



GUIDES

Preparing for the Fuse 1 & Fuse Sift

This guide will help ensure that your site is ready to receive, setup and use your Fuse 1 and Fuse Sift before they ship.

Introduction

Thank you for participating in the Fuse Beta. Before we can send anything over, Formlabs needs to confirm that your site meets the minimum operating requirements necessary to use Fuse 1 and Fuse Sift.

Please confirm your space's compliance by filling-in the check boxes within each section below. Be sure to also sign and date the very last page before returning this document to Formlabs.

Once we receive your completed checklist and a final decision on your site's eligibility has been promptly made, our team will reach out to you with next steps.

If you have any questions, please reach out by emailing beta@formlabs.com, or call us directly at 617-431-8554 (weekdays Monday - Friday, 9AM - 6PM EST).

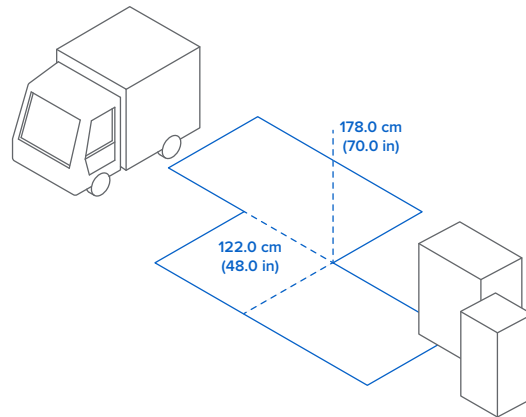
Delivery & Reception

The Fuse 1 and Fuse Sift are heavy devices that cannot be removed from their packaging or repositioned without using the provided assistive lifting straps (e.g., those commonly used for moving large appliances). For this reason our partners will be responsible for unboxing and setting-up both the Fuse 1 and Fuse Sift.

Our partners will require ample space to maneuver between the delivery zone and the desired setup location, as well as access to a loading dock, receiving bay, and an elevator if traveling between multiple stories.

For receiving your Fuse 1 and Fuse Sift:

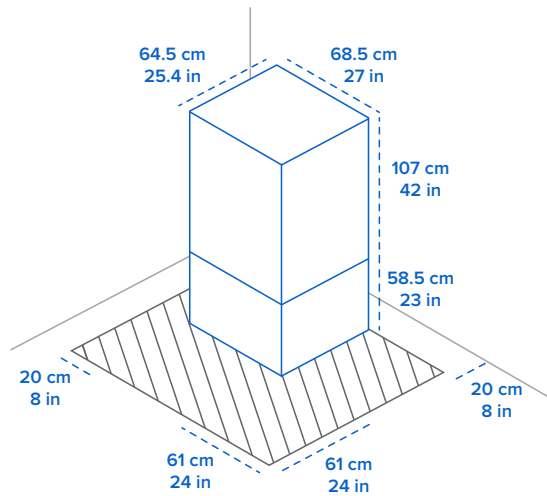
- Ensure there is ample maneuvering space of at least **122.0 x 122.0 x 178.0 cm** (48.0 x 48.0 x 70.0 in) between the delivery and setup points. Please be sure to clear any obstacles that may get caught on dolly wheels such as carpets, hoses or cables.
- Provide our partners access to a **freight or service elevator** if the desired setup location is on a different level than the delivery point.
- Provide our partners access to any rooms or areas between the setup and delivery points.



Footprints

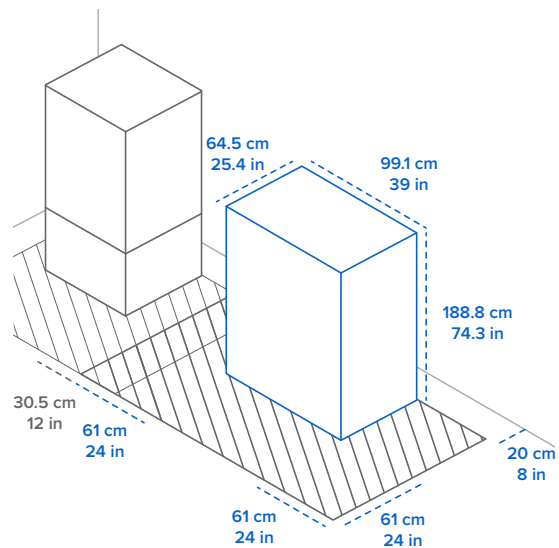
The Fuse 1 requires:

- **125.5 × 149.5 × 167.5 cm** (49.4 × 59.0 × 66.0 in) for a footprint of 64.5 × 68.5 × 107.0 cm (25.4 × 27.0 × 42.0 in), 165.5 cm (65.0 in) with the stand. Leave at least 20.0 cm (8.0 in) to the left of the printer and 61.0 cm (24.0 in) to the front and right of the printer free for access.
- At least **20.0 cm** (8 in) away from nearby walls.



