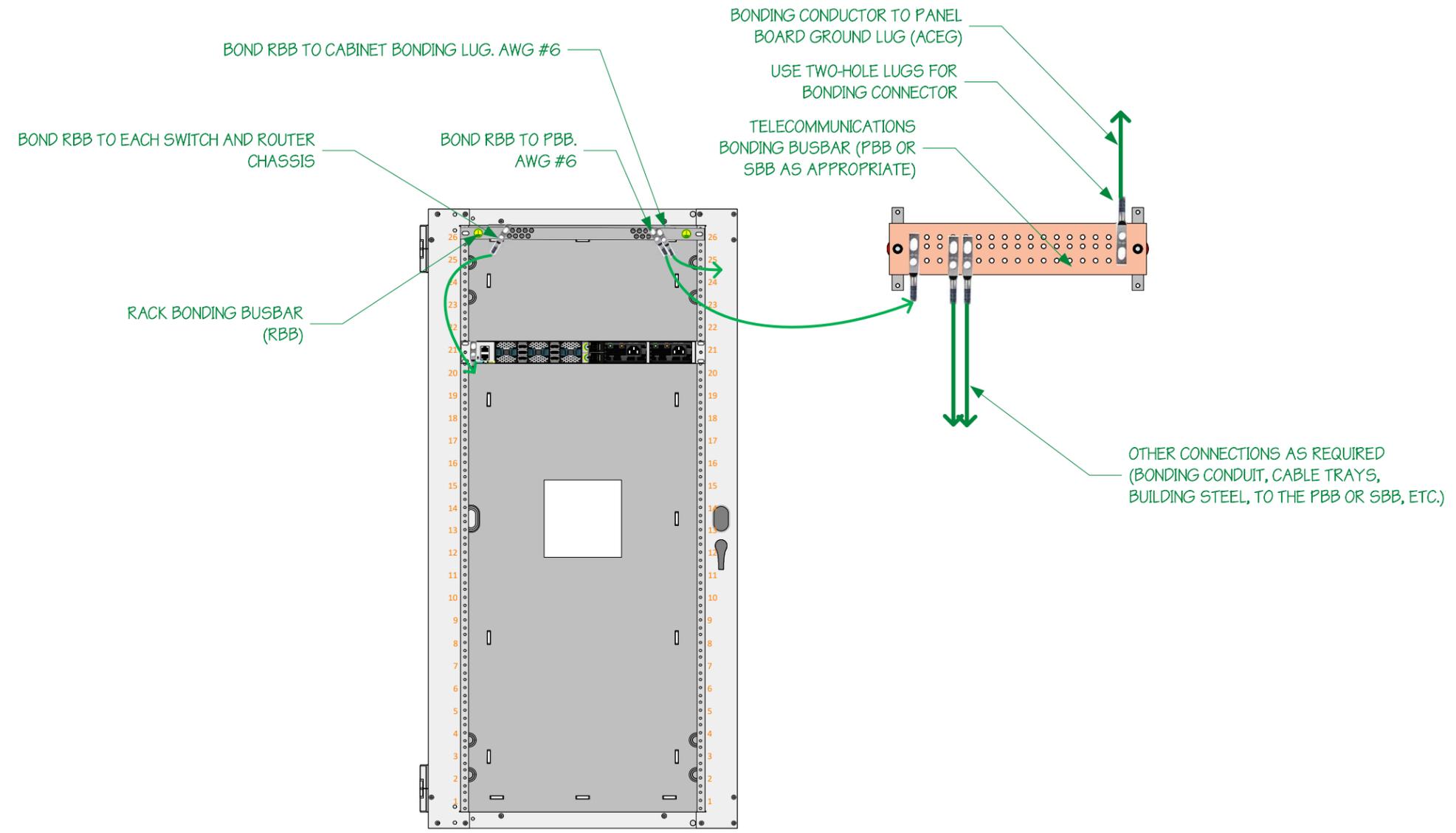
ISSUE DATE: May 17, 2023

SHEET TITLE

TELECOMMUNICATIONS ENCLOSURE (TOP VIEW)

1 2 3 4

D
C
B
A



1 BONDING TOPOLOGY FOR TELECOMMUNICATIONS ENCLOSURES

1 2 3 4

DEPARTMENT OF VETERANS AFFAIRS



OFFICE OF INFORMATION AND TECHNOLOGY

INFRASTRUCTURE OPERATIONS - APPLICATION HOSTING, CLOUD AND EDGE SOLUTIONS



ENTERPRISE DATA CENTER AND INFRASTRUCTURE ENGINEERING



PROJECT:
CBOC INFORMATION TRANSPORT SYSTEMS SPECIFICATIONS

MARK	DATE	DESCRIPTION

ISSUE:

DRAWING No:

FILE: CBOC DESIGN TEMPLATE-v2.rvt

DESIGNED BY: KEVIN GRZELKA, CTDC

CHECKED BY: MICHAEL JULIAN, RCDD
KELLY BATES

DOC VERSION No: 2

PRINT DATE: May 19, 2023

ISSUE DATE: May 17, 2023

SHEET TITLE
TELECOMMUNICATIONS ENCLOSURE (ELEVATION)

