As the *dome* is tightened, *the fingers at the top of the flex fitting* are compressed against the rubber strain relief insert, which is, in turn, compressed against the cable insulation. Simultaneously, the nickel-plated EMI spring fingers at the bottom of the flex fitting are compressed against the exposed cable shield. The EMI spring fingers are grounded to the feed-through body, which, in turn, is bonded to the cabinet enclosure. This effectively grounds the cable shield.

10   Repeat Steps 1 through 9 for all T1/E1 and user alarm cables and then replace the top cover on the antenna cable cover.

Use the following procedure to prepare the T1/E1 and user alarm cables for punchdown and ground connection at the facilities interface panel.

Prepare the T1/E1 and user alarm cables for punchdown and ground connection at the facilities interface module

Prepare the T1/E1 and user alarm cables for punchdown at the EFIM (facilities interface module). User alarm cables are attached only at the primary cabinet.
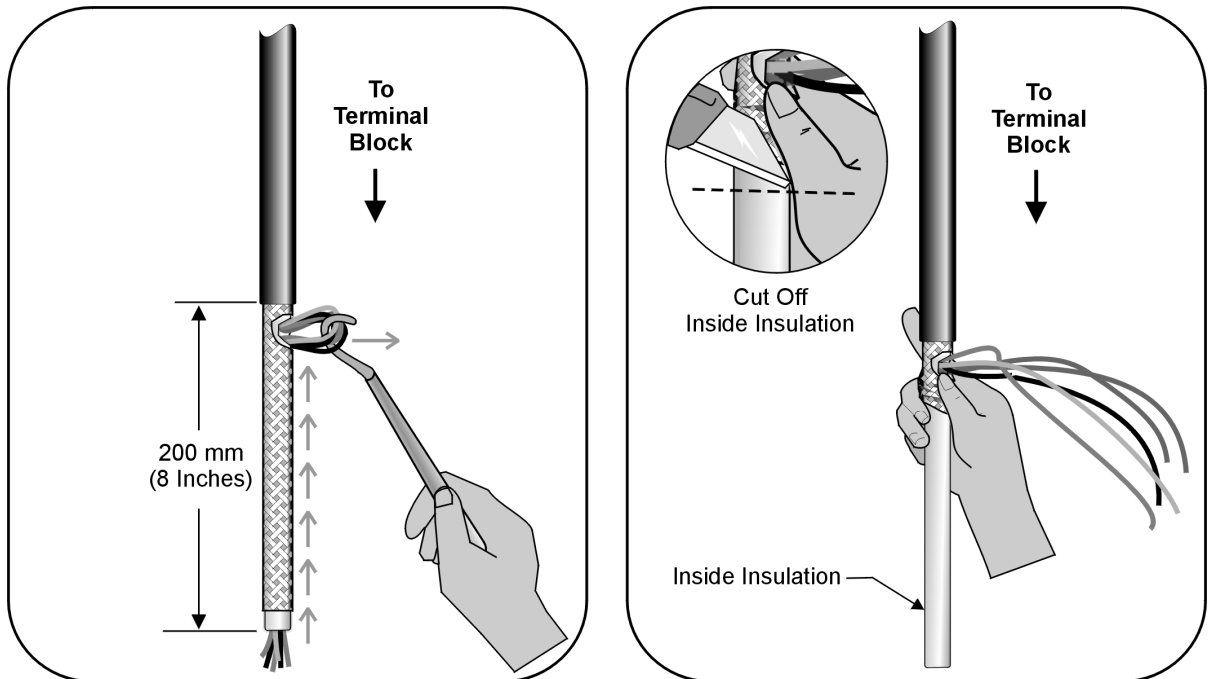
....

1 Allow adequate slack and cut the T1/E1 and user alarm cable to the correct length.

....

2 Strip the outer cable insulation to expose 200 mm (8 inches) of the braided shield. Refer to the figure below.

>   **Important!**   Be careful not to cut into the cable shield.

....

3 At the end of the outer insulation, cut an opening in the braided shield, and the insulation inside it, to expose the individual wires.

....

4 Using a hook or equivalent tool, pull the wires out through the opening made in the previous step, as shown in the figure below.

....

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....

5   Push the braided shield back on the inside insulation as shown.

....

6   Cut off the exposed inside insulation.

....

7   Twist the T1/E1 and user alarm cable shields at the end of the cables in preparation for their attachment to a grounding clamp located on the facilities interface module. Refer to the figure below.

....
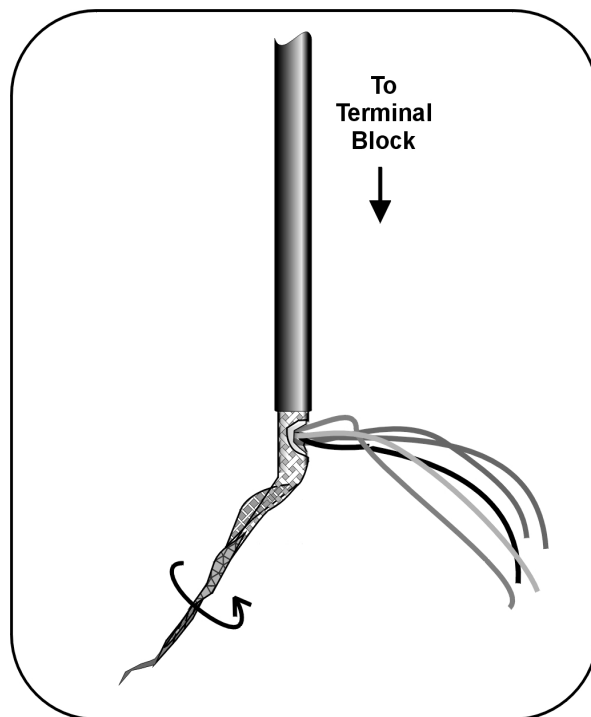
8   Repeat steps 1 through 7 for each cable.

....

9   Quality Check - Verify the following.

1.   Check that all cables are firmly held by the seal and is not loose.

2.   Using an ohmmeter, check continuity between the frame and the cable shield at the end of each cable to ensure that it is bonded in the cord grip seal.

....

Connection of T1/E1 Lines to the EFIM punchdowns in Modular Cell 4.0B cabinets

Overview   This procedure module provides instructions for connecting of the T1/ E1 cables in a Modular Cell 4.0B primary or 4.0B dual band cabinet

T1/E1 installation will vary depending upon the Universal Radio Controller (URC or URCII) in use in the cabinet being installed. A URC accepts a maximum of twelve TI/E1 lines (one cable). A URCII accepts a maximum of twenty TI/E1 lines (two cables).

Instructions are provided for 4.0B cabinets that have a maximum of twelve T1/E1 lines, as well as for 4.0B cabinets that have a maximum of twenty T1/E1 lines. 4.0B cabinets that have a maximum of twenty T1/E1 lines <u>have a different EFIM (POD B has been added) for internal punch down of T1/E1 and user alarm cables.</u>

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Punch down T1/E1 lines on the EFIM in Modular Cell 4.0B cabinets that accept a maximum of twelve T1/E1 lines

Important! If installing a Modular Cell 4.0B cabinet that accepts a maximum of twenty T1/E1 lines, skip to and continue the installation from that point.

Some Modular Cell 4.0B primary or dual band cabinets are equipped with USRs (Universal Radio Controllers) as opposed to UCRlls. These Modular Cell 4.0B cabinets accepts a maximum of twelve T1/E1 lines. The T1/E1 lines will be connected to the punchdown terminals on the EFIM (facilities interface module) inside of the Modular Cell 4.0B primary or dual band cabinet. The EFIM is accessible from the front of the cabinet, behind a slide-out tray (EFIT - facilities interface tray). See the figure below. Use the following procedure to punch down the T1/E1 lines on the EFIM in the applicable Modular Cell 4.0B cabinet. Refer to the figure below.

....

1 Open the facilities interface tray. Refer to the figure below.

....

2 Connect the twisted ends of the T1/E1 cable shield to the grounding clamp located on the EFIM. Refer to the figure below. Refer to the figure on Page 3-38 for more detail.
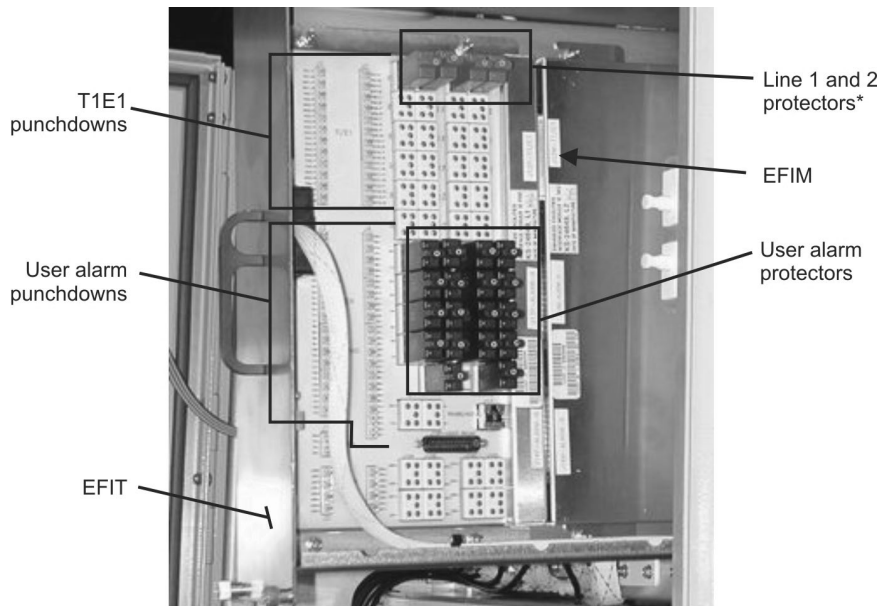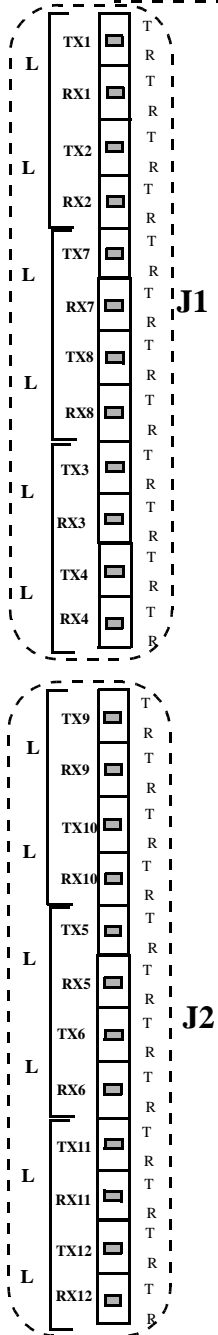

* FOR PROTECTOR LOCATIONS OF ADDITIONAL T1/E LINES,
REFER TO THE FIGURE AND TABLES THAT FOLLOW

....