The Fuse Sift requires:

- **160.1 × 122.0 × 218.0 cm** (63.0 × 48.0 × 85.8 in) for a footprint of 61.0 × 99.1 × 188.8 cm (24.0 × 39.0 × 61.8 in). Leave at least 61 cm (24 in) to the left, front, and right of the unit free for access.
- At least **20.0 cm** (8 in) away from nearby walls.
- Any overlap with the Fuse 1 access footprint to not exceed more than **30.5 cm** (12.0 in).



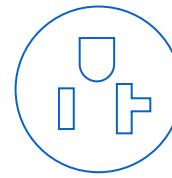
Power & Networking

The Fuse 1 and Fuse Sift each require their own dedicated 120 volt 15 amp circuit via a NEMA 5-20R socket, as well as access to the internet via Ethernet. Formlabs leverages remote access via point-to-point encryption to both Fuse 1 and Fuse Sift in order to collect diagnostic logs and provide remote assistance for troubleshooting.

Please check with you network administrators if there are procedures in place for registering new devices by their MAC addresses. Additionally both devices will need access to specific networking ports for uploading logs and providing remote assistance.

To power your Fuse 1 and Fuse Sift:

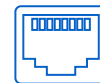
- **Two independent circuits**, each supplying **120 volts** and **15 amps** to a **NEMA 5-20R** socket. The Fuse 1 and Fuse Sift cannot share a single circuit with each-other, or any other appliance.
- If your vacuum will draw **more than 12 amps**, your Fuse Sift will need an independent circuit supplying **120 volts** and **20 amps** to a **NEMA 5-20R** socket.



NEMA 5-20R

To network your Fuse 1 and Fuse Sift:

- Two Ethernet (RJ45) jacks that provide access to ports **UDP 9993** and **HTTPS 443**, as well as **api.formlabs.com**.



T/10000 RJ45

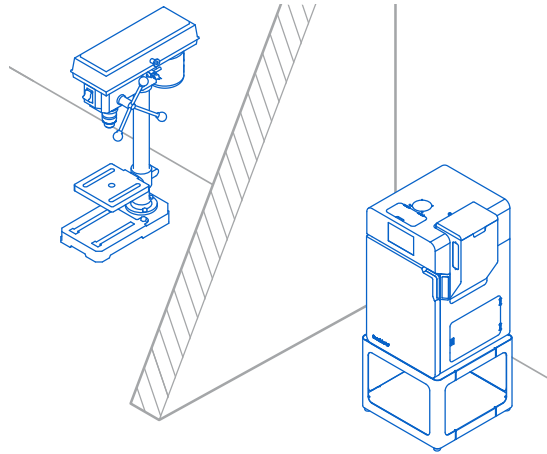
Environ

While the Fuse 1 is an industrial-grade tool, it must be kept separate from machinery that generates sparks, dust or shavings. SLS powder poses a combustion hazard if it accumulates on surfaces and is in the presence of sparks.

SLS printing also produces low amounts of CO². The Fuse 1 needs to be installed in an area that has air actively being moved into and out of the space, and maintains low ambient humidity.

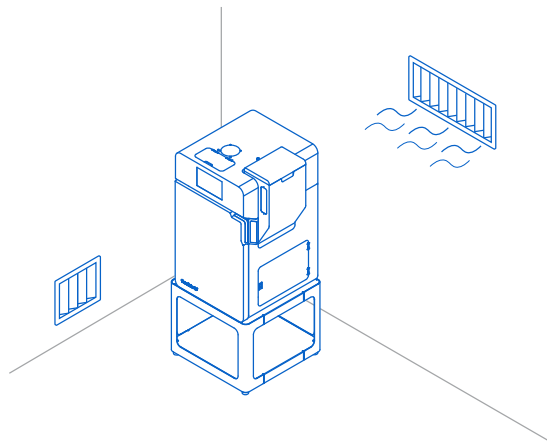
Your site will need to separate:

- Machinery or tooling that generates dust or sparks, such as wood or metal working equipment from the Fuse 1 and Fuse Sift.



Your site will need to maintain:

- An ambient temperature between **18 - 28°C** (68 - 81°F) with an HVA/C system that actively moves air into and out of the space 24/7. Keep liquids separate from powder at all times.

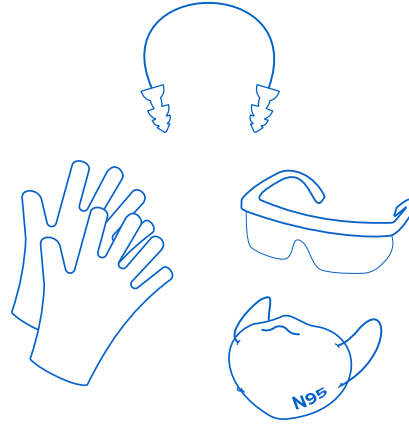


PPE

Operators of the Fuse 1 and Fuse Sift must have access to standard personal protection equipment (PPE). Hearing protection is advised if an operator is running the sifter for extended periods of time. Powder handling and safety are covered in both training sessions, as well as the provided manuals for the Fuse 1 and Fuse Sift.

