Pro XL Site Prep Guide

September 2023

Rev01

ETEC

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Document Information

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History of Changes

Date	Changes	Revision
Sept-2023	Document creation	1.0

About This Guide

This document serves as a comprehensive guide to prepare your site for the Pro XL 3D printer.
See Pro XL Operations and Maintenance Guide for full printer operation instructions.
See Pro XL Compliance and Safety Guide > **Safety Procedures and Protocols** for a description of safety warning conventions utilized in this document.

81-00266-Rev01-EN Pro XL Site Prep Guide, September 2023

User Information

Product Overview

Introducing the Pro XL 3D Printer

Based on 20+ years of R&D from industry leaders in 3D printing technologies, the Pro XL delivers high accuracy and high throughput, consistently, to keep your largescale production on schedule. Improve overall efficiency and turnaround time with Pro XL's reliability to deliver low-cost-per-print, high-accuracy components.

Designed for a 24/7 production environment, the Pro XL can run lights out, with little to no user intervention required. Easily print parts at volume with the quality, surface finish, and tolerances needed for end-use applications.

Customer Responsibilities

NOTICE	**Risk of equipment damage, risk of injury, and void warranty:** Comply with the below responsibilities.

Prior to installation, the customer is required to ensure the site is ready for the Pro XL. These responsibilities are:

1. Provide a location to receive crated packages per individually listed shipping dimensions.
2. Provide a clear pathway from the receiving site to the installation site.
3. Provide resources to move the equipment from the receiving site to the installation location, with respect to:
    a. The dimensions and weight of each system component.
    b. Thresholds and corners.
4. A mover is required for unloading, uncrating, and moving the printer into location.
    a. The printer requires a forklift or pallet jack to move the pallet to the site.
    b. Carefully disassemble the crate.
    c. Lift the printer out of the crate and place it in its final destination.
5. Create a component layout based on the system requirements included in this document.
6. Select a location that provides all services listed on each component page as necessary for operation.
    a. Distance the printer from climate control systems. Do not direct airflow onto or within the printer's footprint. This includes air conditioning (window, wall, or similar), fans (ceiling, tabletop, or similar), heaters (space heaters, or similar).
    b. Do not expose the printer to any direct sunlight or UV radiation.
    c. Keep the printer and accessories away from water sources such as sinks, tubs, wash stations, etc.
    d. Do not place the printer near any vibration source, or on a wooden surface that can easily transfer vibrations.
    e. Do not place the printer near polishing stations.
7. Meet all National/Governmental or Environmental Health and Safety (EHS) regulations.
    a. See Product Safety.
    b. Review material storage as well as processing/operation guidelines.
8. Install all safety equipment required for operation, according to codes and regulations.
9. Perform risk analysis and address deficiencies.
10. Operate the Pro XL indoors, as designed.
11. Locate the Pro XL away from equipment that produces dust or vibration.

Note: If you have questions, please contact Technical Support.

Pro XL Process Flow-Recommendation

Process Steps

Part Processing:

1. Prepare the .stl file in CAD software.
2. Import the .stl file into Envision One RP Software.
3. Use automatic placement to place parts.
4. Generate supports, if required.
5. Generate the job in Envision One RP.
6. Send the build job to the printer.

At the Printer:

1. Install a clean material tray in the printer.
2. Prepare the material to print.
3. Add material to the material tray.
4. Install the clean build platform in the printer.
5. Close the printer hood.
6. On the touchscreen, navigate to the required build job.
7. Start the job. Wait for the job to finish.
8. Remove the build platform with printed parts from the printer.
9. Use the paint scraper to remove the parts from the build platform.

Cleaning Station:

1. Remove supports, if required.
2. For medical materials, follow instructions in the Instructions for Use (IFU) to clean parts.
3. For non-medical materials, follow instructions in the Material Best Practice guide to clean parts.

Post Curing:

1. Bring the clean and dry parts to the curing unit and place it in the unit.
2. Set the timer as per the recommended cure times (material dependent).

