Does a higher bed temperature help adhesion?

Asked 3D Content Team
Published October 15, 2026 · Last verified October 15, 2026

Abstract. Yes, up to a point: Prusa adds 5 to 10 °C when a material won't stick, but makers stop near the glass transition, 61 °C for PLA and 81 °C for PETG.

Keywords: bed-adhesion, pla, petg, build-plates

Table 1. The number

Filament	Bambu Lab bed range (PEI plates)	Polymaker bed range	Prusa setting	Glass transition (Polymaker, DSC at 10 °C/min)
PLA (polylactic acid)	45 to 65 °C; 35 to 45 °C on the Cool Plate	25 to 60 °C	60 °C	61 °C
PETG (glycol-modified PET)	60 to 80 °C	70 to 80 °C	85 °C first layer, 90 °C after	81 °C
ABS (acrylonitrile butadiene styrene)	90 to 100 °C	90 to 100 °C	100 °C; 80 to 110 °C by part size	101 °C

1 Does a higher bed temperature help adhesion?

Yes, up to a point. Prusa's fix for a material that won't stick is 5 to 10 °C more bed heat, and Bambu Lab says a hotter bed gives stronger adhesion. Makers' ranges stop near the glass transition: 61 °C for PLA, 81 °C for PETG on Polymaker's sheets. Past that, Bambu Lab warns of elephant foot and clogs.

1.1 The number

The bed ranges come from Bambu Lab's wiki filament guide, Polymaker's PolyLite PLA, PETG and ABS data sheets and the Prusa Knowledge Base pages for each material. The glass transitions come from the same Polymaker sheets, measured by differential scanning calorimetry (DSC). PEI is polyetherimide.

Polymaker's range tops out 1 °C below the glass transition for all three plastics. Bambu Lab's PLA ceiling sits 4 °C above Polymaker's figure. Prusa goes past the glass transition for PETG and large ABS parts: PETG on its textured or satin sheets, ABS on PEI with glue stick.

1.2 What happens if the bed temperature is too low?

The first layer doesn't grip, and on warp-prone plastics the corners lift. Bambu Lab's first-listed cause is a slicer mistake: slicing for the wrong plate makes the bed temperature "too low" and leaves "insufficient adhesion". Its Textured PEI profile also lowers the nozzle 0.04 mm after leveling, so a job sliced for another plate prints too high as well.

For ABS, ASA (acrylonitrile styrene acrylate), PC (polycarbonate) and nylon, Bambu Lab says they "require higher heatbed and chamber temperatures to suppress warping." Prusa scales ABS from 80 to 110 °C with part size: a larger object gets a hotter bed. Corner lift has its own fixes on the warping page.

1.3 PLA won't stick: is the bed temperature the problem?

Rarely, if it's already inside the 45 to 65 °C Bambu Lab sets for PEI. Bambu Lab says washing the plate with hot water and detergent "solves most issues related to adhesion" when the slicer settings and plate type are right. Prusa's first fixes are a clean sheet and the right nozzle height. Bed heat comes later.

- **Grease.** Skin oils on the plate don't show until the first layer prints over them. On textured PEI, Bambu Lab says alcohol "might just spread the oils" and recommends dish soap and a sponge. On smooth PEI, Prusa uses 90 percent isopropyl alcohol (IPA), and dish soap with warm water when adhesion keeps fading. Schedules are on the PEI washing page.
- **Z height.** Bambu Lab's next step is a fresh bed leveling calibration with a clean nozzle tip. Prusa's is Live Adjust Z and First Layer Calibration. On a textured sheet, Prusa moves Live Z lower so the PLA fills the texture. It also warns against squishing the first layer to make up for poor adhesion, since a nozzle set too low can damage the sheet.

Once both check out, add 5 °C. Prusa's PLA page also says a smooth sheet beats a textured one for parts with a small contact area. The full PLA settings are on the PLA bed temperature page.

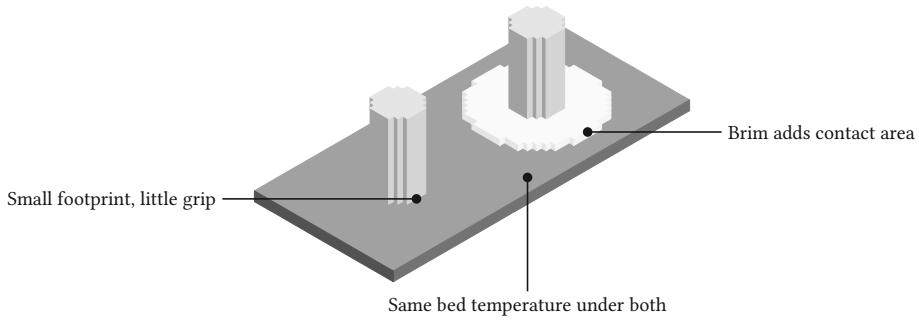


Figure 1. The bond between part and plate grows with the contact area, so a brim adds grip without adding bed heat.

