Glossary

Common 3D Printing Terms

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Additive Manufacturing: Another word for 3D printing; A manufacturing method where material is deposited layer by layer to create a three-dimensional design.

Bed Leveling: The act of calibrating the distance between the printer nozzle and the print bed; Some printers automatically do this, while others require the user to manually calibrate it.

Bridging: 3D printing horizontally between two points of contact without any support material beneath it.

Brim: A print feature that extends the base layer of a model, increasing the first layer surface contact between the part and the build plate; Improves bed adhesion for parts with a small first layer cross-sectional area; Not as effective as a raft, but uses less filament and is easier to remove (see: Raft).

Build Plate: The surface or platform on which the 3D printer deposits material; There are a variety of build plate types available, including smooth, textured, magnetic, and glass.

Build Volume: The maximum volume of a part that a specific 3D printer can make; Typically displayed in x-axis by y-axis by z-axis dimensions.

CAD: Stands for Computer Aided Design and refers to the computer modeling process that can be used to design parts prior to 3D printing; Some examples of common CAD software include SolidWorks, AutoCAD, Fusion 360, Tinkercad, and Blender.

FDM / FFF: Stands for Fused Deposition Modeling or Fused Filament Fabrication; Refers to the most commonly used 3D printing technology where solid filament is melted and deposited layer-by-layer onto a build plate.

Filament: The main material that FFF/FDM printers use; Most commonly a thermoplastic filament like PLA, ABS, or PETG, that come in 250 to 1000 gram spools.

G-Code: The standard programming language for 3D printers that lists out commands for the printer to follow; After a model is 'sliced' via slicing software (see: Slicing Software), the output is a G-code that can then be given to the 3D printer.

Infill: The material inside the outer shell of a 3D print; Infill pattern and density can be adjusted to balance the mechanical strength of the 3D print, the amount of filament consumed, and the total build time; A completely solid 3D print has 100% infill, while a completely hollow 3D print has 0% infill.

Layer Height: A setting in the slicer software that refers to the thickness of each layer of filament in your print; Smaller layer heights are better for more detailed parts, but increase the time it takes to print the model, while larger layer heights result in less fine details but shorter print times.

Nozzle: Piece of hardware that screws into the printer's hot end and where the molten filament extrudes out of; Can be swapped out for varying diameters and nozzle materials based on intended usage; Most stock nozzles are made of brass and have a diameter of 0.4 mm.

Overhang Features: Parts of a 3D model that protrude at angles greater than 45°; May need additional supports added beneath them by the slicing software, depending on printer capabilities (see: Supports).

Post-Processing: Any modification to the 3D prints after they've been printed; This can include sanding, polishing, painting, and glueing together of parts that were printed separately.

Print Bed: Alternative term for the 3D printer's build plate (see: Build Plate).

Raft: A print feature that places one to three 'sacrificial' print layers beneath the base surface of a model to improve bed adhesion and prevent warping; More effective than a brim, but uses more filament and is harder to remove (see: Brim).

Resin: The raw material used by SLA printers (also known as resin printers); In its raw form, photopolymer resin is a highly viscous liquid that solidifies when exposed to UV light.

Skirt: A detached perimeter that surrounds the model; Provides no additional bed adhesion benefit but serves to 'prime' the nozzle before the actual printing process begins.

SLA: Stands for Stereolithography and refers to the printing process that uses photopolymer resin that hardens upon exposure to UV light.

Slicing Software: Also referred to as a Slicer, a slicing program is what separates a 3D model into slices and generates the appropriate G-code for the printer to follow (see: G-Code); Features such as support materials, skirts, brims, and rafts can all be added via slicer software; Common slicing software examples include PrusaSlicer, Cura, and Orcaslicer.

Supports: Also called support structures, these structures can be added beneath bridges or overhang features to reinforce and support them (see: Bridging and Overhang Features); The two main types of supports are grid and organic/tree supports.

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