EviSmart™

DENTAL CAD DESIGN GUIDE

Why Margin Line Quality Affects Crown Fit

How sharply defined margin lines in CAD lead to a full crown seat, fewer chairside adjustments, and fewer remakes.



If your crown doesn't sit right the first time, this guide is for you.

INSIDE THIS GUIDE

01 Why margin line quality matters
02 Get pixel-level precision
03 Rotate the model to check for undercuts
04 Quick checklist before you finalize

INTRODUCTION

Why does margin line quality affect crown fit?

In CAD, margin line quality is everything. The margin line tells the design **where the crown ends**, so a blurry or stepped margin carries straight into the restoration you seat.



A poorly defined margin can lead to:

01	02	03	04
Open contacts	Crown rocking	Extensive chairside adjustments	Remake risk

KEY TAKEAWAY

Crystal-clear margin lines are non-negotiable. Blurry or stepped margins lead to open contacts, crown rocking, and more grinding at delivery.

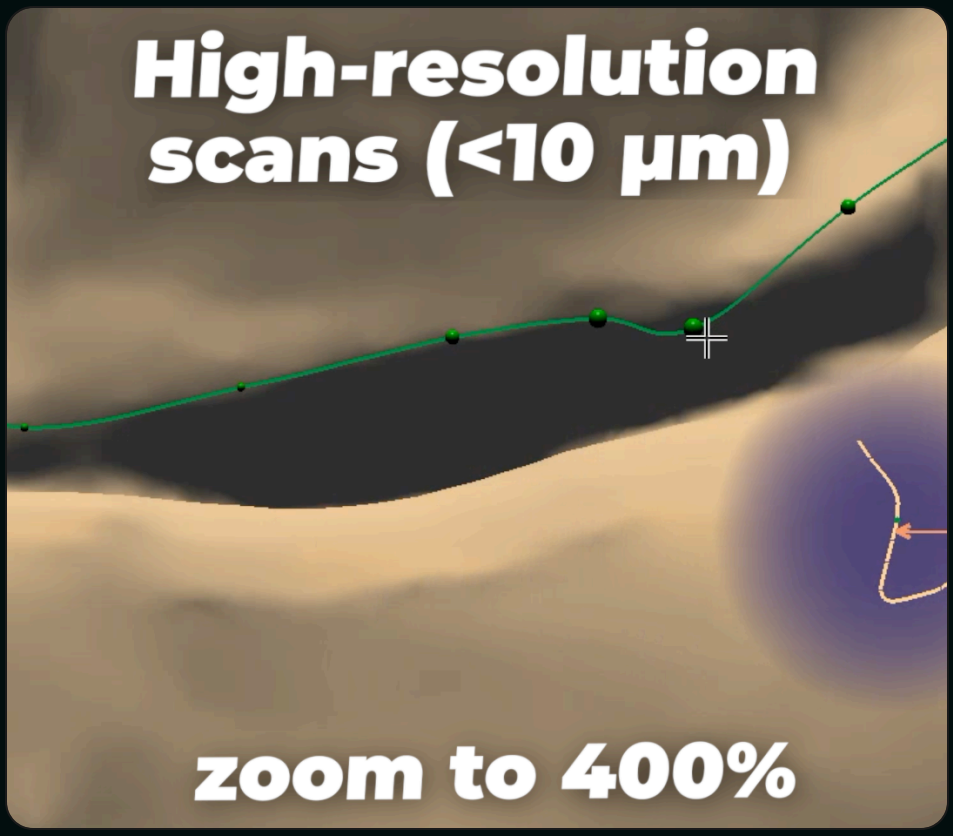
Here's how you can avoid it →

TIP #1

Get Pixel-Level Precision

Trace the margin at the detail the fit depends on.

The accuracy of a margin line depends on two things: the **resolution of the scan** you trace it on, and **how closely you zoom in** while tracing.



