

# AlphaServer 8200/8400 Site Preparation Guide

Order Number EK-T8030-SP. A01

This guide is intended for use by Digital customer service engineers and customers in preparing a site for an AlphaServer 8200 or an AlphaServer 8400 system.

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# Preface

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## Intended Audience

This manual is written for Digital customer service engineers and customers preparing a site for AlphaServer 8200 or 8400 systems.

## Document Structure

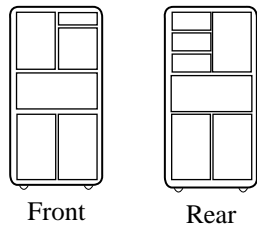
This manual uses a structured documentation design. Topics are organized into small sections for efficient reference. Topics begin with abstracts. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

This manual has one chapter, as follows:

- **Chapter 1, Site Preparation**, provides pre-installation requirements and guidelines.

## Conventions Used in This Document

*Icons.* Icons similar to those shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.



## Documentation Titles

Table 1 lists the books in the AlphaServer 8200 and 8400 documentation set. Table 2 lists other documents that you may find useful.

Table 1 AlphaServer 8200 and 8400 Documentation

Title	Order Number
<b>Hardware User Information and Installation</b>	
<i>Operations Manual</i>	EK-T8030-OP
<i>Site Preparation Guide</i>	EK-T8030-SP
<i>AlphaServer 8200 Installation Guide</i>	EK-T8230-IN
<i>AlphaServer 8400 Installation Guide</i>	EK-T8430-IN
<b>Service Information Kit</b>	
<i>Service Manual (hard copy)</i>	EK-T8030-SV
<i>Service Manual (diskette)</i>	AK-QKNFA-CA

Table 1 AlphaServer 8200 and 8400 Documentation (Continued)

Title	Order Number
<b>Reference Manuals</b>	
<i>System Technical Manual</i>	EK-T8030-TM
<i>DWLPA PCI Adapter Technical Manual</i>	EK-DWLPA-TM
<b>Upgrade Manuals for Both Systems</b>	
<i>KN7CC CPU Module Installation Card</i>	EK-KN7CC-IN
<i>MS7CC Memory Installation Card</i>	EK-MS7CC-IN
<i>KFTHA System I/O Module Installation Guide</i>	EK-KFTHA-IN
<i>KFTIA Integrated I/O Module Installation Guide</i>	EK-KFTIA-IN
<b>Upgrade Manuals: 8400 System Only</b>	
<i>AlphaServer 8400 Upgrade Manual</i>	EK-T8430-UI
<i>BA654 DSSI Disk PIU Installation Guide</i>	EK-BA654-IN
<i>BA655 SCSI Disk and Tape PIU Installation Guide</i>	EK-BA655-IN
<i>DWLAA Futurebus+ PIU Installation Guide</i>	EK-DWLAA-IN
<i>DWLMA XMI PIU Installation Guide</i>	EK-DWLMA-IN
<i>DWLPA PCI PIU Installation Guide</i>	EK-DWL84-IN
<i>H7237 Battery PIU Installation Guide</i>	EK-H7237-IN
<i>H7263 Power Regulator Installation Card</i>	EK-H7263-IN
<i>H9F00 Power Upgrade Manual</i>	EK-H8463-UI
<i>KFMSB Adapter Installation Guide</i>	EK-KFMSB-IN
<i>KZMSA Adapter Installation Guide</i>	EK-KXMSX-IN
<i>RRDCD Installation Guide</i>	EK-RRDRX-IN
<b>Upgrade Manuals: 8200 System Only</b>	
<i>DWLPA PCI Shelf Installation Guide</i>	EK-DWL82-IN
<i>H7266 Power Regulator Installation Card</i>	EK-H7266-IN
<i>H7267 Battery Backup Installation Card</i>	EK-H7267-IN

