

Eden260V, Objet260 Connex 3-D Printer Site Preparation Guide

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1 Introduction

1.1 About this Guide

The site preparation information and requirements provided in this document ensure proper installation and operation of the 3D printing system. The customer is responsible for preparing the installation site according to the instructions and guidelines described in this document.

If you have any questions about the information in this document, contact your Stratasys representative.

All site preparation requirements must be met before the installation date.

The Site Preparation Checklist should be faxed to your Stratasys representative. Orders will be processed for shipping after the signed checklist has been received by your Stratasys representative.

Non-compliance with requirements specified in this document may result in additional installation charges.

1.2 Installation and Training Schedule

The expected time required for installation and training are as follows:

- Basic installation and adjustment: one work day
- Operator training (operation and maintenance): one work day
- Product designer training (Objet260 Connex only: advanced features and workflow): one-half work day

Practice under supervision:

Eden260V printers—one work day

Objet260 Connex printers—one-and-a-half work days

2 Physical Description

2.1 Configuration

The 3D printing system consists of the following main components:

- The printer
- The printer computer (built into the printer)
- A printer-server workstation (computer provided by the customer)



Figure 2–1 Eden260V/Objet260 Connex printers

2.2 Size and Weight

The following table shows the size and weight information for Eden250, Eden260V and Objet260Connex printers.

Table 1: Printer size and weight

Unit	W × H × D (cm)	W × H × D (inch)	Weight (kg/lb)
Eden260V	87 × 120 × 73.5	34.2 × 47.2 × 29	254 kg / 559 lb
Objet260Connex			264 kg / 581 lb



- W = Width; H = Height; D = Depth
- The depth measurement does not include the Fan Adaptor assembly (see Section 9.2, Exhaust Adapter on page 18). If the Fan Adaptor is ordered, the depth measurement increases to 80 cm/31.5 inches.

3 Shipment and Delivery

3.1 Shipping Information and Customer Responsibility

Shipment to the customer's facilities will be arranged by a Stratasys distributor as indicated in the "ship to" part of the invoice. It is the customer's responsibility to provide detailed delivery instructions. The customer is responsible for transporting the printer to a suitable installation site. Customer Support Engineers will provide advice on site preparation, upon request.



Only Customer Support Engineers are authorized to unpack and install equipment.

3.2 Shipping Pallet

The printer arrives on a wooden pallet. The pallet's approximate size and weight with the printer mounted appear in the following table:

Table 2: Shipping pallet size and weight

Unit	W × H × D (cm)	W × H × D (inch)	Weight (kg/lb)
Eden260V	112 × 143 × 89	44.1 × 56.3 × 35	300 kg / 660 lb
Objet260Connex			310 kg / 682 lb

3.3 Lifting Equipment

A forklift or hand pallet truck with the following specifications is required:

- Lifting capacity of 500 kg (1100 lb)
- 150-centimeter (60-inch) extension

3.4 Unloading

The type of truck required to deliver the printer depends on whether a loading dock is available at the delivery site.

- A receiving area of 10 m² (108 sq ft) is required for the forklift to remove the printer from the delivery truck.
- A clearance of 120 cm (4 ft) around the back and sides of the packaging for unpacking the printer.
- A clearance of 180 cm (6 ft) from the front is required for unloading the printer from the pallet.

The installation location must be accessible from the unloading area. The customer is responsible for unloading the printer from the truck and transferring it to the installation location.

4 Installation Area

Prepare an installation area that meets the following conditions:

- The installation area should be free of sources of vibration and electromagnetic interference that could affect the proper functionality of the printer.
- The floor should be stable and able to bear the load of the printer. The floor gradient should be less than 0.5% (i.e., the slope should be no more than 5 mm per meter).
- The server workstation and the printer should be located in the same room.
- The cable route between the server workstation and the printer should not exceed 5 meters (16 feet).



The communication cable provided should not be extended or replaced with a longer cable.