Important!   Before performing the next step, consult the customer / site engineer for the <u>site preparation</u> data sheet that is provided in the *Flexent® Modular Cell 4.0/4.0B Outdoor Site Preparation Guidelines,* 401-703-413. The site preparation data sheet is provided to allow the customer a means to record the T1/E1 line assignments for punchdown at the EFIM, and to convey that information to the installer. The data should include the TX/RX signal pair assignments and their color codes for each line number to be attached. Note that the T1/E1 line numbers do not correspond to the silk-screened TX/RX signal pair labels on the EFIM. Also note that the TX and RX punchdowns TX1/RX1 through TX12/RX12,are not located in numerically consecutive order.
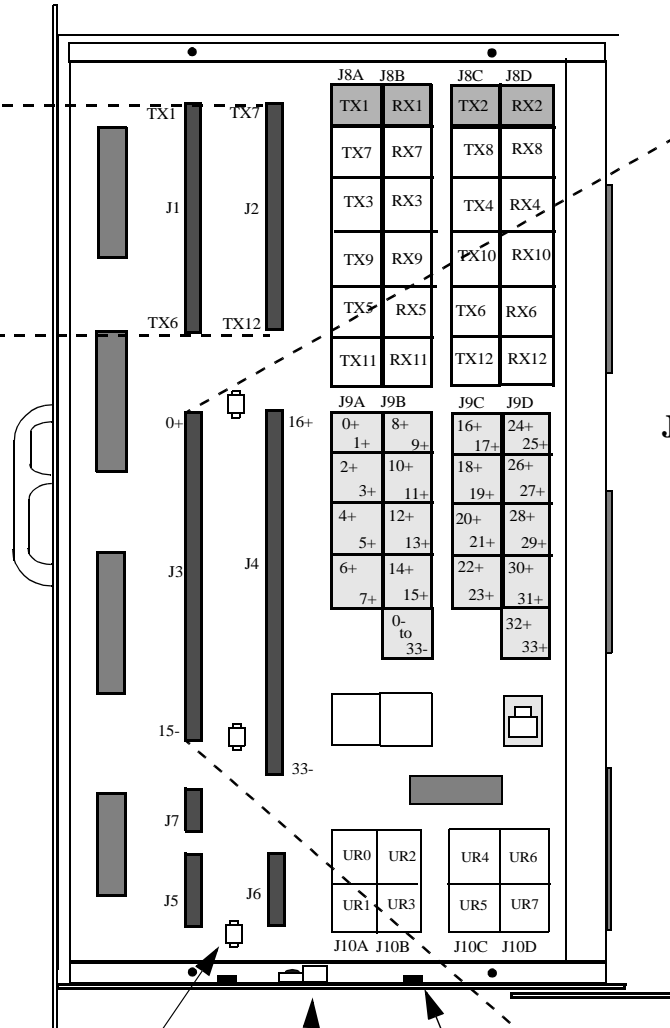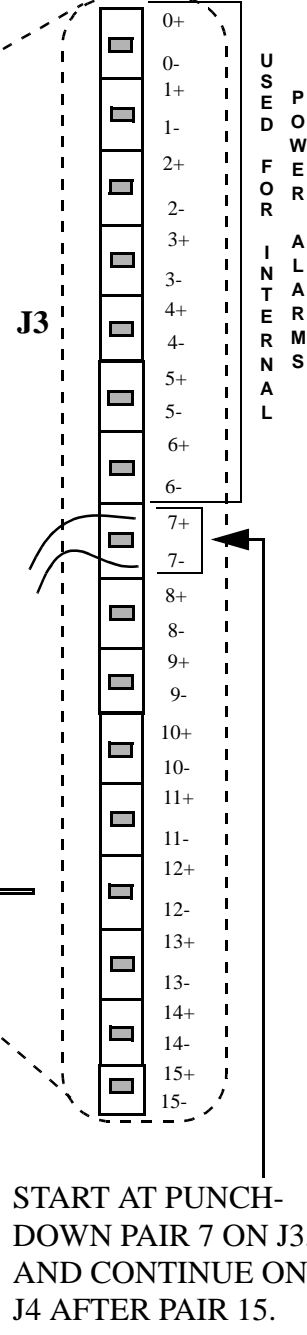
....

3   Connect the <u>T1/E1</u> wire pairs as follows. Refer to the figure on Page 3-38, Note 1, and the table on Page 3 - 39.

- Connect the applicable T1/E1 wire pairs to connector J1 and J2 punchdowns, signals TX1/RX1 through TX12/RX12, as assigned by the customer on the site preparation data sheet.

....

4   Check that two surge protectors are installed in the correct protector locations for each installed line. Refer to the figure on Page 3-38, and the table on Page 3 - 39.

....

5   Close and secure the EFIT with the four screws.

....

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6 After completion of the T1/E1 punchdowns, skip to <u>Connection of user alarms to the EFIM punchdown blocks in the Modular Cell 4.0B primary cabinet</u> on Page 3 - 48 to punchdown the user alarms.

NOTE 1
T1/E1 CONNECTIONS

NOTE 2
USER ALARM CONNECTIONS

J1

J2

J3

CABLE TIE_DOWN POINT (1 of 3)

GROUND CLAMP

CABLE TIE-DOWN POINT (1 of 2)

- All punchdown connections will accept 24 AWG solid wires.

START AT PUNCH-DOWN PAIR 7 ON J3, AND CONTINUE ON J4 AFTER PAIR 15.

The following table provides the EFIM punchdown terminal block TX/RX signal pair connections to their associated URCs: 1, 2, or 3. T1/E1 lines 1 through 12 are connected to these punchdowns (as assigned by the customer) in the Modular Cell 4.0B cabinets.

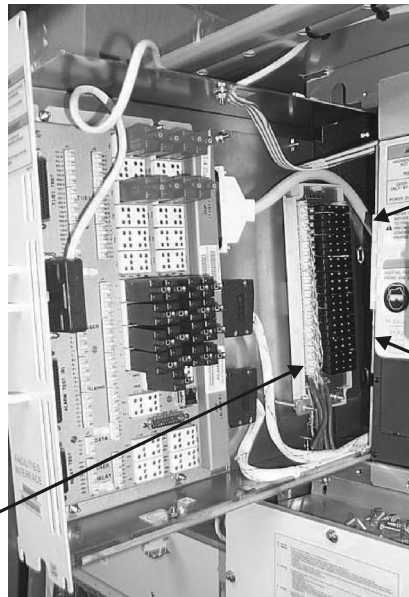| T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring NOTE 3	"J" Conn.	Block C/C	Protector Location	URC Position number
Line __	TX1-T (Top)	J1	Blue	J8A/TX-1	URC, Position 1
	TX1-R (Bottom)				
	RX1-T (Top)		Orange	J8B/RX-1	
	RX1-R (Bottom)				
Line __	TX2-T (Top)	J1	Green	J8C/TX-2	**NOTE 1**
	TX2-R (Bottom)				
	RX2-T (Top)		Brown	J8D/RX-2	
	RX2-R (Bottom)				
Line __	TX7-T (Top)	J1	Blue	J8A/TX-7	URC, Position 2
	TX7-R (Bottom)				
	RX7-T (Top)		Orange	J8B/RX-7	
	RX7-R (Bottom)				
Line __	TX8-T (Top)	J1	Green	J8C/TX-8	**NOTE 2**
	TX8-R (Bottom)				
	RX8-T (Top)		Brown	J8D/RX-8	
	RX8-R (Bottom)				
Line __	TX3-T (Top)	J1	Blue	J8A/TX-3	URC, Position 1
	TX3-R (Bottom)				
	RX3-T (Top)		Orange	J8B/RX-3	
	RX3-R (Bottom)				
Line __	TX4-T (Top)	J1	Green	J8C/TX-4	**NOTE 1**
	TX4-R (Bottom)				
	RX4-T (Top)		Brown	J8D/RX-4	
	RX4-R (Bottom)				
NOTE 1: A DATA T1/E1 line __must__ be punched down to URC, position 1 (TX-RX 1 to TX-RX 4). VOICE T1/E1 lines may also be punched down to URC, position 1 (TX-RX 1 to TX-RX 4) but Data and Voice are mutually exclusive.					
NOTE 2: VOICE T1/E1 lines only are punched down to URC, position 2 (TX-RX 5 to TX-RX 8) and URC, position 3 (TX-RX 9 to TX-RX 12)					
NOTE 3: TX/RX signal pair punchdowns are not physically located in numerically consecutive order on the EFIM.					