Table 2 Related Documents

Title	Order Number
<b>General Site Preparation</b>	
<i>Site Environmental Preparation Guide</i>	EK-CSEPG-MA
<b>System I/O Options</b>	
<i>BA350 Modular Storage Shelf Subsystem Configuration Guide</i>	EK-BA350-CG
<i>BA350 Modular Storage Shelf Subsystem User's Guide</i>	EK-BA350-UG
<i>BA350-LA Modular Storage Shelf User's Guide</i>	EK-350LA-UG
<i>CIXCD Interface User Guide</i>	EK-CIXCD-UG
<i>DEC FDDIcontroller 400 Installation/Problem Solving</i>	EK-DEMFA-IP
<i>DEC FDDIcontroller/Futurebus+ Installation Guide</i>	EK-DEFAA-IN
<i>DEC FDDIcontroller/PCI User Information</i>	EK-DEFPA-IN
<i>DEC LANcontroller 400 Installation Guide</i>	EK-DEMNA-IN
<i>DSSI VAXcluster Installation/Troubleshooting Manual</i>	EK-410AA-MG
<i>EtherWORKS Turbo PCI User Information</i>	EK-DE435-OM
<i>KZPSA PCI to SCSI User's Guide</i>	EK-KZPSA-UG
<i>RF Series Integrated Storage Element User Guide</i>	EK-RF72D-UG
<i>StorageWorks RAID Array 200 Subsystem Family Installation and Configuration Guide</i>	EK-SWRA2-IG
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for OpenVMS AXP</i>	AA-Q6WVA-TE
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for DEC OSF/1</i>	AA-Q6TGA-TE
<b>Operating System Manuals</b>	
<i>Alpha Architecture Reference Manual</i>	EY-L520E-DP
<i>DEC OSF/1 Guide to System Administration</i>	AA-PJU7A-TE
<i>Guide to Installing DEC OSF/1</i>	AA-PS2DE-TE
<i>OpenVMS Alpha Version 6.2 Upgrade and Installation Manual</i>	AA-PV6XC-TE



# Chapter 1

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## Site Preparation

This chapter provides site planning guidelines, cabinet sizes, space and environmental requirements, and system power requirements.

Sections include:

- Pre-Installation Checklist
- Cabinet Sizes
- Floor Space and Environmental Requirements
- Single-Phase AC Power Requirements
- Single-Phase AC Power Cable and Receptacles
- Power Requirements for the 8400 with Battery Backup
- AC Power Cable and Receptacles for the 8400 with Battery Backup

## 1.1 Pre-Installation Checklist

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**Check off tasks when completed before system delivery. To facilitate the installation process, it is recommended that the customer plan ahead and coordinate the site planning and scheduling details with Digital.**

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### Planning the Site:

- Plan the physical layout of the system cabinet, expander cabinets, console terminal, and other system units.
- Plan to place all equipment away from heavy traffic centers leaving enough room for airflow and maintenance.
- Do not place systems on carpets.
- Obtain cabinet weights and dimensions to check against floor loading restrictions.
- Determine the correct power requirements for the system to be installed.
- Determine the sizes of circuit breakers and the number of branch circuits required.
- Determine number, type, and location of required AC power outlets.
- Check the compatibility of different power sources. This must be checked when multiple types of power distribution transformers, or power conditioning equipment is used.
- Determine system power consumption to calculate the input line power requirement.
- Establish a system grounding scheme for the installation.
- Determine environmental cooling requirements.
- Check the location and requirements of cabling for communication devices such as Ethernet.

Checking the Delivery Route:

- Check the height, width, and location of doors and passageways for adequate clearance.
- Check floor loading requirements along passageways.
- Check passageway restrictions such as corners, ramps, or obstructions.
- Check the size, capacity, and availability of elevators.

Table 1-1 lists the shipping dimensions for both 8400 and 8200 system and expander cabinets. These dimensions include the width of the shipping pallet, the height of the shipping boxes, and the weight of the packing materials.

Table 1-1 Shipping Dimensions and Weights

Cabinet	Height cm (in)	Width cm (in)	Depth cm (in)	Weight kg (lbs) <sup>1</sup>
8400 System	195 (76.8)	109.5 (43.1)	121 (47.5)	454–682 (1000–1500) <sup>2</sup>
8400 Expander	195 (76.8)	109.5 (43.1)	121 (47.5)	499–726 (1100–1600) <sup>2</sup>
8200 System	195 (76.8)	91.4 (36.0)	122 (47.9)	309–626 (680–1380) <sup>3</sup>
8200 Expander	195 (76.8)	91.4 (36.0)	122 (47.9)	309–626 (680–1380) <sup>3</sup>

<sup>1</sup> Weights are based on a fully configured cabinet.