1.4 What is the best bed temperature for PETG adhesion?

60 to 80 °C on Bambu Lab's chart, 70 to 80 °C on Polymaker's sheet, and 85 °C first layer, 90 °C after on Prusa's profile. PETG rarely needs more heat to stick. Prusa warns its adhesion to smooth PEI "may be too strong", to the point of damaging the sheet, and asks for glue stick as a separating agent. It adds that IPA plus PETG makes a print "adhere very strongly." Plate-by-plate numbers are on the PETG bed temperature page.

1.5 Why

Bambu Lab says bed temperature "heavily influences the interaction between the filament" and the plate, and that a higher bed increases adhesion. The ceiling is the glass transition, where a plastic turns from hard and glassy to soft and rubbery, as the Polymer Science Learning Center explains. A bed held just under it keeps the bottom layer warm but firm.

Above the glass transition, the bottom layers turn soft. Prusa explains that the first layer is squished against the heated bed and ends up wider than designed: elephant foot. Bambu Lab warns that "excessively high" bed temperatures cause clogging and elephant foot with PLA and PETG. On an enclosed printer the clog comes from chamber heat softening the filament inside the extruder. That's why Bambu Lab advises opening the door once a PLA bed passes 45 °C. The symptoms of a bed that's too hot are on the bed temperature too high page.

Contact area is the other lever. Bambu Lab says the bond between part and plate is "roughly proportional to their contact area", so a brim on a small part adds grip without adding heat.

1.6 How to check it on your own print

This is the order to tune bed temperature for first layer adhesion, cheapest fix first.

- **Match the plate in the slicer.** Pick the plate that's on the printer, so you get its bed temperature and, on Bambu Lab's Textured PEI, its 0.04 mm nozzle offset.
- **Wash the plate.** Use dish soap and warm water, and handle it by the edges. Bambu Lab's test: rinse it, and water that beads into droplets means poor adhesion. A thin, even film means it's clean.
- **Re-level and set Z.** Run the bed leveling or first layer calibration, then judge the first layer before touching the temperature.
- **Start at the maker's figure.** Use the number on your spool's data sheet, or the middle of the range in the table.
- **Raise the bed 5 °C at a time.** Prusa allows 5 to 10 °C for a material that adheres poorly. Stop at the top of your maker's range, which for PLA and PETG sits near the glass transition.
- **Thicken the first layer.** Bambu Lab's adhesion starting point is a 0.5 mm line width and a 0.25 mm first layer height. Prusa suggests about 75 percent print speed for the first three layers.
- **Add a brim to small parts.** It adds contact area without more heat.
- **Back off when the edge flares.** A flared first layer or a clog means you've gone past the useful range. Drop 5 °C, or set elephant foot compensation in PrusaSlicer: Prusa says values around 0.2 mm usually work for a 0.4 mm nozzle.

References

[1] Bambu Lab Textured PEI Plate Troubleshooting Guide, Bambu Lab Wiki. https://wiki.bambulab.com/en/general/textured-PEI-plate-not-working-as-expected. Accessed October 15, 2026.
[2] PEI Plate Cleaning Guide, Bambu Lab Wiki. https://wiki.bambulab.com/en/filament-acc/acc/pei-plate-clean-guide. Accessed October 15, 2026.
[3] First layer not sticking to the plate, Bambu Lab Wiki. https://wiki.bambulab.com/en/knowledge-sharing/first-layer-not-sticking. Accessed October 15, 2026.
[4] Filament guide: Printer, Nozzle, AMS, Build Plate, Glue Compatibility and Required Parameters, Bambu Lab Wiki. https://wiki.bambulab.com/en/general/filament-guide-material-table. Accessed October 15, 2026.
[5] First layer issues, Prusa Knowledge Base. https://help.prusa3d.com/article/first-layer-issues_1804. Accessed October 15, 2026.
[6] PLA, Prusa Knowledge Base. https://help.prusa3d.com/article/pla_2062. Accessed October 15, 2026.
[7] PETG, Prusa Knowledge Base. https://help.prusa3d.com/article/petg_2059. Accessed October 15, 2026.

[8] ABS, Prusa Knowledge Base. https://help.prusa3d.com/article/abs_2058. Accessed October 15, 2026.
[9] Elephant foot compensation, Prusa Knowledge Base. https://help.prusa3d.com/article/elephant-foot-compensation_114487. Accessed October 15, 2026.
[10] PolyLite PLA Technical Data Sheet, Polymaker Wiki. https://wiki.polymaker.com/polymaker-products/more-about-our-products/documents/technical-data-sheets/pla/polylite-tm-pla. Accessed October 15, 2026.
[11] PolyLite PETG Technical Data Sheet, Polymaker Wiki. https://wiki.polymaker.com/polymaker-products/more-about-our-products/documents/technical-data-sheets/petg-pet/polylite-tm-petg. Accessed October 15, 2026.
[12] PolyLite ABS Technical Data Sheet, Polymaker Wiki. https://wiki.polymaker.com/polymaker-products/more-about-our-products/documents/technical-data-sheets/abs-asa/polylite-tm-abs. Accessed October 15, 2026.
[13] Glass Transition, Polymer Science Learning Center. https://pslc.ws/macrog/tg.htm. Accessed October 15, 2026.

Cite as: Asked 3D. "Does a higher bed temperature help adhesion?." October 15, 2026. https://asked3d.com/answers/bed-temperature-adhesion. Last verified October 15, 2026.