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T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring NOTE 3	"J" Conn.	Block C/C	Protector Location	URC Position number
Line __	TX9-T (Top)	J2	Blue	J8A/TX-9	URC, Position 3
	TX9-R (Bottom)				
	RX9-T (Top)		Orange	J8B/RX-9	
	RX9-R (Bottom)				
Line __	TX10-T (Top)	J2	Green	J8C/TX-10	**NOTE 2**
	TX10-R (Bottom)				
	RX10-T (Top)		Brown	J8D/RX-10	
	RX10-R (Bottom)				
Line __	TX5-T (Top)	J2	Blue	J8A/TX-5	URC, Position 2
	TX5-R (Bottom)				
	RX5-T (Top)		Orange	J8B/RX-5	
	RX5-R (Bottom)				
Line __	TX6-T (Top)	J2	Green	J8C/TX-6	**NOTE 2**
	TX6-R (Bottom)				
	RX6-T (Top)		Brown	J8D/RX-6	
	RX6-R (Bottom)				
Line __	TX11-T (Top)	J2	Blue	J8A/TX-11	URC, Position 3
	TX11-R (Bottom)				
	RX11-T (Top)		Orange	J8B/RX-11	
	RX11-R (Bottom)				
Line __	TX12-T (Top)	J2	Green	J8C/TX-12	**NOTE 2**
	TX12-R (Bottom)				
	RX12-T (Top)		Brown	J8D/RX-12	
	RX12-R (Bottom)				
NOTE 1: A DATA T1/E1 line <u>must</u> be punched down to URC, position 1 (TX-RX 1 to TX-RX 4). VOICE T1/E1 lines may also be punched down to URC, position 1 (TX-RX 1 to TX-RX 4) but Data and Voice are mutually exclusive.					
NOTE 2: VOICE T1/E1 lines only are punched down to URC, position 2 (TX-RX 5 to TX-RX 8) and URC, position 3 (TX-RX 9to TX-RX 12)					
NOTE 3: TX/RX signal pair punchdowns are not physically located in numerically consecutive order on the EFIM					

Punch down T1/E1 lines on the EFIM in Modular Cell 4.0B cabinets that accept a maximum of twenty T1/E1 lines

Important! If installing a Modular Cell 4.0B cabinet that accepts a maximum of twelve T1/E1 lines, skip to <u>Connection of user alarms to the EFIM punchdown blocks in the Modular Cell 4.0B primary cabinet</u> on Page 3 - 48 to punchdown the user alarms.

Some Modular Cell 4.0B primary or dual band cabinets are equipped with USRlls (Universal Radio Controllers) as opposed to UCRs. These Modular Cell 4.0B cabinets accepts a maximum of twenty T1/E1 lines. The T1/E1 lines will be connected to the punchdown terminals on the EFIM (facilities interface module) inside of the Modular Cell 4.0B primary or dual band cabinet. The EFIM is accessible from the front of the cabinet, behind a slide-out tray (EFIT - facilities interface tray). See the figure below. Use the following procedure to punch down the T1/E1 lines on the EFIM in the applicable Modular Cell 4.0B cabinet. Refer to the figure below.

....

1   Open the facilities interface tray. Refer to the figure below.

....

2   Connect the twisted ends of the T1/E1 and user alarm cable shields to the grounding clamp located on the EFIM. Refer to the figure below. Refer to the figure on Page 3-43 for more detail.

POD B (4.0B With URCIIs Only) Added for T1/E1 pairs 13 through 20

POD B Protectors for T1/E1 pairs 13 through

POD B Punchdowns for T1/E1 pairs 13 through 20

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Important!   Before performing the next step, consult the customer / site engineer for the <u>site preparation</u> data sheet that is provided in the *Flexent® Modular Cell 4.0/4.0B Outdoor Site Preparation Guidelines,* 401-703-413. The site preparation data sheet is provided to allow the customer a means to record the T1/E1 line assignments for punchdown at the EFIM, and to convey that information to the installer. The data should include the TX/RX signal pair assignments and their color codes for each line number to be attached. Note that the T1/E1 line numbers do not correspond to the silk-screened TX/RX signal pair labels on the EFIM. Also note that the TX and RX punchdowns TX1/RX1 through TX12/RX12,are not located in numerically consecutive order.

....

3   Connect the <u>T1/E1</u> wire pairs TX1/RX1 through TX12/RX12 as follows. Refer to the figure on Page 3-43, Note 1, and the table on Page 3 - 44.

- Connect the applicable T1/E1 wire pairs to connector J1 and J2 punchdowns, signals TX1/RX1 through TX12/RX12, as assigned by the customer on the site preparation data sheet.
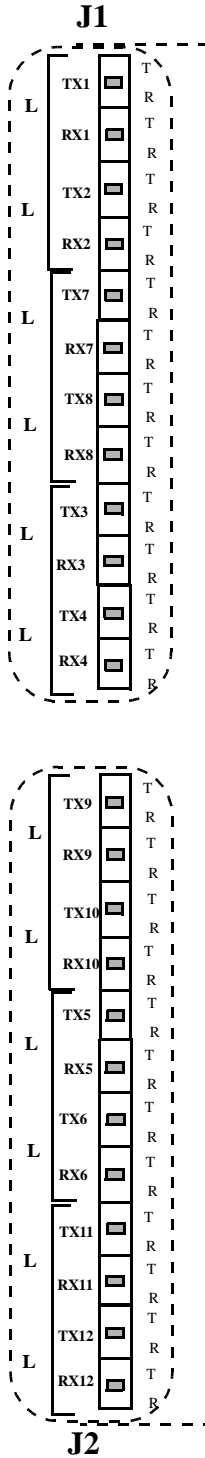
....

4   Connect the <u>T1/E1</u> wire pairs TX13/RX13 through TX20 /RX20 as follows. Refer to the figure on Page 3-43, Note 2, and the table on Page 3 - 44.

- Connect the applicable T1/E1 wire pairs to Pod B connector punchdowns 13 through 20, signals TX13/RX13 through TX20/RX20, as assigned by the customer on the site preparation data sheet.

....
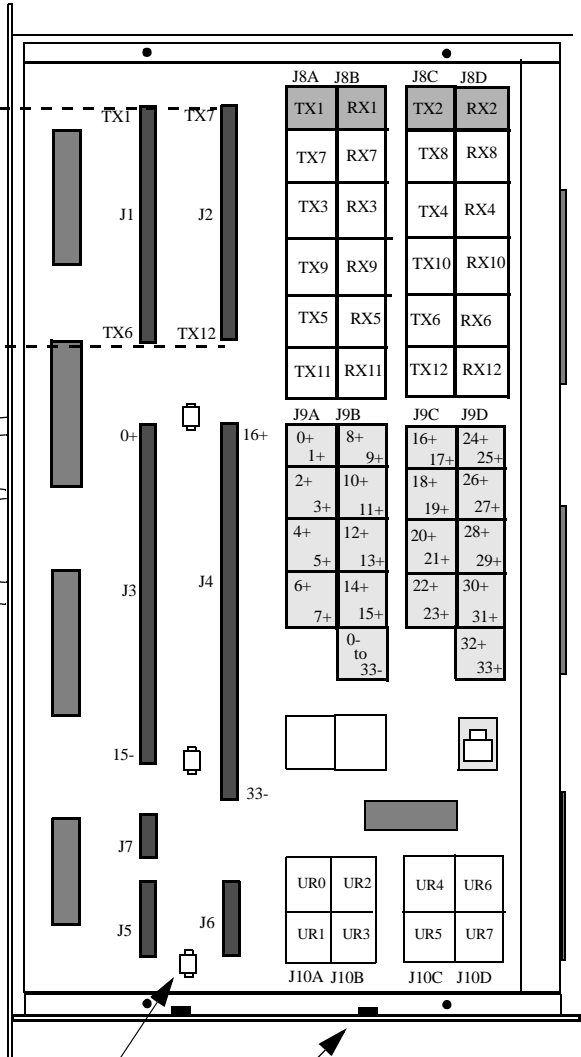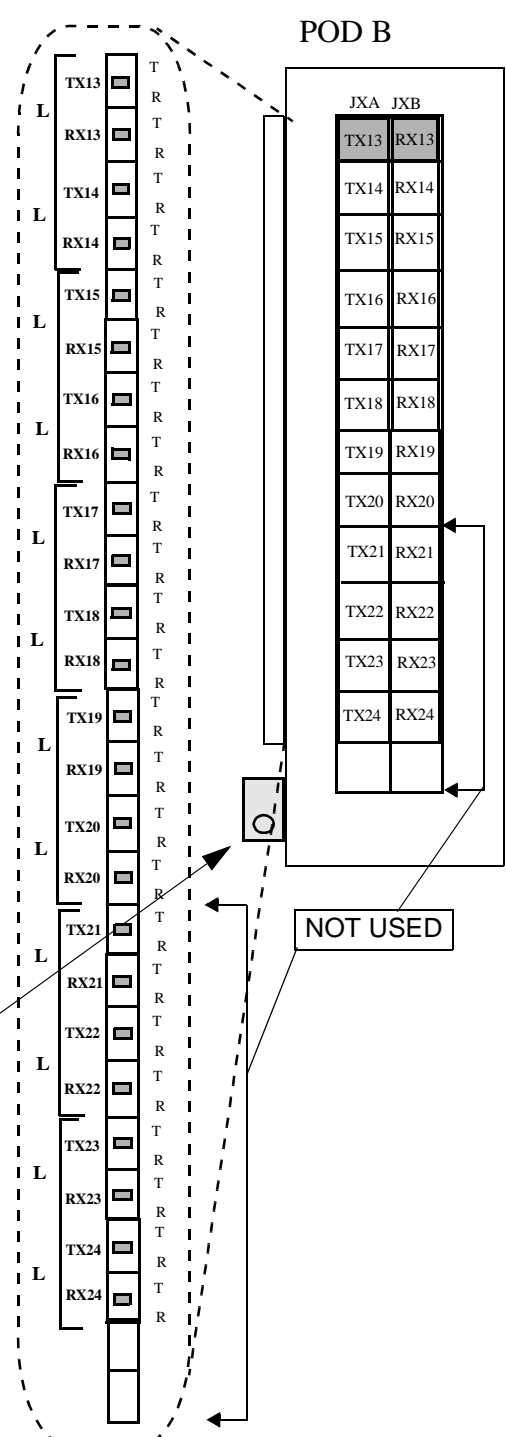
5   Check that two surge protectors are installed in the correct protector locations for each installed line. Refer to the figure on Page 3-43, and the table on Page 3 - 44.

....

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6 Close and secure the EFIT with the four screws.