Your site must provide operators with:

- Disposable nitrile gloves.
- N95 or better particulate filtering respirators.
- Shatter-proof safety goggles with peripheral protection.
- Hearing protection, either over or in-ear.



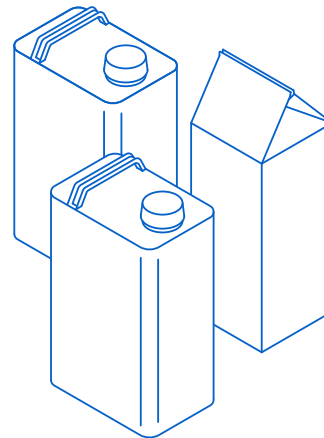
Cleaning Supplies

The Fuse 1 has several optical components that require regular cleaning to maintain print quality. Formlabs recommends a three-step process consisting of Alconox detergent, distilled water and lab-grade ethyl alcohol to clean these components.

Prior to receiving your Fuse 1, you will need to source these three cleaning agents from a supplier of your choice. If you are unable to source ethyl alcohol, isopropyl is an acceptable substitute.

To clean your Fuse 1 optics, you will need:

- x1 carton of **Alconox 1104-1** powdered precision cleaner.
- x1 gallon of **distilled water**, laboratory grade.
- x1 gallon of **ethyl alcohol**, laboratory grade.



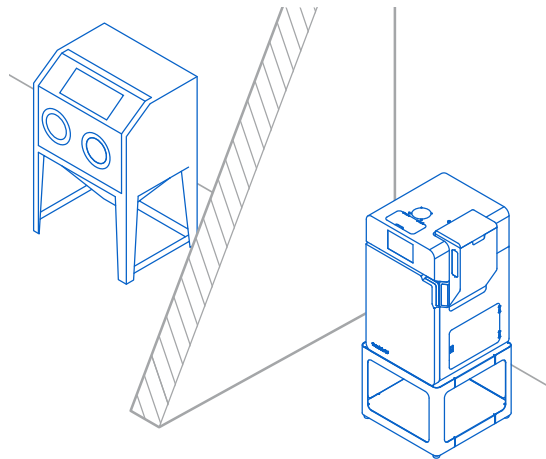
Post-Processing

While not required, Formlabs recommends using a media blasting cabinet to remove any residual powder left on the surfaces of parts. This can help eliminate the sand-like texture that is typical of SLS parts, leaving you with more refined surfaces.

It is critical that any blasting media (silica, alumina, etc.) is kept separate from all Fuse equipment and consumables. If any blasting media is found inside the print chamber, your entire Nylon powder supply may be compromised. This will be explained during the training sessions in more detail.

If you will be using a blasting cabinet:

- **All media blasting equipment** must be in a **separate workspace** from the Fuse 1 and Fuse Sift.
- Do not store printing powder near or with blasting media. Maintain separate dedicated tools and PPE for media blasting.



Packing List

The following is a list of all hardware, tools and materials that will be dispatched with your order. After receiving your shipment, please review the list below to confirm everything is included.

Crate 1: Fuse 1

- x1 Fuse 1 SLS 3D printer
- x2 Optical cassettes
- Optical cleaning kit
 - x3 Push-top dispensers
 - x3 Packs of PEC*PADS
 - x1 Pack of Polyester swabs
 - x1 Optical cassette cleaning fixture

Crate 2: Fuse Sift

- x1 Fuse Sift SLS break-out station
 - x1 HEPA filter, preinstalled
- x1 Sifter grate

Box 1: Fuse 1 Tools and Accessories

- x1 Power cord
- x1 Build chamber
- x2 Insulated silicone gloves
- x1 Box of large nitrile gloves
- x1 Powder cartridge
- x1 Stand for Fuse 1

