

Full Zirconia Prep Guide



Margin design:

- 0.3 to 0.5 mm chamfer
- This allows for a more accurate mill of the pre-sintered zirconia.
- If a knife or feather-edge preparation is established instead of a chamfer, a restoration can be milled but there is a slightly higher risk of chipping the pre-sintered zirconia during the milling process. With this margin design during the CAD procedure, additional contouring to the crown would be done to increase the thickness of the zirconia to minimize the chipping during the CAM phase of production. After sintering, the crown contour at the margin can be reduced or thinned using rubber wheels before the characterization and glazing process.

Functional cusp reduction:

- It is recommended to reduce the functional cusp 1.0-1.5 mm.
- This allows for possible changes in crown morphology and possible alteration of the occlusion.

Axial wall reduction:

- It should taper 6-8 degrees from the margin to the occlusal 1/3, achieving a depth of 1.0 mm.
- All transitional edges, angles, and corners must be rounded.

Occlusal reduction:

- Central groove should be reduced 1.0 - 1.5 mm.
- This allows space for developing occlusal anatomy.

The resulting central groove crown thickness may be as thin as 0.5 mm once the anatomy is added, yet there is still adequate strength to the restoration. If the occlusal reduction space created is less than 1.0 mm, the morphology will typically become saucer shaped and the technician is forced to scratch the surface to provide some sort of anatomy rather than creating a more natural appearance.

The resulting thickness of the zirconia restoration will impact the masking ability of a discolored underlying prepared tooth. The thinner the zirconia the more translucent it will be, allowing the underlying tooth substrate to impact the esthetics of the final outcome. Increasing the thickness of the zirconia (increasing the depth of the tooth reduction) will mask the discoloration but will increase the relative opacity of the zirconia because it is a monolithic restoration. It may therefore appear higher in value or brighter, than adjacent natural teeth or other restorations.