NOTE 1: T1/E1 CONNECTIONS TX/RX 1-12

J1

TX1, RX1, TX2, RX2, TX7, RX7, TX8, RX8, TX3, RX3, TX4, RX4

J2

TX9, RX9, TX10, RX10, TX5, RX5, TX6, RX6, TX11, RX11, TX12, RX12

NOTE 2: T1/E1 CONNECTIONS TX/RX 13-24

TX13, RX13, TX14, RX14, TX15, RX15, TX16, RX16, TX17, RX17, TX18, RX18, TX19, RX19, TX20, RX20, TX21, RX21, TX22, RX22, TX23, RX23, TX24, RX24

POD B

JXA JXB

TX13, RX13, TX14, RX14, TX15, RX15, TX16, RX16, TX17, RX17, TX18, RX18, TX19, RX19, TX20, RX20, TX21, RX21, TX22, RX22, TX23, RX23, TX24, RX24

NOT USED

TX1, TX7, J1, J2, TX6, TX12

J8A J8B J8C J8D

TX1	RX1	TX2	RX2
TX7	RX7	TX8	RX8
TX3	RX3	TX4	RX4
TX9	RX9	TX10	RX10
TX5	RX5	TX6	RX6
TX11	RX11	TX12	RX12

J9A J9B J9C J9D

0+	8+	16+	24+
1+	9+	17+	25+
2+	10+	18+	26+
3+	11+	19+	27+
4+	12+	20+	28+
5+	13+	21+	29+
6+	14+	22+	30+
7+	15+	23+	31+
	0- to 33-		32+
			33+

0+, 16+, J3, J4, 15-, 33-

UR0 UR2 UR4 UR6
UR1 UR3 UR5 UR7

J5, J6, J7

J10A J10B J10C J10D

CABLE TIE_DOWN POINT (1 of 3)

CABLE TIE-DOWN POINT (1 of 2)

GROUND CLAMP

- All punchdown connections will accept 24 AWG solid wires.

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The following table provides the EFIM punchdown terminal block TX/RX signal pair connections to their associated URC IIs: Positions 1, 2, or 3. T1/E1 lines 1 through 20 are connected to these punchdowns (as assigned by the customer) in the Modular Cell 4.0B cabinets.

T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring NOTE 3	"J" Conn.	Block C/C	Protector Location	URC II POSITION # NOTE 3
Line __	TX1-T (Top) TX1-R (Bottom) RX1-T (Top) RX1-R (Bottom)	J1	Blue Orange	J8A/TX-1 J8B/RX-1	**URC II, Position 1** NOTE 1
Line __	TX2-T (Top) TX2-R (Bottom) RX2-T (Top) RX2-R (Bottom)	J1	Green Brown	J8C/TX-2 J8D/RX-2	
Line __	TX7-T (Top) TX7-R (Bottom) RX7-T (Top) RX7-R (Bottom)	J1	Blue Orange	J8A/TX-7 J8B/RX-7	**URC II, Position 2** NOTE 2
Line __	TX8-T (Top) TX8-R (Bottom) RX8-T (Top) RX8-R (Bottom)	J1	Green Brown	J8C/TX-8 J8D/RX-8	
Line __	TX3-T (Top) TX3-R (Bottom) RX3-T (Top) RX3-R (Bottom)	J1	Blue Orange	J8A/TX-3 J8B/RX-3	**URC II, Position 1** NOTE 1
Line __	TX4-T (Top) TX4-R (Bottom) RX4-T (Top) RX4-R (Bottom)	J1	Green Brown	J8C/TX-4 J8D/RX-4	

NOTE 1: DATA T1/E1 lines must be punched down to URCII, position 1 only (TX-RX 1 to TX-RX 4) and (TX-RX 13 to TX-RX 16)
VOICE T1/E1 lines may also be punched down to URCII, position 1
but Data and Voice lines are mutually exclusive.

NOTE 2: Only VOICE T1/E1 lines are punched down to URC, position 2, (TX-RX 5 to TX-RX 8) and (TX-RX 17 and TX-RX 18), as well as URC, position 3 (TX-RX 9 to TX-RX 12) and (TX-RX 19 and TX-RX 20)

NOTE 3: TX/RX signal pair punchdowns TX-RX 1 to TX-RX 12 are not physically located in numerically consecutive order on the EFIM.

T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring NOTE 2	"J" Conn.	Block C/C	Protector Location	URC II POSITION # NOTE 2
Line __	TX9-T (Top) TX9-R (Bottom) RX9-T (Top) RX9-R (Bottom)	J2	Blue Orange	J8A/TX-9 J8B/RX-9	**URC II, Position 3**
Line __	TX10-T (Top) TX10-R (Bottom) RX10-T (Top) RX10-R (Bottom)	J2	Green Brown	J8C/TX-10 J8D/RX-10	NOTE 1
Line __	TX5-T (Top) TX5-R (Bottom) RX5-T (Top) RX5-R (Bottom)	J2	Blue Orange	J8A/TX-5 J8B/RX-5	**URC II, Position 2**
Line __	TX6-T (Top) TX6-R (Bottom) RX6-T (Top) RX6-R (Bottom)	J2	Green Brown	J8C/TX-6 J8D/RX-6	NOTE 1
Line __	TX11-T (Top) TX11-R (Bottom) RX11-T (Top) RX11-R (Bottom)	J2	Blue Orange	J8A/TX-11 J8B/RX-11	**URC II, Position 3**
Line __	TX12-T (Top) TX12-R (Bottom) RX12-T (Top) RX12-R (Bottom)	J2	Green Brown	J8C/TX-12 J8D/RX-12	NOTE 1

NOTE 1: Only VOICE T1/E1 lines are punched down to URC, position 2, (TX-RX 5 to TX-RX 8) and (TX-RX 17 and TX-RX 18), as well as URC, position 3 (TX-RX 9 to TX-RX 12) and (TX-RX 19 and TX-RX 20)

NOTE 2: TX/RX signal pair punchdowns TX-RX 1 to TX-RX 12 are not physically located in numerically consecutive order on the EFIM.

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T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring **NOTE 3**	"J" Conn.	Block C/C	Protector Location	URC II POSITION # **NOTE 3**
Line __	TX13-T (Top) TX13-R (Bottom)	N/A	N/A	JX/TX-13	**URC II, Position 1** NOTE 1
	RX13-T (Top) RX13-R (Bottom)		N/A	JX/RX-13	
Line __	TX14-T (Top) TX14-R (Bottom)	N/A	N/A	JX/TX-14	
	RX14-T (Top) RX14-R (Bottom)		N/A	JX/RX-14	
Line __	TX15-T (Top) TX15-R (Bottom)	N/A	N/A	JX/TX-15	**URC II, Position 1 NOTE 1**
	RX15-T (Top) RX15-R (Bottom)		N/A	JX/RX-15	
Line __	TX16-T (Top) TX16-R (Bottom)	N/A	N/A	JXTX-16	
	RX16-T (Top) RX16-R (Bottom)		N/A	JX/RX-16	
Line __	TX17-T (Top) TX17-R (Bottom)	N/A	N/A	JX/TX-17	**URC II, Position 2** NOTE 2
	RX17-T (Top) RX17-R (Bottom)		N/A	JX/RX-17	
Line __	TX18-T (Top) TX18-R (Bottom)	N/A	N/A	JX/TX-18	
	RX18-T (Top) RX18-R (Bottom)		N/A	JX/RX-18	

NOTE 1: DATA T1/E1 lines must be punched down to URCII, position 1 only (TX-RX 1 to TX-RX 4) and (TX-RX 13 to TX-RX 16)
VOICE T1/E1 lines may also be punched down to URCII, position 1
but Data and Voice lines are mutually exclusive.

NOTE 2: Only VOICE T1/E1 lines are punched down to URC, position 2, (TX-RX 5 to TX-RX 8) and (TX-RX 17 and TX-RX 18), as well as URC, position 3 (TX-RX 9 to TX-RX 12) and (TX-RX 19 and TX-RX 20)

NOTE 3: POD B URCII assignments (TX-RX 13 to TX-RX 24). are located in the same order in the tables as their physical order on the EFIM. Refer to the figure on Page 3-38

T1/E1 Line Assignment	Terminal Block Pair/ Tip Ring NOTE 2	"J" Conn.	Block C/C	Protector Location	URC II POSITION # NOTE 2
Line __	TX19-T (Top) TX19-R (Bottom)	N/A	N/A	JX/TX-19	**URC II, Position 3**
	RX19-T (Top) RX19-R (Bottom)		N/A	JX/RX-19	NOTE 1
Line __	TX20-T (Top) TX20-R (Bottom)	N/A	N/A	JX/TX-20	
	RX20-T (Top) RX20-R (Bottom)		N/A	JX/RX-20	
Line __	TX21-T (Top) TX21-R (Bottom)	N/A	N/A	JX/TX-21	Future Use
	RX21-T (Top) RX21-R (Bottom)		N/A	JX/RX-21	
Line __	TX22-T (Top) TX22-R (Bottom)	N/A	N/A	JX/TX-22	
	RX22-T (Top) RX22-R (Bottom)		N/A	JX/RX-22	
Line __	TX23-T (Top) TX23-R (Bottom)	N/A	N/A	JX/TX-23	Future Use
	RX23-T (Top) RX23-R (Bottom)		N/A	JX/RX-23	
Line __	TX24-T (Top) TX24-R (Bottom)	N/A	N/A	JX/TX-24	
	RX24-T (Top) RX24-R (Bottom)		N/A	JX/RX-24	
Not Utilized	TX25-T (Top) TX25-R (Bottom)	N/A	N/A	JX/TX-25	Not Utilized
	RX25-T (Top) RX25-R (Bottom)		N/A	JX/RX-25	

NOTE 1: Only VOICE T1/E1 lines are punched down to URC, position 2, (TX-RX 5 to TX-RX 8) and (TX-RX 17 and TX-RX 18), as well as URC, position 3 (TX-RX 9 to TX-RX 12) and (TX-RX 19 and TX-RX 20)

NOTE 2: POD B URCII assignments (TX-RX 13 to TX-RX 24). are located in the same order in the tables as their physical order on the EFIM. Refer to the figure on Page 3-38

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Connection of user alarms to the EFIM punchdown blocks in the Modular Cell 4.0B primary cabinet

Overview   This procedure module provides instructions for connecting of the external user alarm cables in all Modular Cell 4.0B primary cabinets, as well as the connection of dual band power user alarm cables in Modular Cell 4.0B primary cabinets with integrated power.