Box 2: Fuse Sift Tools and Accessories

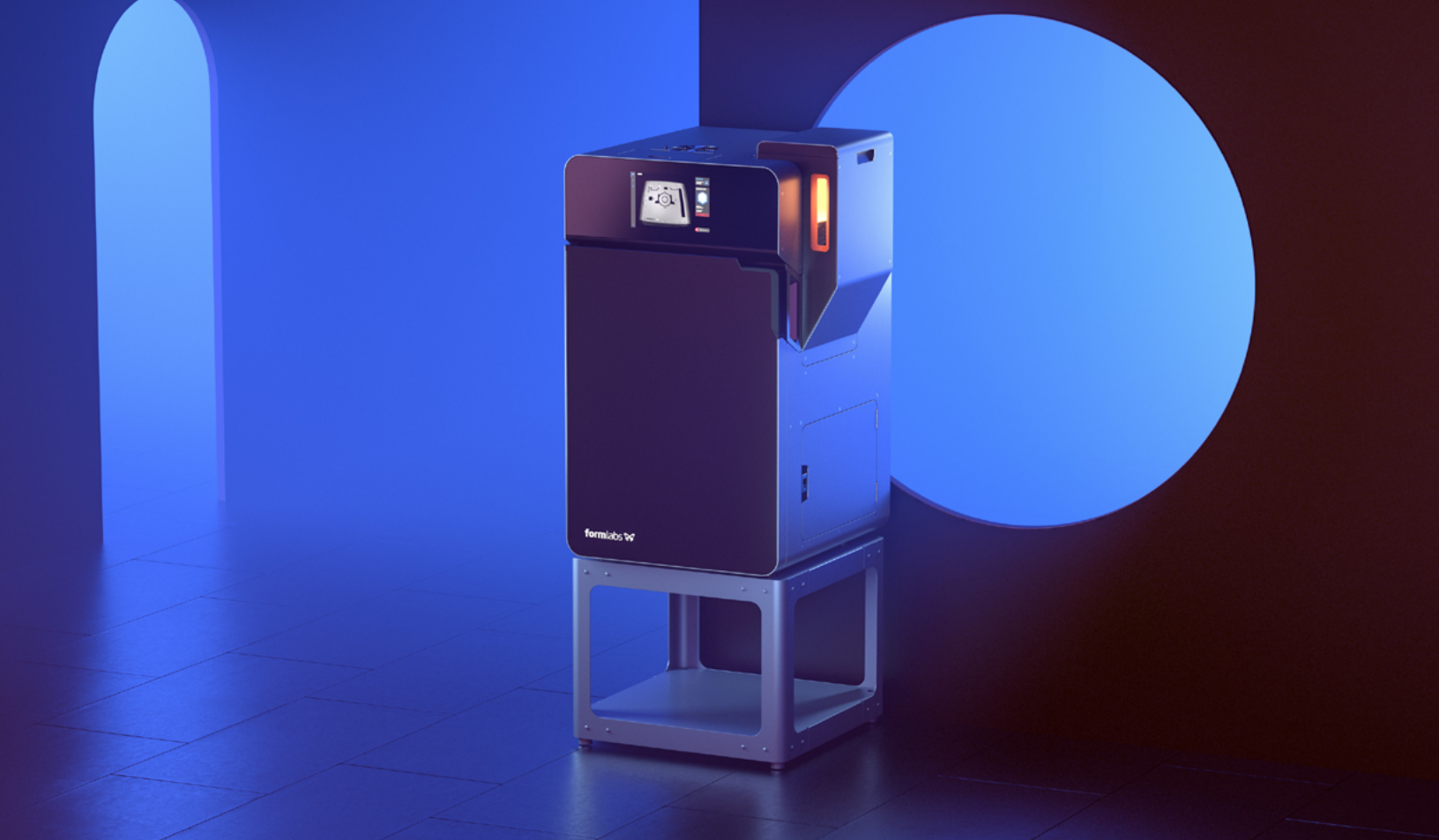
- x1 Power cord
- x1 Vacuum power cord
- x1 USB cable
- x1 Tool shelf
- x1 Sifter mesh, 150µm
- x1 Powder catch
- PPE kit
- Part break-out tools
 - x2 Picks
 - x2 Double-ended brushes
 - x1 Large brush
 - x1 Wire brush set

Box 3: Printing Materials

- Formlabs Nylon 12 Powder

Box 4: Fuse Sift Vacuum (Optional)

- x1 Class II Division 2 vacuum w/ hose
- x3 Replacement bags



Next Steps

After confirming your site meets all of the requirements listed above, please let your Formlabs representative know. Be sure to retain this guide for future reference.

If there are any requirements that your site does not yet currently meet or you are unsure of, please contact your Formlabs representative. We will work with you and our partners to ensure that you are ready to receive your Fuse 1 and Fuse Sift before they ship.

We understand that current circumstances may have introduced recent changes to your organization that could complicate reception, delivery and setup of your Fuse 1 and Fuse Sift. If you would prefer to delay or reschedule delivery of your order, please let your Formlabs representative know as soon as possible. You will ***not*** lose your preorder or place in the reservation queue, nor will Formlabs require additional payment for holding your order.

Any additional updates about your order, the Fuse 1 and Fuse Sift will be emailed to you by Formlabs directly or your representative.

Formlabs Support
support@formlabs.com
617-648-5994
formlabs.com

North America Sales Inquiries
sales@formlabs.com
617-702-8476
formlabs.com