<sup>2</sup> For systems with 4 batteries add 62 kg (137 lbs), for systems with 8 batteries add 124 kg (274 lbs), and for systems with 12 batteries add 186 kg (401 lbs).

<sup>3</sup> For 8200 systems with battery backup add 29 kg (64 lbs) per power supply.

**For more information:**

***Site Environmental Preparation Guide***

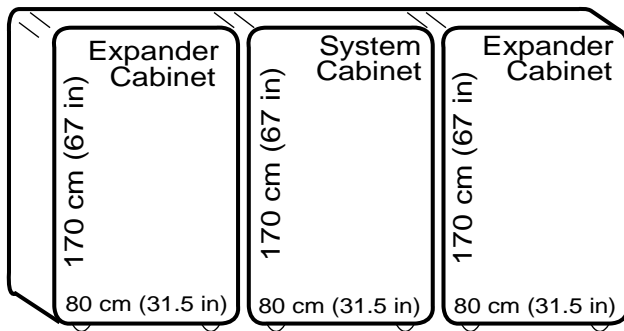
## 1.2 Cabinet Sizes

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**Include all cabinets and peripherals when laying out the installation site. A sample system could include a main cabinet, a maximum of two expander cabinets, and console devices. Figures 1-1 and 1-2 show samples of 8400 and 8200 systems.**

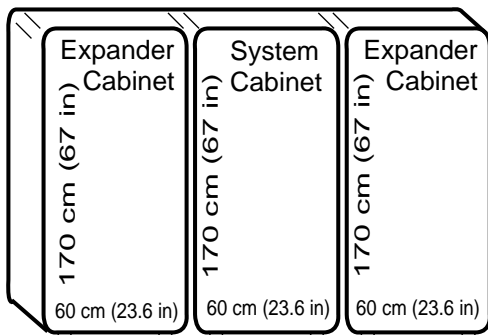
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Figure 1-1 8400 Sample System



BX-0442-94

Figure 1-2 8200 Sample System



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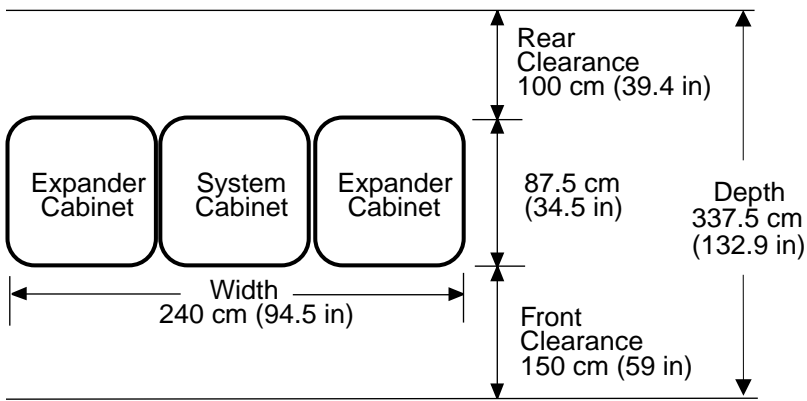
**Table 1-2 Cabinet Dimensions and Weights**

<b>Cabinet</b>	<b>Height cm (in)</b>	<b>Width cm (in)</b>	<b>Depth cm (in)</b>	<b>Weight kg (lbs)<sup>1</sup></b>
<b>8400 System</b>	170 (67)	80 (31.5)	87.5 (34.5)	408–635 (900–1400) <sup>2</sup>
<b>8400 Expander</b>	170 (67)	80 (31.5)	87.5 (34.5)	454–680 (1000–1500) <sup>2</sup>
<b>8200 System</b>	170 (67)	60 (23.6)	92.5 (36.4)	272–590 (600–1300) <sup>3</sup>
<b>8200 Expander</b>	170 (67)	60 (23.6)	92.5 (36.4)	272–590 (600–1300) <sup>3</sup>
<b><sup>1</sup> Weights are based on a fully configured cabinet.</b>				
<b><sup>2</sup> For systems with 4 batteries add 62 kg (137 lbs), for systems with 8 batteries add 124 kg (274 lbs), and for systems with 12 batteries add 186 kg (401 lbs).</b>				
<b><sup>3</sup> For 8200 systems with battery backup add 29 kg (64 lbs) per power supply.</b>				