Punch down the external user alarms cables on the EFIM in Modular Cell 4.0B cabinets   The external user alarms will be connected to the punchdown terminals on the EFIM inside of the Modular Cell 4.0B primary cabinet. External user alarms are attached only at the primary cabinet. The EFIM is accessible from the front of the cabinet, behind a slide-out tray (EFIT - facilities interface tray). Refer to the figure on Page 3-53**.** Use the following procedure to connect the user alarms to the EFIM in a Modular Cell 4.0B primary cabinet

> **Important!**   When performing the next step, note that seven punchdowns (0 through 6) are factory-wired for *internal* power alarms (in cabinets with integrated power), and *must not be used for external user alarms.*

1   Connect the external user alarm wire pairs as follows. Refer to the figure on Page 3-53, Note 2, and the table on Page 3 - 54. Do not use punchdowns 0 through 6. Start at pair 7.

- If applicable, connect the user alarms to connector J3 punchdowns, pairs 7 through 15 respectively

- If applicable, connect additional user alarms to connector J4 punchdowns, pairs 16 through 31 respectively
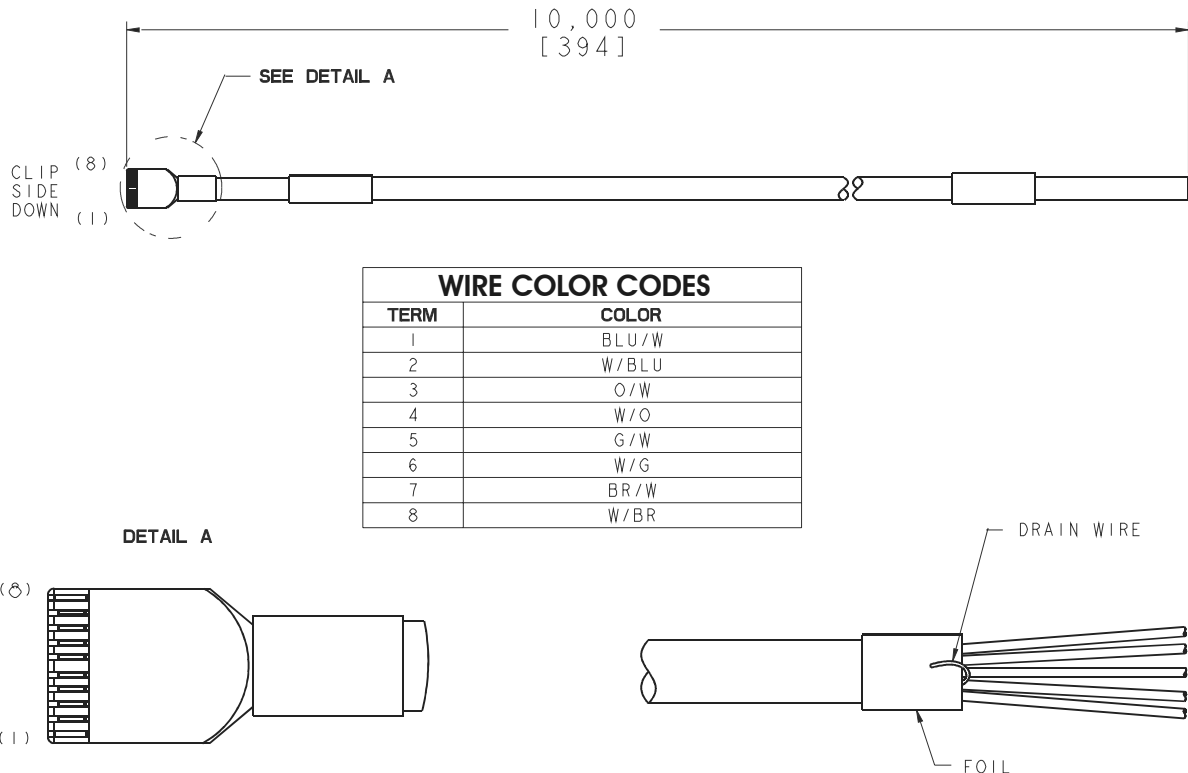
> **Important!**   Note that connector J4 is not shown in detail in the referenced figure.

Route and punch down the dual band cabinet integrated power alarms on the EFIM in the Modular Cell 4.0B primary cabinet, if applicable
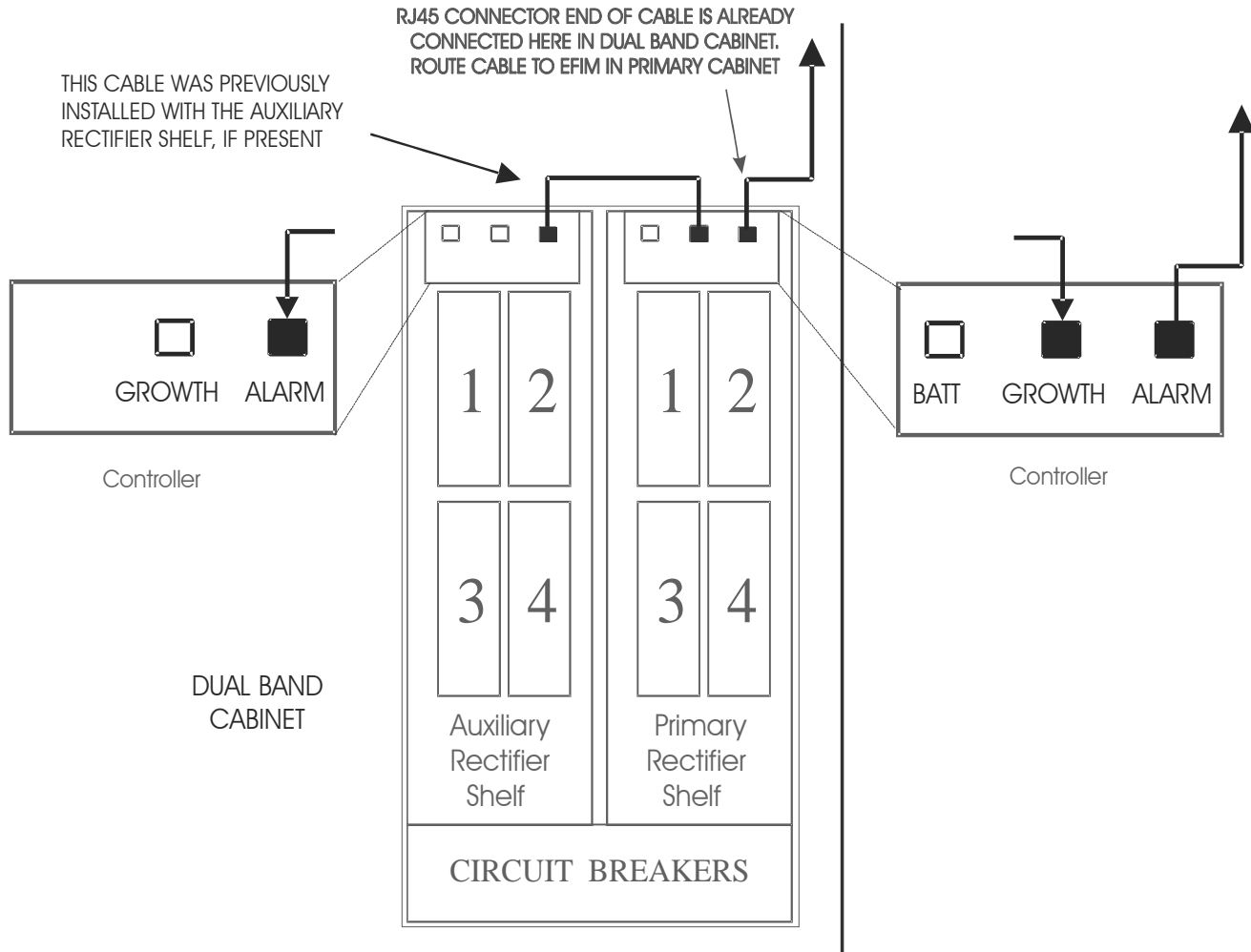
Important! If installing a Modular Cell 4.0B cabinet that does not have integrated power, skip to Appendix B for customer supplied power connections. If not installing a dual band cabinet, proceed to Chapter 4.