Finishing:

1. Finish the printed parts to achieve the desired surface finish. Final finishing processes are material dependent.

Note: The Pro XL printer, curing unit, and washing unit are provided by ETEC. All other items are purchased from third party suppliers. See Shopping List for recommendations.

Site Information

Environmental Conditions

Distance the printer from climate control systems. Do not direct airflow onto or within the printer's footprint. This includes air conditioning (window, wall, or otherwise), fans (ceiling, tabletop, or similar), heaters (space heaters, or otherwise).

- Do not expose the printer to direct sunlight or UV radiation.
- Do not place the printer near a doorway.
- Avoid temperature changes.
- Keep the printer and accessories away from water sources such as sinks, tubs, wash stations, etc.
- Do not place the printer near polishing stations.

Ensure the room temperature remains within the following range:

- Minimum temperature of 21°C (69.8°F)
- Maximum temperature of 28°C (85°F)

Follow the temperature instructions for each material.

- These instructions can be found on the label of the material bottle.
- Extended instructions are located in the Instructions for Use (IFU) for medical materials, and the Material Best Practice guide for non-medical materials.

Important: The humidity should be below 45%.

Air Quality Considerations

Use the Pro XL in a clean atmosphere. High levels of impurities in the air may find their way into printed parts.

- The room must allow heat generated from the system to dissipate at 0.03 m^3/min airflow.
- Air conditioning units should be at least 3 m (10 ft) away from the printer with no airflow pointing directly at the printer.

Maintain a space with little or limited:

- Dust
- Smoke
- Steam

Pro XL Footprint

NOTICE	**Risk of equipment damage:** Incorrect positioning of the printer can cause damage to the printer and/or to the printed parts. Please follow the positioning guidelines.

See Printer Technical Specifications for product dimensions.
The Pro XL must be installed on a sturdy surface that can comfortably hold over 90 kg (198.42 lb).
The printer requires a minimum amount of space for operation, maintenance, and heat dissipation.

- A minimum of 46 cm (18 in) behind the printer.
- A minimum of 61 cm (24 in) on the right side of the printer.
- A minimum of 61 cm (24 in) on the left side of the printer.

Fig. 1 Pro XL Clearance, Front View

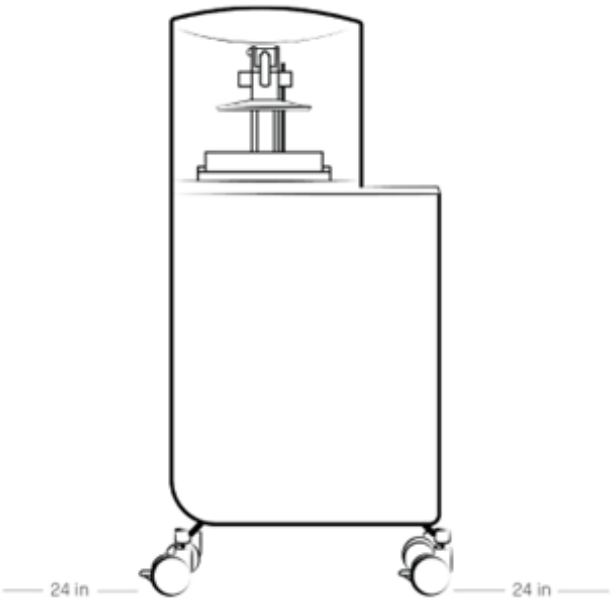

Fig. 1 Pro XL Side Clearance

Fig. 2 Pro XL Clearance, Side View

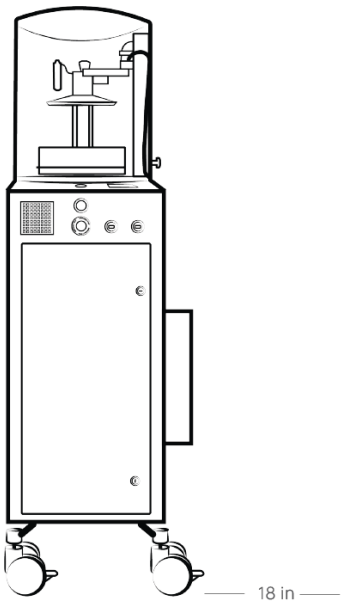

Fig. 2 Pro XL Back Clearance

Product Safety

ETEC's Pro XL has been designed to comply with safety standards.
See Pro XL Compliance and Safety Guide > Safety Procedures and Protocols for a description of safety warning conventions utilized in this document.