Tracing on a sub-10 µm scan at 400% zoom

What you should do

01 Zoom to 400% in your CAD software when tracing margins.

02 Trace a sharp, continuous margin line, with no blurry or stepped segments.

PRO TIP

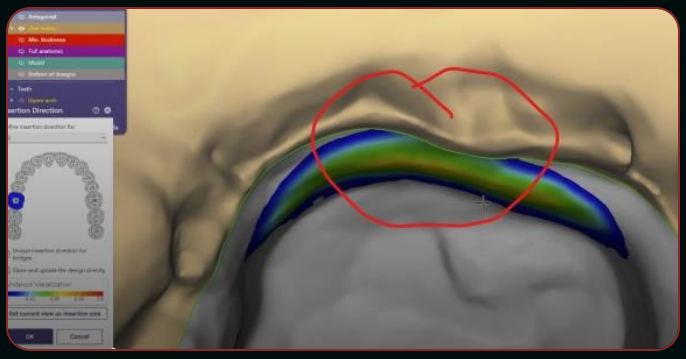
Every pixel counts. Each pixel off at the margin means a micron of fit error.

TIP #2

Rotate the Model to Check for Undercuts

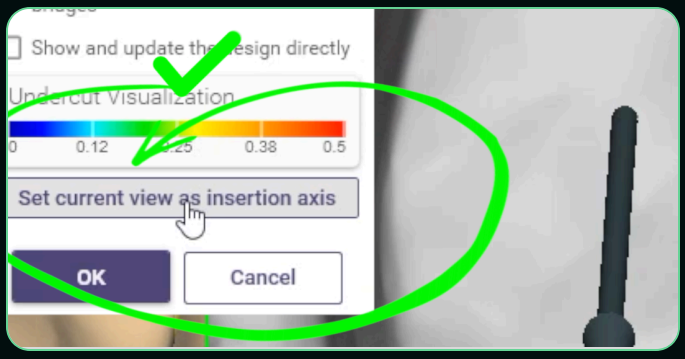
Make sure the entire margin is visible before you design.

An undercut can hide part of the finish line from the insertion direction. If the margin disappears in the set view, there's an undercut blocking full seating. The fix is to change the view until the whole margin line can be seen.



WARNING

Part of the margin line disappears in the set view. This signals an undercut that will prevent full seating.



FIX

Rotate to an angle where the full margin is visible, then click "Set current view as insertion axis."

What you should do

01 Rotate the model to inspect the entire finish line for undercuts.

02 If any part of the margin disappears in the set view, treat it as an undercut that will block full seating.

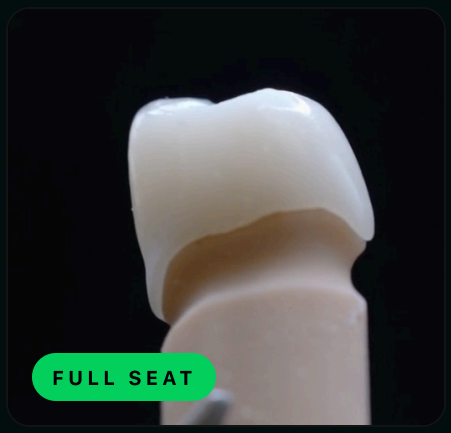
03 Adjust the set view to an angle where all the margin lines are clearly visible, then set that view as the insertion axis.

PRO TIP

If you can't see the whole margin from the insertion direction, the crown can't seat fully on it.

THE RESULT

How does a clean margin improve crown seating?



Mastering margin clarity is non-negotiable. A clean, sharp margin allows cement to flow evenly for complete crown seating.

- ✓ **Better crown fit**
- ✓ **Fewer chairside adjustments**
- ✓ **Higher patient satisfaction**

Quick checklist before you finalize the margin

- [ ] The scan data is high resolution (below 10 µm).
- [ ] The margin was traced at 400% zoom, with no blurry or stepped segments.
- [ ] The model was rotated and the entire finish line was checked for undercuts.
- [ ] The set view shows every part of the margin line clearly and is set as the insertion axis.

Crowns That Seat Right the First Time

Send your next case to the EviSmart CAD team. We'll handle the margins.

Send Your Case for Design →