The dual band cabinet integrated power alarms will be connected to the punchdown terminals on the EFIM inside of the Modular Cell 4.0B primary cabinet. Dual band cabinet integrated power alarms are attached only at the primary cabinet. The EFIM is accessible from the front of the cabinet, behind a slide-out tray (EFIT - facilities interface tray). Refer to the figure on Page 3-53. Use the following procedure to route and connect the dual band power user alarms to the EFIM in a Modular Cell 4.0B primary cabinet
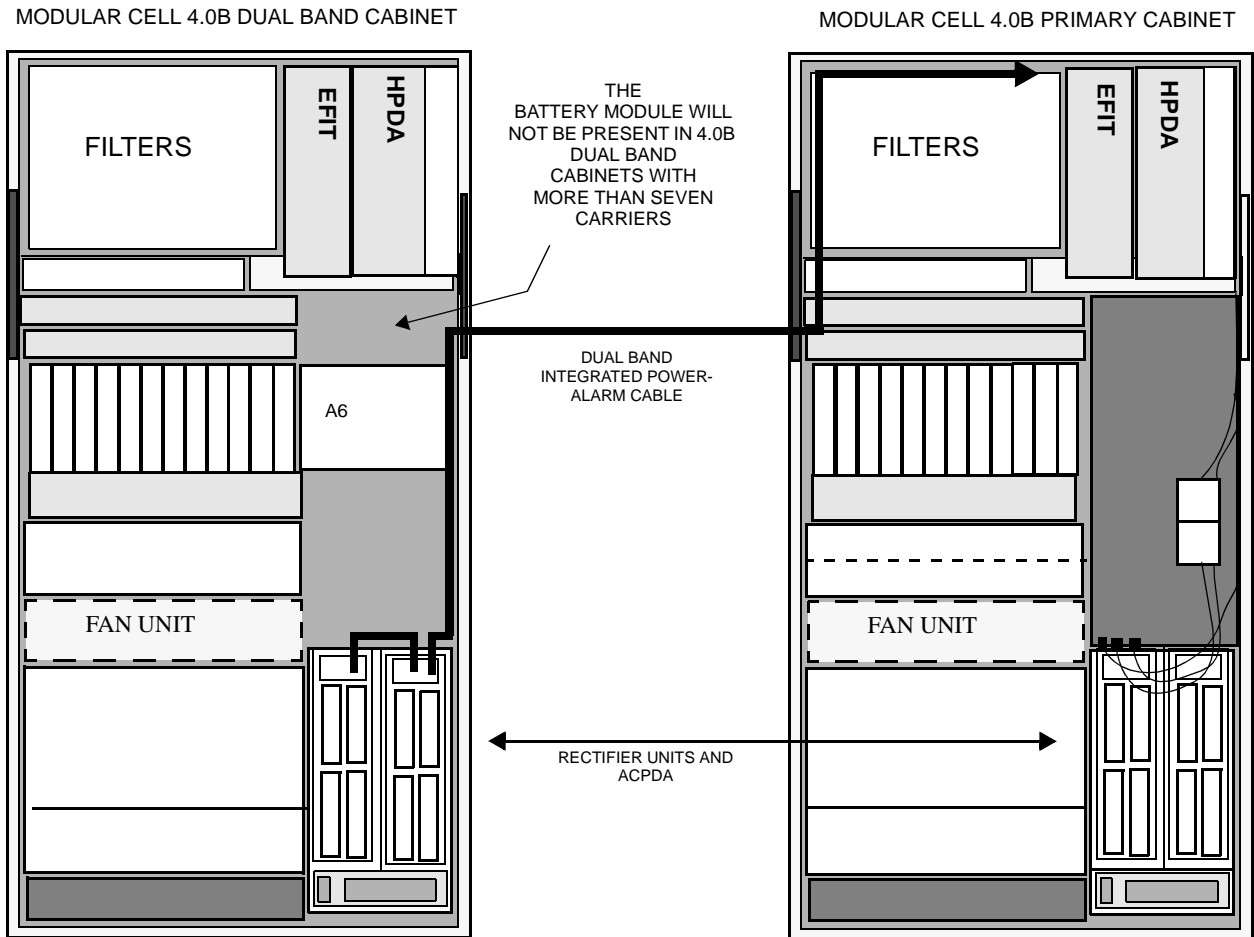
....

1   Refer to the figure below for an illustration of the dual band cabinet integrated power alarm cable

WIRE COLOR CODES	
TERM	COLOR
1	BLU/W
2	W/BLU
3	O/W
4	W/O
5	G/W
6	W/G
7	BR/W
8	W/BR

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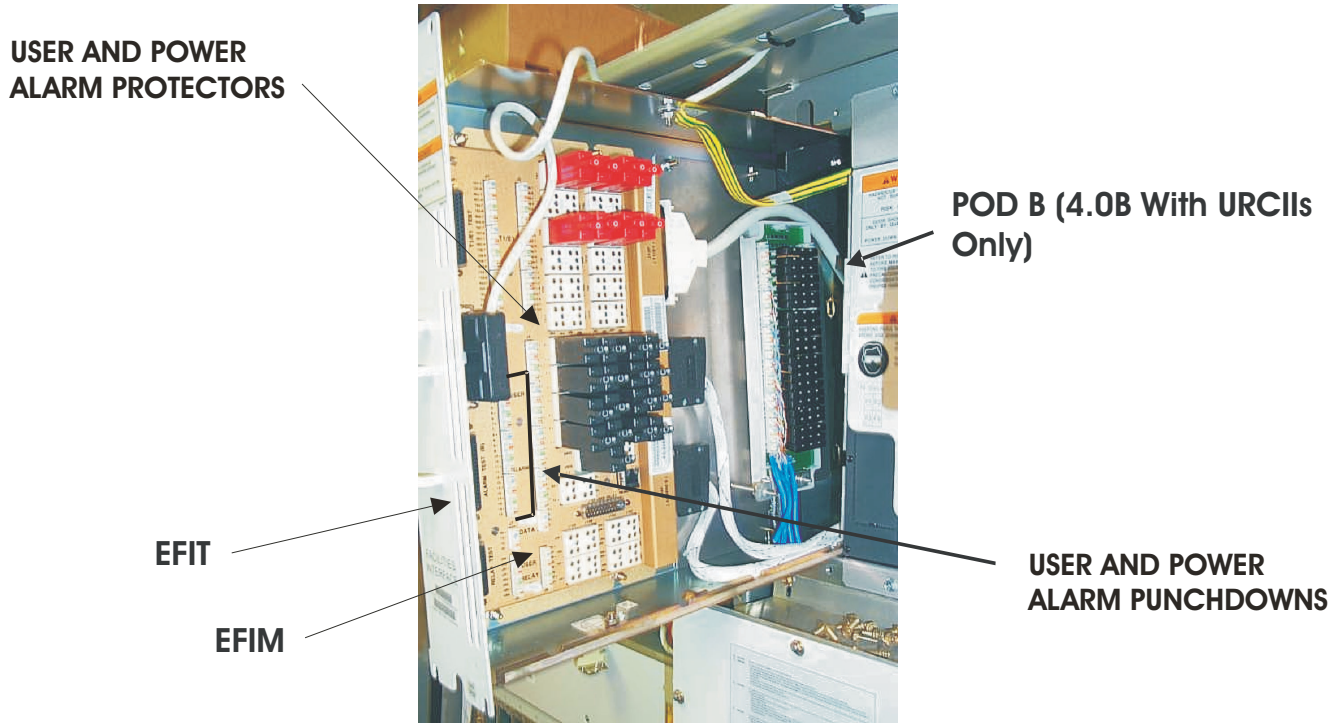
2 Locate the integrated power alarm cable in the dual band cabinet. It is shipped already connected as shown in the figure below. If not, connect it as shown.

RJ45 CONNECTOR END OF CABLE IS ALREADY
CONNECTED HERE IN DUAL BAND CABINET.
ROUTE CABLE TO EFIM IN PRIMARY CABINET

THIS CABLE WAS PREVIOUSLY
INSTALLED WITH THE AUXILIARY
RECTIFIER SHELF, IF PRESENT

GROWTH   ALARM

Controller

BATT   GROWTH   ALARM

Controller

DUAL BAND
CABINET

| 1 | 2 | 1 | 2 |
| 3 | 4 | 3 | 4 |

Auxiliary
Rectifier
Shelf

Primary
Rectifier
Shelf

CIRCUIT BREAKERS

....

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....

3 Route the cable to the EFIT location in the primary cabinet as shown in the following figure. Using wire ties, secure the cables in both cabinets in such a way that they do not interfere with removal / replacement of components, and front door closure.
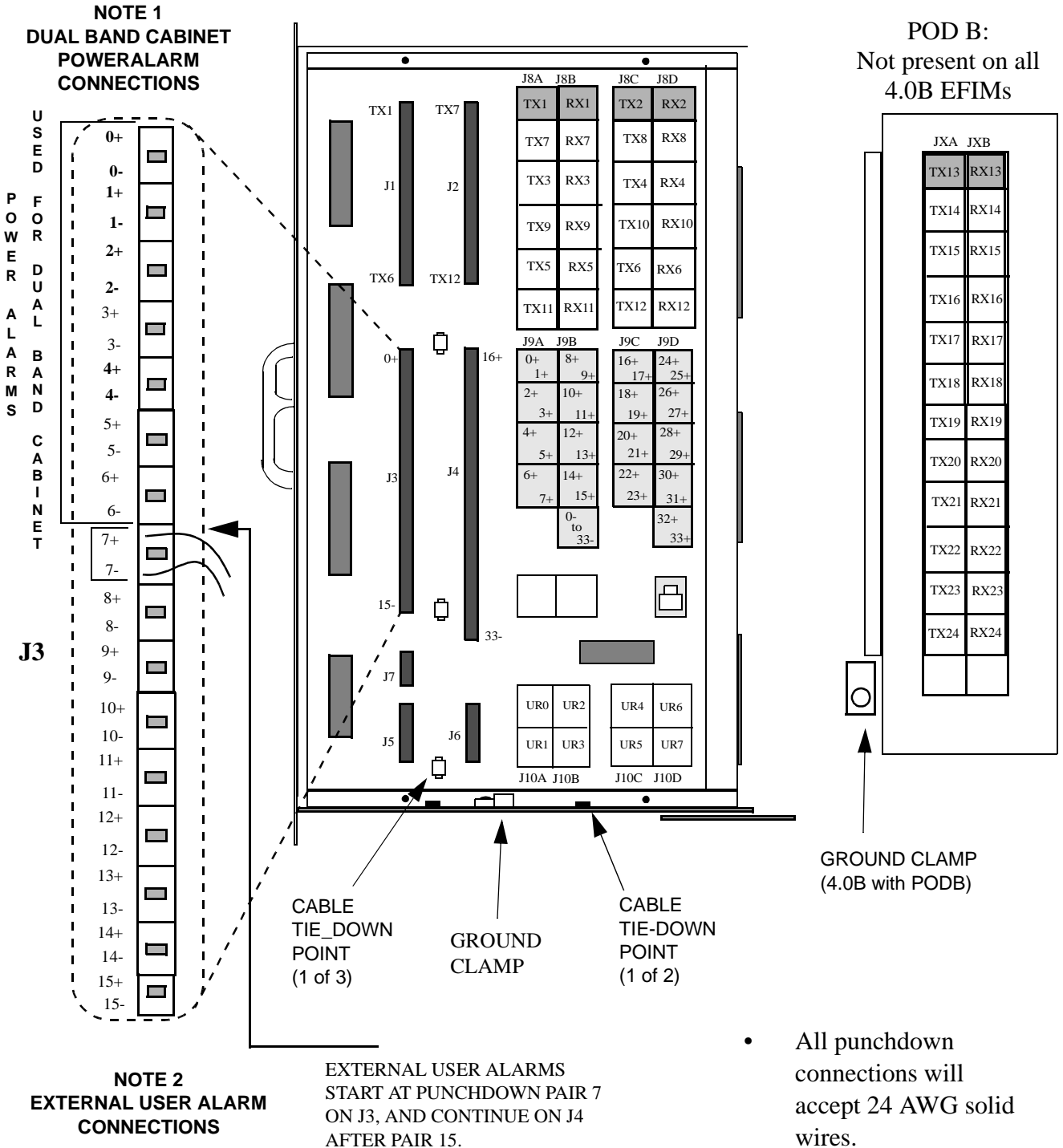
MODULAR CELL 4.0B DUAL BAND CABINET

MODULAR CELL 4.0B PRIMARY CABINET

FILTERS

EFIT

HPDA

THE
BATTERY MODULE WILL
NOT BE PRESENT IN 4.0B
DUAL BAND
CABINETS WITH
MORE THAN SEVEN
CARRIERS

FILTERS

EFIT

HPDA

A6

DUAL BAND
INTEGRATED POWER-
ALARM CABLE

FAN UNIT

FAN UNIT

RECTIFIER UNITS AND
ACPDA

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....