### 1.3 Floor Space and Environmental Requirements

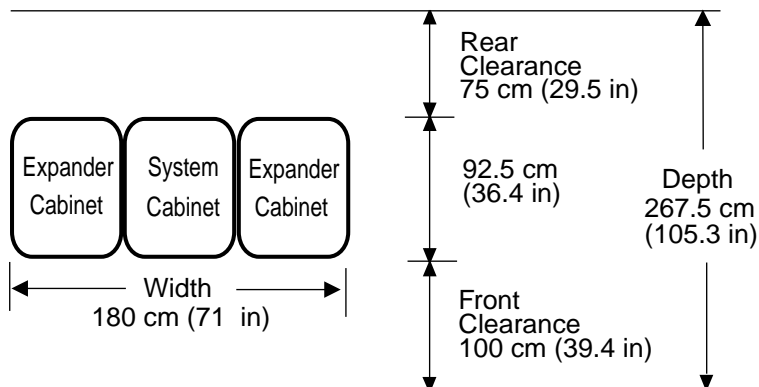
**Table 1-3 lists system environmental requirements. Space for front and rear are the minimum required for airflow and maintenance.**

Figure 1-3 Sample 8400 Configuration



BX-0430-94

Figure 1-4 Sample 8200 Configuration



BX-0430A-94

Table 1-3 Environmental Specifications

Environmental	Operating (8400)	Operating (8200)	Storage
Temperature <sup>1</sup>	15°–28° C (59°–82° F)	10°–35° C (50°–95° F)	–40°–66° C (–40°–151° F)
Relative humidity <sup>1</sup>	20–80%	10–90%	10–95%
Altitude	0–2.4 km (0–8000 ft)	0–2.4 km (0–8000 ft)	0–9.1 km (0–30,000 ft)

<sup>1</sup>Recommended operating temperature is 18°–24° C (65°–75° F) and 40–60% relative humidity.

The minimum amount of clearance space for the system front is 150 cm (59 in) and rear is 100 cm (39 in), as shown in Figure 1-3 for the 8400. For the 8200 these figures are 100 cm (40 in) for the front and 75 cm (30 in) for the rear. These clearances are needed for airflow and maintenance.

#### **8400 Airflow**

Air is taken in through the top and bottom of the cabinet by a dual wheel blower. The air circulates through the card cages and power regulators and is vented at the middle of the cabinet front and rear.

#### **8200 Airflow**

Air for the system cabinet to cool the TLSB card cage is brought in from the top and blown out at the back of the cabinet. Air to cool the options is brought in from the front of the cabinet and blown out the back. Air to cool the expander cabinet is brought in from the front and blown out the back.

*NOTE: Do not place anything on top of the cabinets, since this restricts airflow. Inadequate airflow can cause the system to shut down.*

**For more information:**

***Site Environmental Preparation Guide***

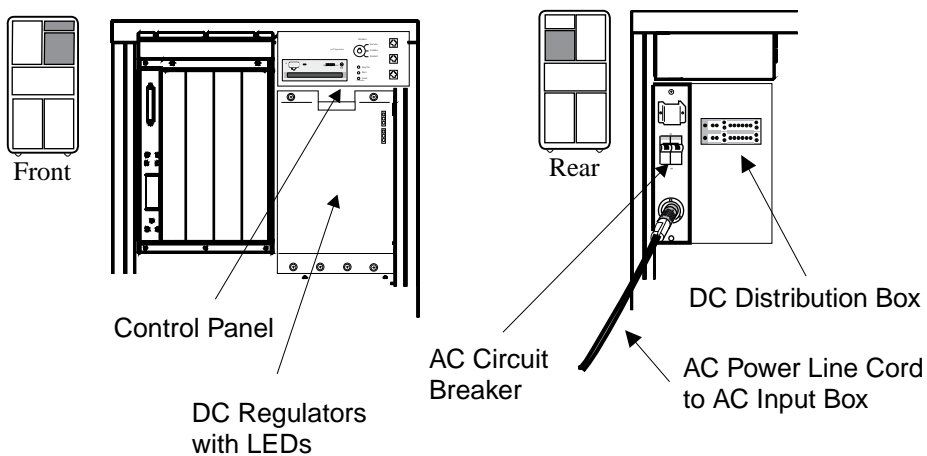
## 1.4 Single-Phase AC Power Requirements