- Clearance around and above the printer should ensure convenient access and servicing.
- The area around the printer should remain dry. Do not place the WaterJet cleaning station within 5 meters (16 feet) of the printer.
- Shelves and cabinets should be located near the printer to allow convenient storage of tools, parts, accessories, manuals and materials (see section 10 on page 20).

4.1 Floor Plan (Printer)

The following is a sample floor plan, showing the 3D printing system—the printer and the server workstation. The dimensions shown in the figure and in the table are the minimum requirements.

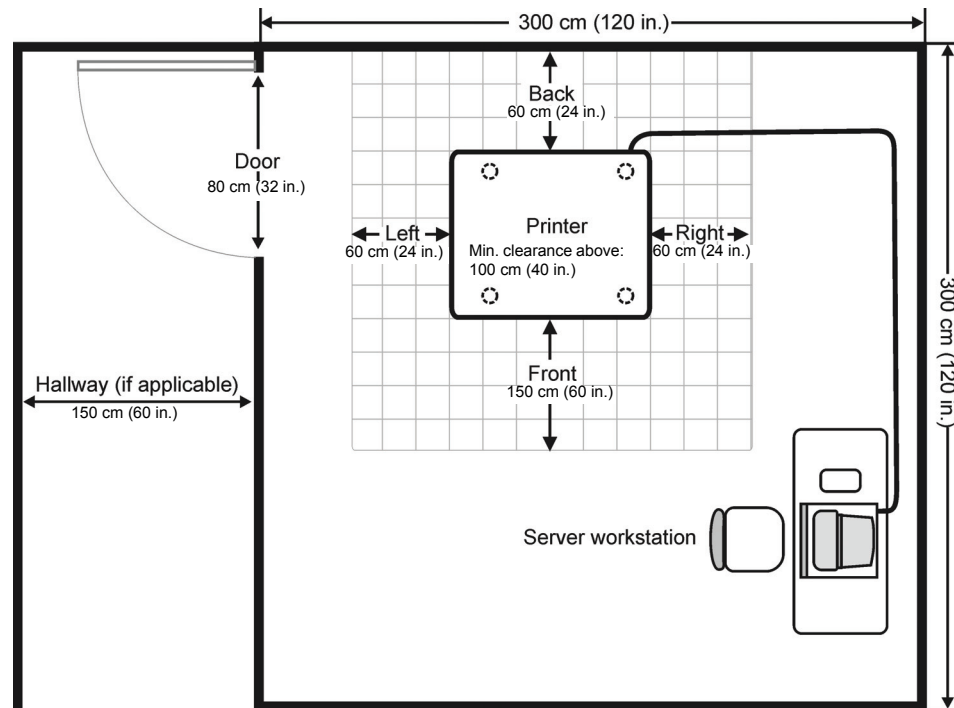


Figure 4–2 Printer floor plan sample (not to scale)

Table 3: Minimum positioning requirements

		Minimum Requirement
Printer Clearance	Front	50 cm (60 in.)
	Back	60 cm (24 in.)
	Left	60 cm (24 in.)
	Right	60 cm (24 in.)
	Above	100 cm (40 in.)
Door		80 cm (32 in.)
Hallway		150 cm (60 in.)
Floor load		Eden260V: 605 kg/m ² (124 lb/ft ²) Objet260 Connex: 630 kg/m ² (129 lb/ft ²)

5 Workstation

The customer is responsible for supplying a computer, with the following specifications, for the server workstation. The same specifications are recommended for any additional client workstations.



Important:

Make sure that the server workstation is set up with Administrator privileges.