4   Route the cable into the EFIT and to J3 on the EFIM in the primary cabinet as shown in the figure below.

USER AND POWER ALARM PROTECTORS

POD B (4.0B With URCIIs Only)

EFIT

EFIM

USER AND POWER ALARM PUNCHDOWNS

....

5   Connect the dual band cabinet integrated power alarm wire pairs to J3 as shown in the following table. Refer to the figure on Page 3-53, Note 1, and the table on Page 3 - 54.

Alarm	Terminal Block Pair (J3)	Wire Color	Function
User 0	0+	Blue - White	Power Major (PMJ)
Alarm	0-	White - Blue	
User 1	1+	Orange - White	Power Minor (PMN)
Alarm	1-	White - Orange	
User 2	2+	Green - White	AC Fail (ACF)
Alarm	2-	White - Green	
User 3	3+	N/A	NOT USED
Alarm	3-	N/A	
User 4	4+	Brown - White	Batteries on Discharge (BD)
Alarm	4-	White - Brown	

....

The figure below and the following table provides external user alarm and dual band cabinet integrated power alarm connections to the EFIM terminal blocks in the Modular Cell 4.0B primary cabinet only.

**NOTE 1
DUAL BAND CABINET
POWERALARM
CONNECTIONS**

USED FOR DUAL BAND CABINET

POWER ALARMS

J3

**NOTE 2
EXTERNAL USER ALARM
CONNECTIONS**

EXTERNAL USER ALARMS
START AT PUNCHDOWN PAIR 7
ON J3, AND CONTINUE ON J4
AFTER PAIR 15.

CABLE TIE_DOWN POINT (1 of 3)

GROUND CLAMP

CABLE TIE-DOWN POINT (1 of 2)

POD B:
Not present on all
4.0B EFIMs

GROUND CLAMP
(4.0B with PODB)

- All punchdown connections will accept 24 AWG solid wires.

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USER ALARM TABLE

Alarm #	Wire Color	"J" Conn.	Terminal Block Pair	Block C/C	Protector
USER ALARMS 0 THROUGH 6 UTILIZED FOR INTERNAL POWER ALARMS					
User 0 Alarm	If installing a primary cabinet *without integrated power,* refer to Appendix B for alarm conn**ections.** from a customer supplied power source	J3	+ 0 (Top)	Blue	J9A (0 / 1)
			- 0 (Bottom)		
User 1 Alarm		J3	+ 1 (Top)	Orange	
			- 1 (Bottom)		
User 2 Alarm		J3	+ 2 (Top)	Green	J9A (2 / 3)
			- 2 (Bottom)		
User 3 Alarm		J3	+ 3 (Top)	Brown	
			- 3 (Bottom)		
User 4 Alarm		J3	+ 4 (Top)	Blue	J9A (4 / 5)
			- 4 (Bottom)		
User 5 Alarm		J3	+ 5 (Top)	Orange	
			- 5 (Bottom)		
User 6 Alarm		J3	+ 6 (Top)	Green	J9A (6 / 7) Shared
			- 6 (Bottom)		
START EXTERNAL USER ALARM PUNCHDOWNS HERE					
User 7 Alarm	White-Blue	J3	+ 7 (Top)	Brown	J9A (6 / 7) Shared
	Blue-White		- 7 (Bottom)		
User 8 Alarm	White-Orange	J3	+ 8 (Top)	Blue	J9B (8 / 9)
	Orange-White		- 8 (Bottom)		
User 9 Alarm	White-Green	J3	+ 9 (Top)	Orange	
	Green-White		- 9 (Bottom)		
User 10 Alarm	White-Brown	J3	+ 10 (Top)	Green	J9B (10 / 11)
	Brown-White		- 10 (Bottom)		
User 11 Alarm	White-Slate	J3	+ 11 (Top)	Brown	
	Slate-White		- 11 (Bottom)		
User 12 Alarm	Red-Blue	J3	+ 12 (Top)	Blue	J9B (12 / 13)
	Blue-Red		- 12 (Bottom)		
User 13 Alarm	Red-Orange	J3	+ 13 (Top)	Orange	
	Orange-Red		- 13 (Bottom)		
User 14 Alarm	Red-Green	J3	+ 14 (Top)	Green	J9B (14 / 15)
	Green-Red		- 14 (Bottom)		
User 15 Alarm	Red-Brown	J3	+ 15 (Top)	Brown	
	Brown-Red		- 15 (Bottom)		

User 16 Alarm	Red-Slate	J4	+ 16 (Top)	Blue	J9C (16 / 17)
	Slate-Red		- 16 (Bottom)		
User 17 Alarm	Black-Blue	J4	+ 17 (Top)	Orange	
	Blue-Black		- 17 (Bottom)		
User 18 Alarm	Black-Orange	J4	+ 18 (Top)	Green	J9C (18 / 19)
	Orange-Black		- 18 (Bottom)		
User 19 Alarm	Black-Green	J4	+ 19 (Top)	Brown	
	Green-Black		- 19 (Bottom)		
User 20 Alarm	Black-Brown	J4	+ 20 (Top)	Blue	J9C (20 / 21)
	Brown-Black		- 20 (Bottom)		
User 21 Alarm	Black-Slate	J4	+ 21 (Top)	Orange	
	Slate-Black		- 21 (Bottom)		
User 22 Alarm	Yellow-Blue	J4	+ 22 (Top)	Green	J9C (22 / 23)
	Blue-Yellow		- 22 (Bottom)		
User 23 Alarm	Yellow-Orange	J4	+ 23 (Top)	Brown	
	Orange-Yellow		- 23 (Bottom)		
User 24 Alarm	Yellow-Green	J4	+ 24 (Top)	Blue	J9D(24 / 25)
	Green-Yellow		- 24 (Bottom)		
User 25 Alarm	Yellow-Brown	J4	+ 25 (Top)	Orange	
	Brown-Yellow		- 25 (Bottom)		
User 26 Alarm	Yellow-Slate	J4	+ 26 (Top)	Green	J9D (26 / 27)
	Slate-Yellow		- 26 (Bottom)		
User 27 Alarm	Violet-Blue	J4	+ 27 (Top)	Brown	
	Blue-Violet		- 27 (Bottom)		
User 28 Alarm	Violet-Orange	J4	+ 28 (Top)	Blue	J9D(28 / 29)
	Orange-Violet		- 28 (Bottom)		
User 29 Alarm	Violet-Green	J4	+ 29 (Top)	Orange	
	Green-Violet		- 29 (Bottom)		
User 30 Alarm	Violet-Brown	J4	+ 30 (Top)	Green	J9D (30 / 31)
	Brown-Violet		- 30 (Bottom)		
User 31 Alarm	White-Blue*	J4	+ 31 (Top)	Brown	
	Blue-White*		- 31 (Bottom)		
User 32 Alarm	White-Orange*	J4	+ 32 (Top)	Blue	J9D (32 / 33)
	Orange-White*		- 32 (Bottom)		
User 33 Alarm	White-Green*	J4	+ 33 (Top)	Orange	
	Green-White*		- 33 (Bottom)		
Table note * A second cable is required					

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4   Power and power alarm connections in Modular Cell 4.0B cabinets with integrated power

Overview

Purpose   The purpose of this chapter is to provide power and power alarm cable installation instructions for 4.0B primary and dual band cabinets <u>with integrated power</u>, as well as for power and alarm connections from battery cabinets connected to them. Also provided are power references for cabinets without integrated power

This chapter contains the following sections.

Modular Cell 4.0B cabinets without integrated power that utilize non-Lucent power (reference)

Overview

Objectives   To provide non-Lucent customer supplied power connection references

Non-Lucent power references

References   **Important!**   If installing a Modular Cell 4.0B cabinet with integrated power, proceed to <u>Power and alarm wiring overview</u> on Page 4 - 3. If installing a Modular Cell 4.0B cabinet without integrated power, that utilizes non-Lucent customer supplied power, proceed as below:

For DC power and power system alarm requirements, refer to Appendix B of the following document.

- *Flexent Modular Cell 4.0/4.0B Outdoor Site Preparation Guidelines, 401-703-413*

If the requirements listed in the applicable document have been met, refer to the applicable vendor documentation, and skip to the following appendix to continue the installation:

Appendix B of this document for installation the ancillary hardware, and the routing and connection of DC, AC and alarm cables from a non-Lucent power source to an outdoor Modular Cell 4.0B cabinet.

After completion of Appendix B, return to:

- Chapter 6 if installing a 4.0B dual band cabinet

- Chapter 7 to finish the installation.

Power and alarm wiring overview

Overview

Purpose   The purpose of the section is to provide illustrations of the cables routed and connected in this chapter. Instructions are provided for AC wire routing to 4.0B primary and dual band cabinets.