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**Systems with single-phase AC input require a receptacle within 15 feet of the cabinet. The power system consists of an AC input box, a DC distribution box, power regulators, a cabinet control logic (CCL) module, and cables.**

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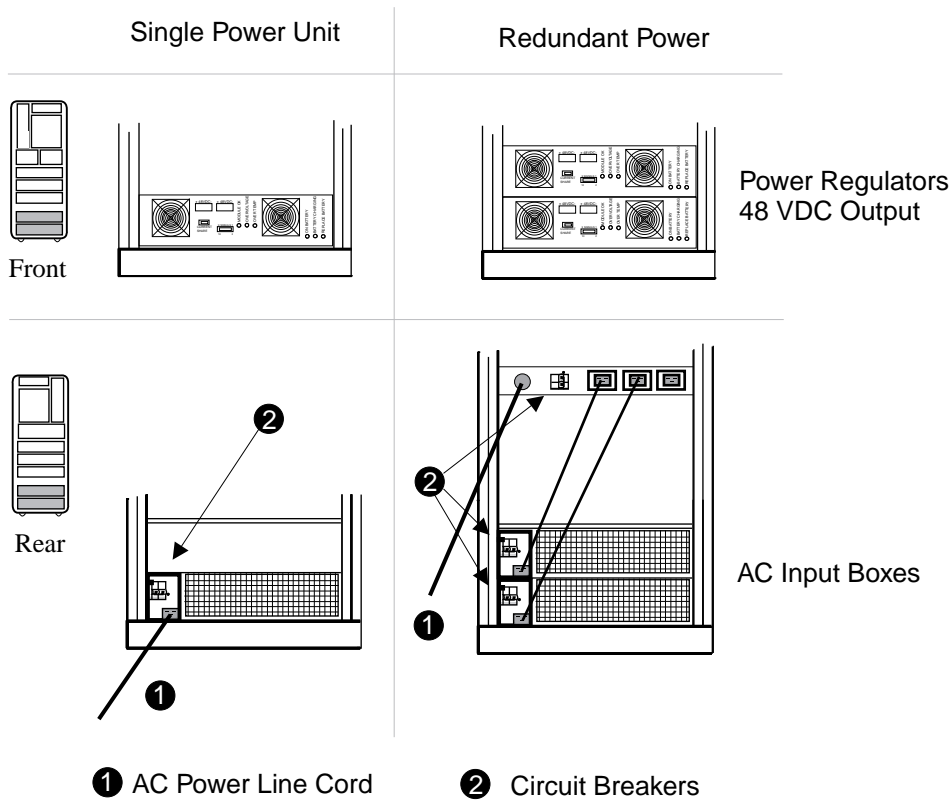
Figure 1-5 8400 Single-Phase Power



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Figure 1-6 8200 Single-Phase Power



BX-0440B-94

Table 1-4 AC Single-Phase Power Input Voltages

Country	Input Voltage (nominal)	Circuit Breaker Rating (amps)	Frequency Range (Hz)
North America	202–240 (208)	30	50–60
Europe/APA	202–240 (230)	32	50–60
Japan	202–240 (202)	30	50–60

Note: Each system and expander cabinet requires its own AC power connector.

**Table 1-5 AC Single-Phase Power Requirements**

System	Power (watts)	Heat Dissipation (BTU/hr)
8400 system cabinet only	1,000 minimum <sup>1</sup> 4,600 maximum <sup>2</sup>	3,400 minimum <sup>1</sup> 15,700 maximum <sup>2</sup>
8400 system with two expander cabinets	9,000 maximum <sup>3</sup>	30,600 maximum <sup>2</sup>
8200 system cabinet only	930 minimum <sup>1</sup> 2,647 maximum <sup>4</sup>	3,200 minimum <sup>1</sup> 9,100 maximum <sup>4</sup>
8200 system with two expander cabinets	6,234 maximum <sup>5</sup>	21,300 maximum <sup>5</sup>

<sup>1</sup> These figures are based on a minimum configuration consisting of one of each of the following: CPU module, memory module, KFTIA module, CD-ROM, and RZ28 disk drive.

<sup>2</sup> Based on a fully configured system containing four CPU modules, three memory modules, two system I/O modules, a PCI PIU with two PCIs in it, three BA655-AB, CD-ROM, and 36 RZ28 disk drives.

