

# CLINICIAN TECHNIQUE GUIDE



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## TOOTH PREPARATION GUIDELINES FOR ZIRCONIA CROWNS

### Tooth Preparation Guidelines

- Uniform, circumferential, tooth reduction of 1.0-1.5 mm
- Circumferential chamfer
- Occlusal reduction of 2 mm
- Rounded line angles
- Reduce linguals of anteriors with football diamond to create concave lingual

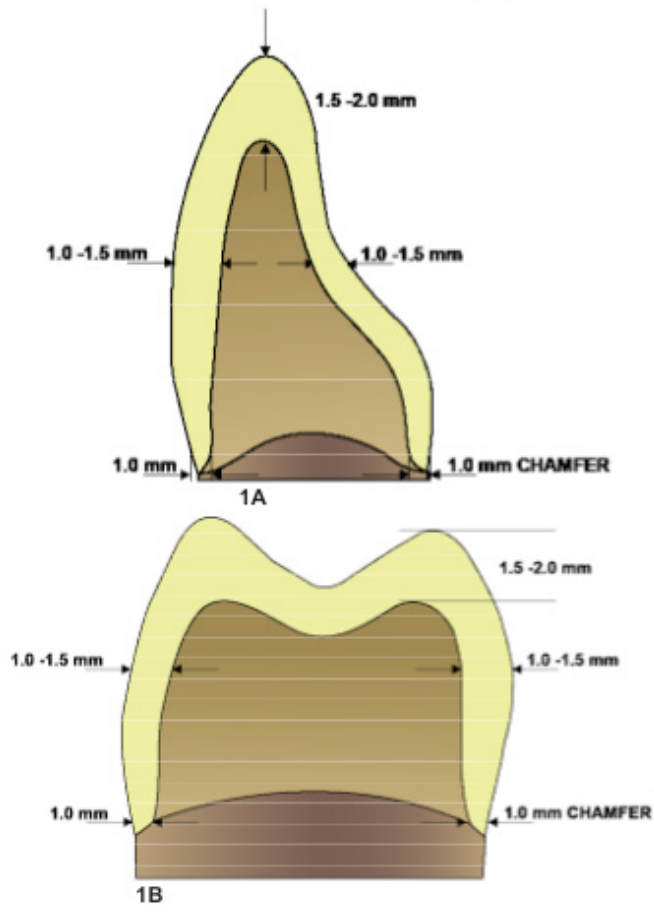
### Why Tooth Preparation Design is Important

- Uniform reduction results in optimum ceramic strength
- Adequate reduction leads to better esthetics
- Smooth edges result in lower stress
- Lower stress decreases potential for fracture
- Ceramic restorations require a passive fit
- Scanners read smooth preparations more accurately

**Note:** Tooth reduction for zirconia-based crowns is less than that for PFM or traditional all-ceramic crowns. The reasons are that zirconia is very strong (>1000 MPa) and no opaque layer is required.1A

**Figure 1.** Tooth reduction guidelines for anterior (1A) and posterior (1B) teeth.

teeth.



**Figure 2.** Examples of preparations for PFM and all-ceramic crowns with more tooth reduction.



**Figure 3.** Examples of preparations for zirconia-based crowns.

**Note:** (3C) How thin a zirconia crown can be.



3A



3B



3C



3D

### Favorite Burs and Steps

1. Open contacts with #2 round or 330 carbide (S.S.White).
2. Reduce tooth circumferentially with beveled cylinder 1812.8 C or 1812.8 F (NeoDiamond).
3. Further reduction, especially for molars, with pointed taper 1718.8 C or 1718.8 F (NeoDiamond).
4. Occlusal reduction and chamfer prep with C2, 855L-018 C 6.4 or C2, 855L-018 F 6.4 (Strauss Diamond).

**Figure 4.** Examples of pointed and round end taper burs and tooth preparation.



4A



4B