General Safety

All general workplace safety rules should be followed when operating the printer. It is the responsibility of the user to ensure compliance with all local, regional, and national regulations. Additionally, it is the responsibility of the user to ensure that the system is installed and maintained properly by ETEC.

Material Safety

Safety data sheets (SDS) for materials used in the printing process are available in the ETEC Knowledge Base:
Safety Data Sheets
Read and understand the information provided in these documents prior to attempting to operate the printer or handle any media.

Pro XL Printer

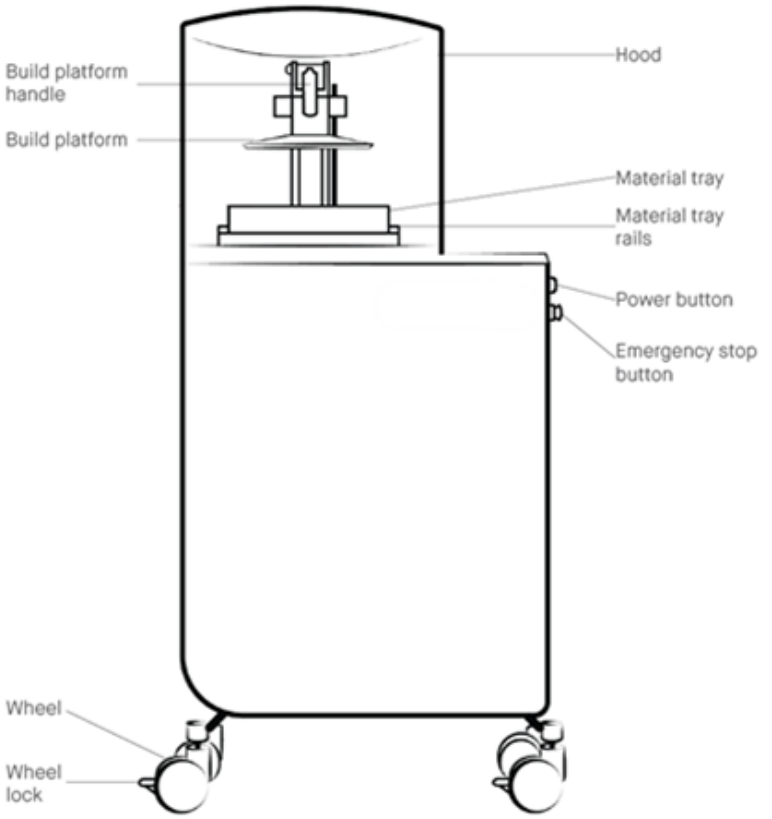

Fig. 3 Pro XL Front View

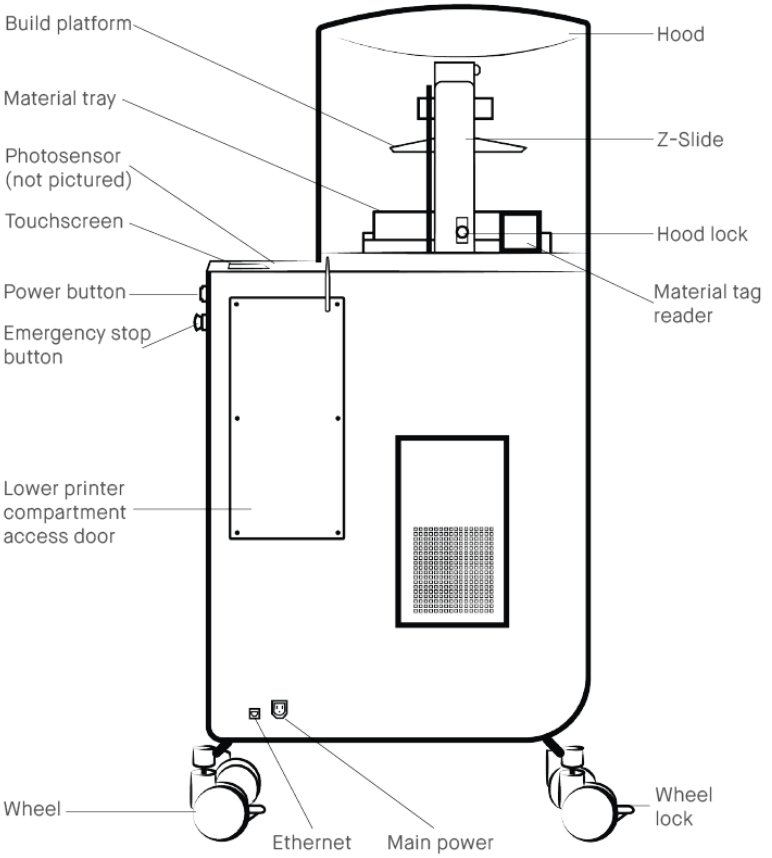

Fig. 4 Pro XL Back View

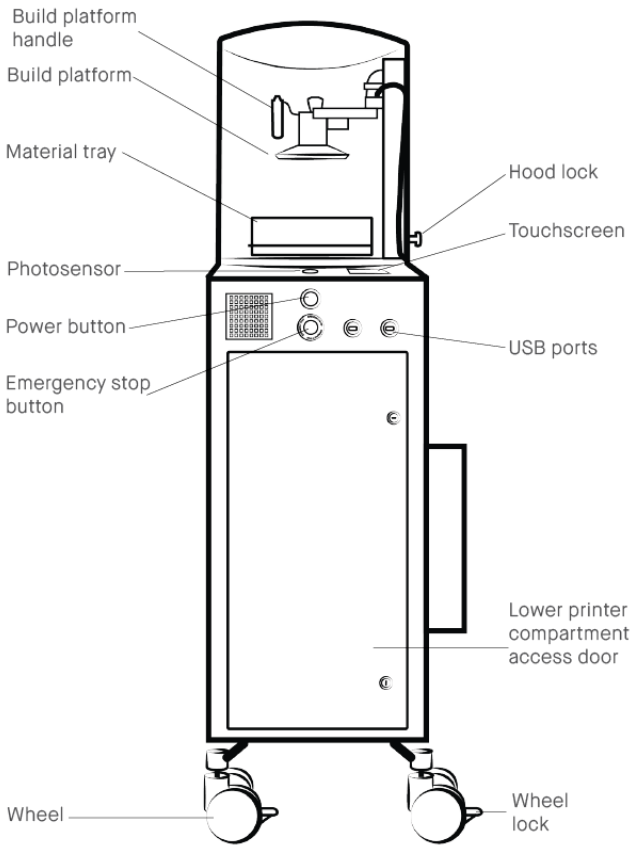

Fig. 5 Pro XL Right Side View

Printer Technical Specifications

Unit Dimensions	90 x 60 x 152 cm (35.43 x 23.62 x 59.84 in)
Shipping Dimensions (estimate)	81.28 x 119.38 x 187.96 cm (32 x 47 x 74 in)
Unit Weight	90 kg (198.42 lb)
Shipment Weight (estimate)	102.06 kg (225 lb)
Electrical	Printer: 100-250V AC, 6.3A, 50Hz/60Hz
Ethernet (Not Required)	Cable: Cat 6 or better
USB	Type: USB 2.0 Standard A

Software

Overview Envision One RP Software

Envision One RP automatically orients your part, adds supports, if necessary, and sends the file to the printer, resulting in your three-dimensional part. Everything that is printed using ETEC printers must pass through this software successfully.

System Requirements Envision One RP

Note: Envision One RP requires Windows Operating System.
The software is not compatible with macOS.