	Minimum	Recommended
Type	Desktop computer (no mobile computers ¹)	
Mouse/keyboard connection ²	PS/2	USB
Processor	Intel® Pentium® 4, 3.0 GHz, 512 KB cache memory	Intel® Core™ i3 or better
Operating System ³	Windows® XP Professional SP3	Windows® 7 64-bit ⁴ <i>Professional, Ultimate, Enterprise</i> editions
Graphics Card ⁵	Open GL® with 512 MB of memory	Open GL® with 1 GB of memory or more
	With printers used for dental applications: • ATI™ Radeon™ HD 5970, with 2 GB of memory, or • NVIDIA® GeForce® GTX 285, with 2 GB of memory	
RAM	4 GB	8 GB or more
CD Drive	IDE CD ROM	
Hard-Disk Drive	40 GB	80 GB or larger
Network Card	LAN TCP/IP (2 for server workstation; 1 for client workstation)	
Video Card	VGA connector ⁶	
Monitor		Resolution: 1280×1024 pixels Color quality: 32 bit
Monitor cable	VGA connector ⁶	

1. All-in-one desktop computers are not supported.
2. Wireless devices are not supported.
3. Also supported Windows Vista (32-bit/64-bit⁴) *Ultimate, Business, Enterprise* editions.
4. On 64-bit operating systems, Objet Studio runs as a 32-bit program, but can use up to 8 GB of memory.

5. The following graphics cards were tested:
 - NVIDIA® Quadro® Family—FX570, FX1700
 - NVIDIA® GeForce® Family—6200 TurboCache™, 7300 GT
 - Intel® Express Chipset—82915G/82915GV/82910GL, Q965/Q963, Q35, Q45/Q43, 82852/82855
 - ATI® display adapter—Radeon™ HD 5670, Radeon™ E6760
6. The KVM switch requires VGA video connections. Therefore, if the server workstation has a DVI video connector, a VGA adapter is needed. The cable from the monitor must have a VGA connector.
Note: You control both the built-in printer computer and the server workstation with same keyboard-monitor-mouse set by using a KVM switchbox.

6 Electrical Requirements

It is the customer's responsibility to ensure that all tasks described in this chapter are carried out by personnel qualified to perform electrical work as defined by local authorities.

6.1 Power

A stable, reliable source of power is required. The power to the UPS should be supplied directly from the main electrical panel, without other electrical outlets on the line. Printer power rating:

- 100–120 VAC, 50–60 Hz, 14 A
- 200–240 VAC, 50–60 Hz, 7 A

6.2 Circuit Breaker

A Type-C circuit breaker with the following specification is required on the printer's power line (subject to the local electrical code).

Table 4: Circuit breaker specification

Voltage	Circuit Breaker
100–120 VAC	15 A or 16 A
230 VAC	10 A

6.3 Grounding

The printer is grounded through a single-phase AC plug. Make sure that the AC outlet is properly grounded, in accordance with local electrical safety codes.

6.4 Printer Connection

The customer must provide an appropriate power plug and have it installed by an electrician.

The following electrical outlets are required:

- One outlet behind the printer (for the printer) wired directly to the UPS
- Three outlets close to the printer (for the server workstation, monitor, and servicing equipment)

6.5 UPS (Uninterrupted Power Supply)

The printer should be powered from a UPS, rather than directly from the mains, so that—

- the quality of printing is not affected by power fluctuations from the mains.
- the printer can be programmed to perform “graceful shut down” in the event of a power failure.

The UPS connected to the printer should meet the requirements shown below.

Table 5: UPS requirements

Voltage ¹	Current	Power	Power Factor ²	Bridging Time	Interface ³
100–120 VAC	16 Amps	1500 VA	0.9	15 minutes	USB port
200–240 VAC	8 Amps				

1. Single-phase; 50/60 Hz
2. Defined as the input-to-output ratio of the UPS.
3. Do not order a UPS that only has a serial communications-port connector.



- The UPS requirements are based on the time it might take to complete a “graceful system shutdown.”
- During a power failure, the UPS should not be used to continue normal operation of the printer.

7 Communication Lines

7.1 Local Area Network

A LAN communication cable is required if server/client workstations are connected to a local network, as shown in the following diagram.