<sup>3</sup> Based on fully configured system cabinets (see note 2) and expander cabinets containing one DWLPA-AB, one DWLPA-BB, six KZPSZ-BB, five BA655-AB, and 60 RZ28 disk drives.

<sup>4</sup> Based on a fully configured system containing two power supplies, one CPU module, two memory modules, two system I/O modules, one CD-ROM, 16 RZ28 disk drives, two PCI shelves, and two StorageWorks shelves.

<sup>5</sup> Based on fully configured system cabinets (see note 2) and expander cabinets containing one PCI shelf, 14 StorageWorks shelves, and 84 RZ28 disk drives.

*NOTE: AC power receptacles are also required for console terminals and printers.*

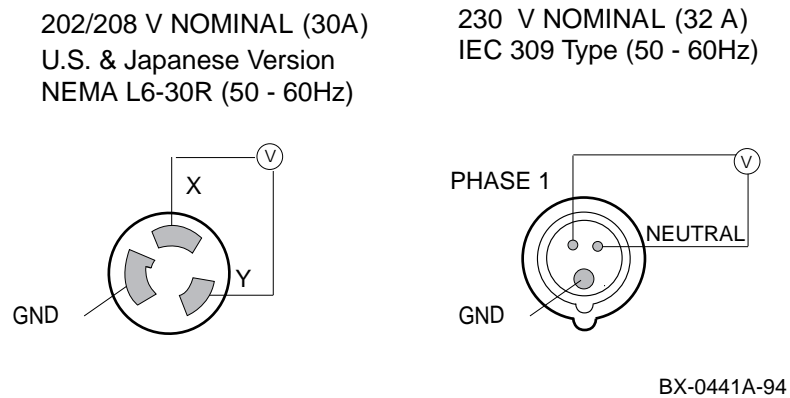
## 1.5 Single-Phase AC Power Cable and Receptacles

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**The AC power cable is 4.5 m (15 ft) in length. There are two receptacles, one used in Europe and the other used in the rest of the world. AC power connectors are shown in Figure 1-7.**

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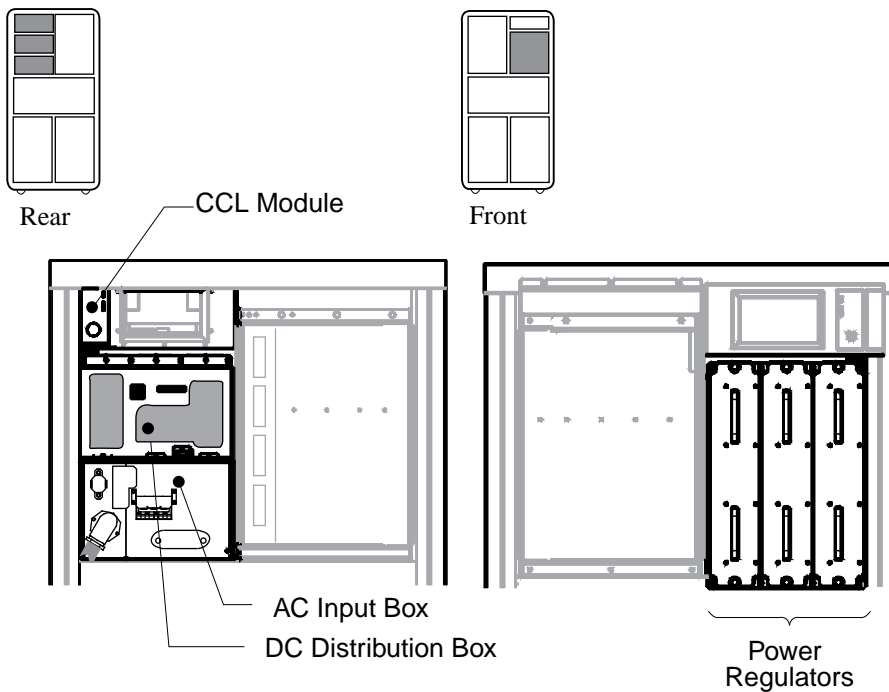
Figure 1-7 Single-Phase AC Power Receptacles



## 1.6 Power Requirements for the 8400 with Battery Backup

**The battery backup power system requires three-phase AC input voltage. The receptacle must be within 15 feet of the system. The power system consists of an AC input box, a DC distribution box, power regulators, a cabinet control logic (CCL) module, 48V batteries, power distribution cables, and signal interconnect cables.**

Figure 1-8 Power System Components



BX-0440-94

**Table 1-6 Three-Phase AC Input Voltages**

Country	Input Voltage	Circuit Breaker Rating (amps) <sup>1</sup>	Frequency Range (Hz)
Japan	202 Delta	30	50–60
North America	120/208 Wye	30	50–60
Europe/APA	380–415 Wye	16	50–60

<sup>1</sup>Each system and expander cabinet requires its own AC power connector.