Operating System	Windows 10 or higher
Working Memory	>= 8GB RAM
Hard Drive	400 MB Free space
CPU	Multi Core Processor e.g. Core i5, >= 3GHz, >= 6MB Cache
Graphics	Dedicated 3D graphics card with >= 1 GB memory and OpenGL 4.3 and higher. It is recommended to use the Nvidia graphics card.

Install Envision One RP Software

It is recommended to install Envision One RP software prior to the arrival of your Pro XL printer.

1. Download **Envision One RP Software**.
2. Open the **Downloads** folder on your computer.
3. Find a file named *EnvisionOneRP.exe* and double-click it to start the installation.
   → A setup window opens.
4. Follow instructions on the screen to complete the installation.

License Envision One RP Software

Licensing Envision One RP provides access to the software's full functionality. There are two license types available:

- The **Standard license** allows you to use the whole software functionality for 12 months. After its expiration, you will have to request a new license.
- The **Trial license** allows you to use the whole software functionality for 30 days. After its expiration, you will have to request the **Standard license**.

Important: It is not possible to use the software without a license. If no license is available, the software is blocked.

See the ETEC Knowledge Base for further licensing instructions and software knowledge articles.

Accessories

Bottle Roller

Dual Motion Bottle Roller Front View

The Dual Motion Bottle Roller is the recommended material mixing solution for all ETEC materials.

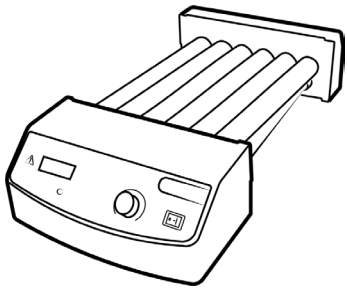

Fig. 6 Dual Motion Bottle Roller

Unit Dimensions	47 x 26 x 12 cm (18.5 x 10.24 x 4.72 in)
Shipping Dimensions	63.5 x 50.8 x 50.8 cm (25 x 20 x 20 in)
Unit Weight	5.1 kg (11.25 lb)
Shipment Weight	6.8 kg (15 lb)
Electrical Requirements	100-240V AC, 50Hz/60Hz

Washing Units

WARNING	**Fire hazard:** Note that if IPA is used for washing, the equipment must be certified for use with flammable liquid and Washing Unit manufacturer instruction for classification of surrounding areas must be respected.

The PWA 2000 and Desktop Orbital Shaker are recommended washing units for the Pro XL. The recommended post washing unit is based on the material(s) and material workflow(s) you are following.

PWA 2000

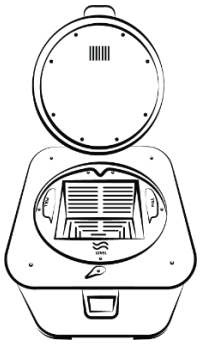

Fig. 7 PWA 2000 Parts Washer, Open

Unit Dimensions	32 x 33 x 24.6 cm (12.60 x 12.99 x 9.69 in)
Shipping Dimensions	40.64 x 40.64 x 40.64 cm (16 x 16 x 16 in)
Unit Weight	4.6 kg (10.2 lb)
Shipment Weight	9.07 kg (20 lb)
Electrical Requirements	100-230V AC, 0.3A, 50Hz/60Hz. External power adapter: 12V AC, 2A

Desktop Orbital Shaker

ETEC recommends the ELMI S-3.02 20L Analog Orbital Shaker 20mm Amplitude with Large Platform.

Curing Units

The PCA 4000 and the Otoflash post curing units are recommended post curing units. The recommended post curing unit is based on the material(s) and material workflow(s) you are following.

