Universal Crown and Bridge Preparation
The All-Ceramic Crown Preparation Technique for Predictable Success
According to Dr. Ronald E. Goldstein

ANTERIOR CROWN PREPARATION

3-Unit Bridge Restorations

3-UNIT BRIDGE PREPARATION
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1. Esthetic Depth Cut

A key to the Universal method is the measured reduction of the horizontal and vertical aspects to a predictable depth. This is accomplished in two steps:

**Horizontal Depth Cut**

Using the AC3 (premeasured 1.5 mm round) or AC4 (premeasured 1.2 mm round) diamond, a trench is cut to the full depth of the diamond at the gingival level completely around both the labial and lingual surfaces for anterior teeth and the buccal/lingual for posterior teeth. To avoid tissue laceration, take care to not extend into the gingival sulcus. For lower anterior teeth and where significant gingival recession is present, the AC4 (premeasured 1.2 mm round) diamond should be used.

**Vertical Depth Cut.**

The depth cut is continued using the AC3 or AC4 for the gingivo-incisal or gingivo-occlusal aspects. Starting at the center of the labial or buccal surface, continue the depth cut from the cervical middle straight down to the incisal or occlusal edge. The depth of the cut is still controlled by the premeasured round diamond. Next, move to the incisal or occlusal surface. Since the incisal or occlusal clearance should be 1.5 to 1.7 mm, slightly more reduction should take place at these aspects. Make sure you plan exactly how much reduction your preparation will require. For instance, you will not need full labial reduction if you are building-out the tooth labially. However, you will probably want maximum lingual reduction in this situation.
2. Bulk Enamel Removal

The esthetic depth cuts should now provide visualization of the final tooth preparation form, so enamel can now be stripped away quickly while confidently retaining the correct depth thickness. Remove enamel and dentin, while maintaining a rounded internal angle avoiding sharp line angles. For all-ceramic crowns use the AC5 or the AC7 to complete the preparation by removing the enamel as outlined by the esthetic depth cuts. For mandibular anterior teeth use the smaller AC7 for bulb reduction. In extremely small or narrow teeth use the AC9 diamond.

3. Incisal / Occlusal Clearance

Using the same round-end tapered diamond, reduce the incisal surface approximately 1.5 mm to obtain proper clearance. When necessary it may be possible to compromise the incisal reduction to 1 mm and alter the teeth in the opposing arch.

4. Lingual Reduction

The AC10 is used to uniformly reduce the contours of the lingual surface. The AC10 is the ideal diamond to reduce the occlusal aspect of posterior teeth as well. Either a plastic or rubber thickness gauge can be used to make certain that sufficient space is created.

5. Margin Refinement

Preparation and refining of the shoulder margin are important steps of the universal procedure. It is easily accomplished with the beveled-end cutting diamond (AC11 and AC12) shapes. These diamonds have extremely fine diamond particles on the flat tip only. When finishing subgingival margins to a smooth surface, the beveled corners and smooth sides of the tip help avoid lacerations by pushing soft tissue aside.
It is very important to provide a clear, sharp outer margin so the ceramist will have no problem determining the exact margin. A shoulder margin of approximately 1 mm is ideal. Tissue laceration can also be avoided by displacing the gingival tissue for several minutes with cotton retraction cord just prior to finishing the margin.

6. Finish of Preparation

In the final step the preparation is finished to a smoother surface with the same size round-end tapered diamond used to make the preparation margin, but with medium diamond grit. Use either the AC6 or AC8 diamond. Make sure you eliminate all sharp line angle edges of the prepared teeth, as well as any sharp internal line angles. Figure 8 is an example of the final preparation.