**Table 1-7 Three-Phase Power Requirements**

Cabinet	Power (watts)	Heat Dissipation (BTU/hr)
System	1,000 minimum <sup>1</sup> 4,600 maximum <sup>2</sup>	3,400 minimum <sup>1</sup> 15,700 maximum <sup>2</sup>
System and two expander cabinets	9,000 maximum <sup>3</sup>	30,600 maximum <sup>3</sup>

<sup>1</sup> These figures are based on a minimum configuration consisting of one of each of the following: CPU module, memory module, KFTIA module, CD-ROM, and RZ28 disk drive.

<sup>2</sup> Based on a fully configured system containing four CPU modules, three memory modules, two system I/O modules, one DWLPA-AA, one DWLPA-BA, three BA655-AB, CD-ROM, and 36 RZ28 disk drives.

<sup>3</sup> Based on fully configured system cabinets (see note 2) and expander cabinets containing one DWLPA-AB, one DWLPA-BB, six KZPSZ-BB, five BA655-AB, and 60 RZ28 disk drives.

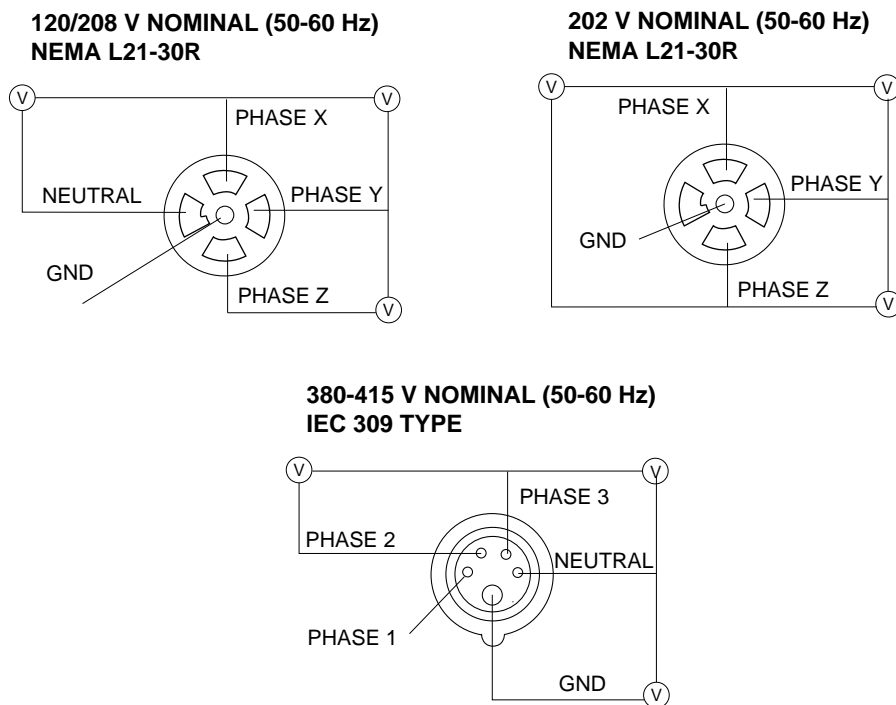
*NOTE: AC power receptacles are also required for console terminals and printers.*

## 1.7 AC Power Cable and Receptacles for the 8400 with Battery Backup

The AC power cable is 2.8 m (9 ft) in length. It consists of three-phase leads (X, Y, and Z) plus neutral (N) and ground (G). AC power connectors are shown in Figure 1-9.

*NOTE: Neutral and ground lines must both be connected from the bulk three-phase power to complete the Wye configuration. Otherwise, power components may be damaged. Do not power up the system until power checks are completed.*

Figure 1-9 AC Power Receptacles



BXB-0040A-92

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