Otoflash

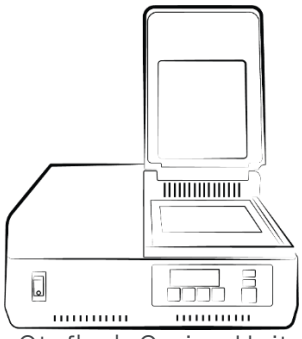

Fig. 8 Otoflash Curing Unit, Open

Unit Dimensions	31 x 31 x 14 cm (12.2 x 12.2 x 5.5 in)
Shipping Dimensions	38.1 x 33.02 x 17.78 cm (15 x 13 x 7 in)
Unit Weight	6.3 kg (13.9 lb)
Shipment Weight	8.16 kg (18 lb)
Electrical Requirements	100-230V AC, 15A, 50Hz/60Hz, 275 Watts

PCA 4000

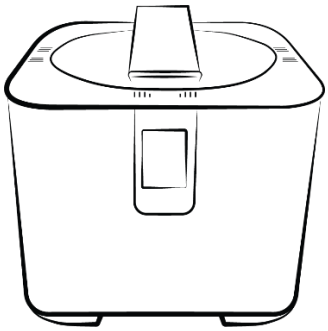

Fig. 9 PCA 4000 Curing Unit

Unit Dimensions	36.4 x 40.4 x 31.9 cm (14.33 x 15.9 x 12.55 in)
Shipping Dimensions	50.8 x 50.8 x 50.8 cm (20 x 20 x 20 in.)
Unit Weight	8.03 kg (17.7 lb)
Shipment Weight	11.34 kg (25 lb)
Electrical Requirements	100-230V AC, 4-6A, 50Hz/60Hz, 300 Watts

Shopping List

Starter Kit

The Pro XL is shipped with a Starter Kit to assist the 3D printing workflow. Starter Kit items are primary supplies that do not need to be purchased separately.

- **Allen keys, 2mm, 2.5 mm:** Required for printer calibration and to assist with technical support cases. They are not required for day-to-day operation.
- **Crossover network cable, 5 mm, colored plug:** This cable connects the printer to the operating computer, as needed. The cable inserts into the I/O panel behind the printer. The other end plugs into the operating computer. The printer can only be operated by the connected computer.
- **Feeler gauge, 0.15 mm:** Required for printer calibration and to assist with technical support cases. It is not required for day-to-day operation.
- **Grey filter foil:** Required for light calibration and to assist with technical support cases. It is not required for day-to-day operation.
- **Material mixing cards:** Required to gently mix material in the material tray before each print.
- **Network cable, 5 mm:** This cable connects the printer to the local network. The cable inserts into the I/O panel behind the printer. The other end plugs into a modem or a network outlet. The printer can be operated by other Windows computers on the network.
- **Paint scraper:** Use the scraper to remove printed parts from the build platform. You can also use the scraper to remove material residue from the build platform after a print.
- **USB drive:** A back-up for transferring print information from the operating computer to the printer. Between 8 and 32 GB size is recommended.
- **UV safety glasses:** Required for light calibration and to assist with technical support cases. They are not required for day-to-day operation.

Primary Supplies

Primary supplies should be acquired prior to printer delivery. Obtain the proper tools to prepare for successful printing and post-processing.

- **99% Isopropyl alcohol (IPA):** IPA breaks down uncured material on the surface of printed parts. This product can be purchased from many big box stores, and from medical and business supply stores. Do not use denatured alcohol. Do not use less than 99% IPA.
- **Absorbent paper towel:** Required to clean the printer, material tray, and build platform. Inter-folded paper towel, found in labs or offices, is not as effective as a standard roll of absorbent paper towel.
- **Air compressor/forced air system:** Required for drying parts during post processing. Forced air also removes the cleaning agent from the surface of the parts. Do not use canned air. For those without a forced air system, compressors can be purchased and installed into the post-processing station.
- **Cone-shaped paint filters:** Filters are used to strain material. The filter removes particles that may be too small to see but can affect print quality. They will be used while pouring material from the tray into the material storage containers for maintenance. Each filter is approved for one-time use only. Do not leave filters in the bottle of material for longer than 5 minutes. Do not use coffee filters.
- **Dual Motion Bottle Roller:** The Dual Motion Bottle Roller provides a gentle but highly efficient rocking and rolling motion for 3D printing materials. The bottle roller almost

eliminates the separation of resin and allows for an even distribution of the material. Contact your ETEC Sales Representative for more information.