AC conduits   A junction box installed near the primary / dual band line-up will provide individual feeds to both the primary and dual band cabinet, while requiring only one feed from the main panel. Refer to the figure below and the figure on Page 4 - 4.
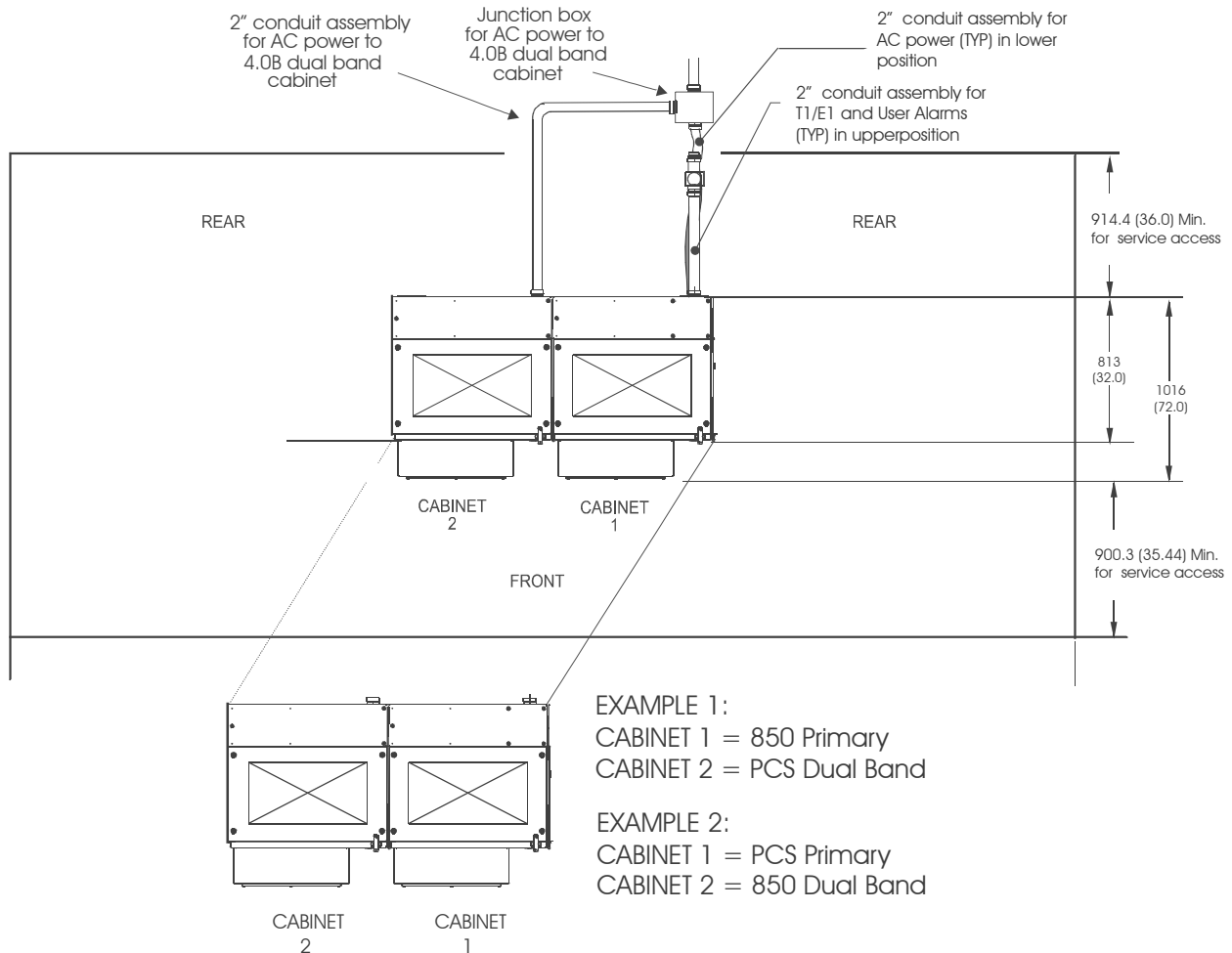
Power and alarm wiring for integrated power 4.0B primary and dual band cabinets with battery cabinets and frames

This module provides a key list and an illustration of the AC utility connections, as well as the internal AC and DC power and power alarm wiring at a Modular Cell 4.0B site that has examples of both WNG battery cabinets and EZBFo battery frames. WNG battery cabinets support 4.0B primary cabinets only. Refer to the key and figure below.

1. AC utility connection to the primary cabinet

2. First WNG battery cabinet (a second battery cabinet can be connected)

3. AC, DC, alarm and fan power / alarm cable connections from the first battery cabinet to the primary cabinet

4. RF connections between the primary cabinet and growth/DB* cabinet (refer to Chapter 6)

5. AC utility connection to the dual band cabinet (via a junction box)

6. EZBFo battery frame (a second battery frame can be connected). Refer to Appendix A for installation instructions.

7. AC, DC, alarm and fan power / alarm cable connections from the first battery frame to the dual band cabinet

REAR VIEW
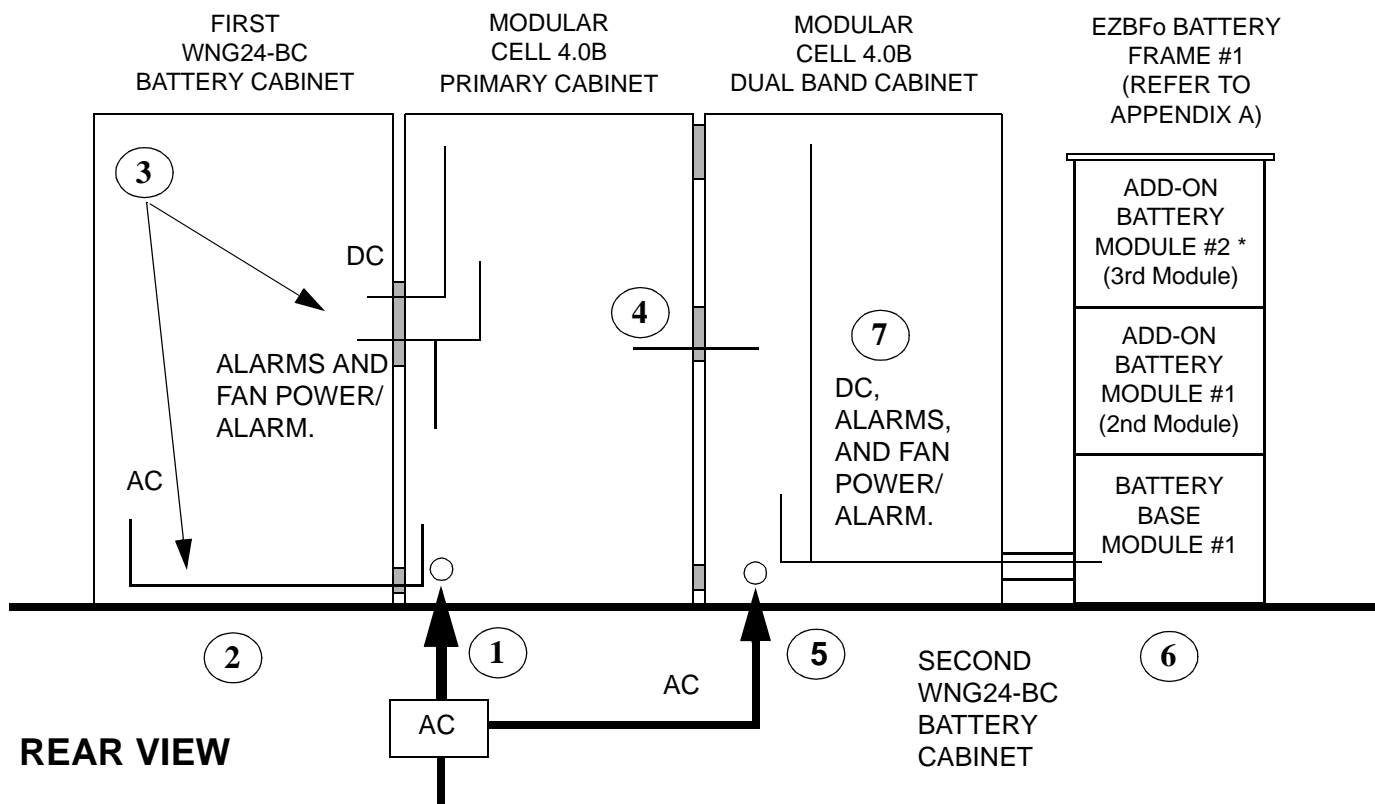
* If installed in seismic zone 4, a second add-on module requires a Zone 4 kit for installation

Safety precautions

The following safety precautions should be read and understood before starting the installation of power cables.

⚠ **CAUTION**

Damage to equipment

The battery cables in the primary cabinet must not be connected until after the AC utility wires are connected and AC power is turned on at the main panel. Do not connect the battery cables until instructed to do so in Chapter 7, "Finishing the installation."

⚠ **WARNING**

Electrical Shock Hazard

Failure to follow the order of the installation procedure (as written) can result in an energized AC or DC circuit, which creates an electrical shock hazard.

Follow these rules:

1. *Do not connect AC power until instructed to do so.*

2. *When making AC connections at the primary or dual band cabinets, make sure that AC power is turned off at the main panel.*

3. ***When installing battery cabinets, do not connect any DC cables, until instructed to do so.***

4. *Observe and strictly follow all additional safety precautions.*

5. *When completing electrical connections, always use tools that are properly insulated.*

6. *Depending upon local regulations, AC utility power connections to the Modular Cell 4.0B primary and dual band cabinet may be performed by a licensed electrician.*

How to route and connect the AC utility wires at a Modular Cell 4.0B primary or dual band cabinet

Overview

Purpose   This section contains instructions for routing and connection of the AC utility wires at a Modular Cell 4.0B primary or dual band cabinet.

Route and connect the AC utility wires

Overview   This section contains the following procedures.

Prepare the AC power module (ACPDA) for connection of the AC utility wires	4 - 7
Install a 2-inch flexible conduit fitting on the primary or dual band cabinet	4 - 9
Connect the flexible conduit between the existing metal conduit and the fitting at the primary or dual band cabinet	4 - 10
Route and connect the AC utility wires in the primary or dual band cabinet	4 - 12