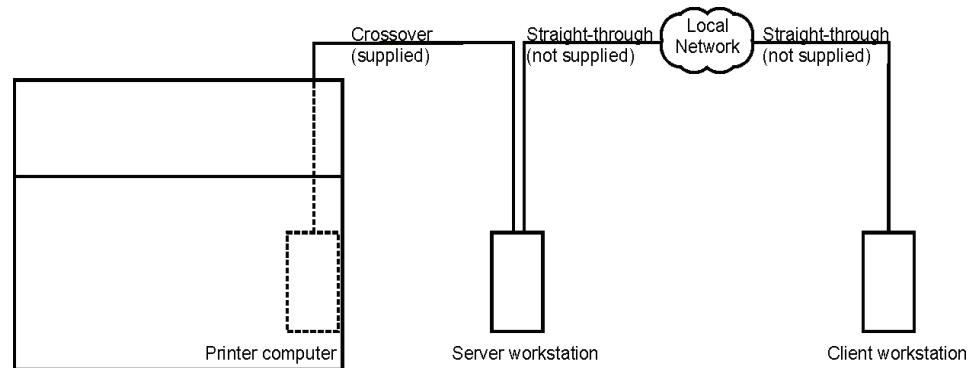


Figure 7–3 Network installation

The connection to the local network should be done *before* printer installation.

7.2 Telephone

A telephone line, for general communication and service calls, is recommended, close to the printer.

8 Environmental Conditions

8.1 Room

The temperature and relative humidity around the printer must be within certain limits. Peak conditions occur when the printer and the server workstation draw maximum electrical power, resulting in the heat dissipation shown in Table 5.

Table 5: Heat dissipation during “peak” conditions

	Heat Dissipation
Printer	1500 W (5140 BTU/hr) BTU/hr
Server workstation	450 W (1530 BTU/hr)
Total	1950 W (6670 BTU/hr)

Environmental control should ensure that the room temperature and relative humidity do not exceed the limits shown in Table 6.

Table 6: Ambient temperature and relative humidity

	Range
Temperature	18° C to 25° C (64.5° F to 77° F)
Relative Humidity	30%–70% non-condensing

8.2 Ventilation

To ensure optimal air quality around the printer, a connection to an external ventilation duct is recommended (see section 9.2). Otherwise, the room ventilation system should change the air at least four times every hour. If an exhaust fan on an external wall is used, it should be located near the back of the printer.

8.3 Noise Level

The noise level around the printer is typically less than 65 dB during printing.

9 Accessories and Utilities

9.1 Start-Up Kit

The printer is supplied with a start-up kit, which includes tools and accessories. These tools and accessories should be available during printer installation and operation.

9.2 Exhaust Adapter

An exhaust adapter is supplied. When attached to the back of the printer and connected to an external ventilation fan with a flexible duct, air expelled from the printer is discharged directly outdoors (see Figure 9–4).