- **Curing unit:** 3D printed parts must be post-cured to achieve the final, end-use state. ETEC offers the Otoflash curing unit for medical materials, and the PCA 4000 curing unit for non-medical materials. See Otoflash and PCA 4000.

Note: ETEC only supports ETEC curing units.

- **Washing unit:** 3D printed parts must be washed prior to post-curing. ETEC offers the PWA 2000 washing unit for non-medical materials. See PWA 2000.
- **Digital calipers:** Required during printer calibration. The printer may need to be calibrated when new material is purchased, or for maintenance reasons. Digital calipers are used to check the accuracy of printed parts against the computer's measurements. Find calipers from major manufacturers only. Look for accuracy of ± 0.02 mm.
- **Waste containment:** Foot actuated garbage cans and/or liquid solvent waste containers. Please refer to your local regulations for Hazardous Waste disposal.
- **Personal Protective Equipment (PPE):** Including disposable gloves (such as Nitrile Gloves), safety glasses, and lab coats. PPE is required when working with the printer or prior to touching anything that may come into contact with uncured material. See Safety Data Sheet for proper handling guidelines.
- **Storage containers for material:** Required to store material after it is removed from the material tray. To avoid contamination, never pour used material back into the original bottle. Storage containers must be completely clean, opaque, and have a strong seal to keep material fresh. Containers must not let any light through. See Safety Data Sheet for proper handling guidelines.

Secondary Supplies

Secondary supplies are recommended for the 3D printing workflow and may be acquired after printer delivery.

- **Magnification loupe:** Recommended to look at the fine details of printed parts.
- **Post-processing tools:** Electric hand-tools, files, rasps, needle-nose pliers, sandpaper (220 grit +), and snips are all helpful tools for removing supports and polishing supported surfaces.
- **Soft brush:** Recommended to clean parts during post processing. Do not use a toothbrush as they are too rigid and can scratch printed parts.

Note: Contact your ETEC Sales Representative for more information on any Shopping List item.

Appendix A – Site Prep Checklist

Contact Information:	
Company Name:	
Street Address:	
City:	
Postal Code:	
Country:	
Phone:	
Printer Operator:	
Email:	
Phone:	
IT Administrator:	
Email:	
Phone:	

General Items

Receiving & Site Access

Receiving location meets requirement for size and weight of equipment ---------- Y / N
Clear path to install location (clear corners, doors, etc.) ---------- Y / N
Forklift or pallet jack available to move items ---------- Y / N
Two individuals to lift 90 kg (198.42 lb) printer ---------- Y / N
Room accessible and ETEC staff access permitted ---------- Y / N

General Facility Requirements

Space available meets minimum footprint requirements ---------- Y / N
Room meets ventilation requirements for safe operation ---------- Y / N
Room is able to maintain 21-28°C (69.8-85°F) operational temperature ---------- Y / N
No vibration that will impact performance ---------- Y / N
Room is able to maintain less than 45% humidity ---------- Y / N
All necessary corporate, local, regional, or national approvals for operation ------- Y / N

Room Layout

Required component clearances available 61 cm (24 in) on right and left sides --- Y / N
Required component clearances available 46 cm (18 in) behind the printer -------- Y / N

Safety

Completed a preinstall safety review ---------- Y / N
Installed fire extinguishers as required by local code ---------- Y / N

Printer

Power 100-250V AC, 6.3A, 50Hz/60Hz ---------- Y / N

Materials

Printing material arrived on site and is undamaged ---------- Y / N
Instructions for Use or Material Best Practice located and understood, mixing procedure understood, SDS located and understood ---------- Y / N

Checklist Signoff

Sign below to acknowledge that the checklist is complete, accurate, and the site is ready for install:

Name of signatory: _____

Signature: _____

Title: _____

Date: _____

Note: If you have questions, please reach out to Technical Support.

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