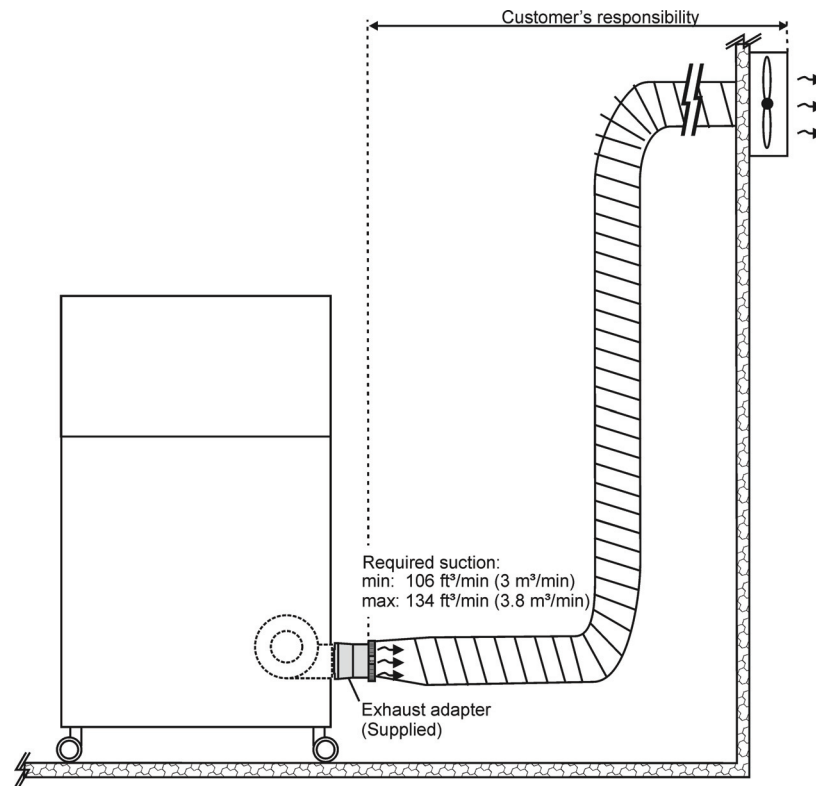


Figure 9–4 Printer exhaust system

9.3 Eyewash Station

It is recommended that an eyewash station be installed near the printer.

9.4 Compressed Air

Compressed air is useful for routine cleaning and maintenance activities. If a compressed air line is available at the site, it is recommended (but not required) that an outlet be installed near the printer.



If the compressed air line does not include an air-dryer unit, a water/oil trap must be installed on the air gun used for cleaning the printer.

The air pressure required is 5–6 bar (70–90 psi).

9.5 Fire Safety Equipment

A gas-based fire extinguisher should be used in case of fire in or near the system. Some other extinguishers are also acceptable, but liquid fire extinguishers should not be used. (Contact your local fire authorities for specific recommendations.)

10 Materials Handling and Storage

10.1 Printing Materials

Printing materials should be stored indoors, in a dry area with adequate ventilation. Table 7 lists general requirements for transport, storage, inventory control, and disposal.

Table 7: General Requirements

Topic	Requirement
Storage	15°C to 25°C (60°F to 81°F)
Inventory control method	First In First Out (FIFO)
Disposal	In compliance with local regulations

These specifications are applicable for most printing materials. Requirements for handling and storing of printing materials are specified in the Material Safety Datasheet (MSDS) for each material.

Printing materials can be used until the expiration date indicated on the container. Inventory provisions should be made to ensure that containers with the closest expiry date are used first.

When a material container is not in use, it should be securely capped, to protect the material from contamination and UV radiation. In addition, this minimizes the risk of accidental spillage.



- Non-compliance with these recommendations might result in reduced shelf life.
- Disposal of all liquid and solid waste, cleaning cloths, gloves, and empty material cartridges must be done in accordance with local laws and regulations.

10.2 Cleaning Solvent

One liter of isopropanol (IPA) or ethanol (ethyl alcohol) should be available at all times for cleaning purposes.

Solvents should be stored and handled in accordance with local regulations.

11 Summary

Dear customer,

Thank you for reading this Site Preparation Guide. Please fill in the information requested on the following page, and fax it to your Stratasys representative. An installation date will be scheduled after this checklist is approved by Stratasys.

You can consult with an Stratasys-certified engineer if you have any questions relating to the site requirements and the checklist.

Customer Information

Company Name: _____

Address: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

Site Preparation Checklist

Item and reference	Meets Requirement		Notes
	Yes	No	
Personnel available for training	☐	☐	
Forklift and unloading area	☐	☐	
Floor requirements	☐	☐	
Room layout (printer)	☐	☐	
Access to installation location: doors, hallways, etc.	☐	☐	
Power requirements	☐	☐	
Circuit breaker	☐	☐	
Grounding protection	☐	☐	
Power plug (section 6.4)	☐	☐	
UPS unit	☐	☐	
Server workstation (section)	☐	☐	
Communication lines	☐	☐	
Environmental conditions	☐	☐	
Ventilation (section 8.2 and 9.2)	☐	☐	
Gas-based fire extinguisher	☐	☐	
Cleaning solvent	☐	☐	

I understand that non-compliance with the requirements specified in this document may result in additional installation charges.

Full name: _____

Customer signature: _____ Date: _____