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# Creating esthetic laterals with CAD/CAM

Achieving excellence with ceramic shade tabs and a quality digital workflow.

Our patient, a female in her mid-30s, sought treatment from her dentist in order to replace her laterals. She presented to the lab for an appointment with the author in order to have a custom shade taken.

The natural color between her centrals was off slightly, which proved to be a challenge when the author was recording her custom shade. He noted more calcification on central number 8 than 9, with brighter, deeper translucency.

Number 9 was tan overall in color, with less translucency and uneven symmetry between the two. The author utilized his ceramic custom shade tabs to be certain that the incisal 1/3 area would be closely matched between the centrals and the laterals when the final restorations were fabricated.

There were several options available to the laboratory for the final restorations but the author determined that he would ask the CAD/CAM

technicians to utilize and mill a zirconia block for more translucency and less opacity overall.

### CASE STUDY

**01** During the patient's visit to the lab for the above mentioned custom shade appointment, the author utilized his ceramic shade tabs to study and match her incisal 1/3 calcification versus incisal translucency. He de-

### CREATING EXCELLENT LATERALS—DIGITALLY



Fig. 1 Custom shade appointment



Fig. 2 DOF scanner



Fig. 3 Ceramill Motion 2 Milling Machine



Fig. 4 Milled copings



Fig. 5 Copings ready for build-up



Fig. 6 GC Initial Zirconia BLD -2 Porcelain



Fig. 7 Surface texture lines



Fig. 8 Creation of surface texture lines



Fig. 9 Wagner Diamond Polishing tools



Fig. 10 Finished restorations



Fig. 11 Upside-down view of restorations in the mouth



Fig. 12 Right side view



Fig. 13 Left side view



Fig. 14 Smile view



Fig. 15 Rest position

01 The author determined that he would use Enamel 59 Initial Porcelain color from GC America after examining the patient's teeth (Fig. 1).

02 The restoration would be created using the CAD/CAM method with an in-lab Freedom scanner and design center from DOF (Fig. 2).

03 After the design was completed, the CAD/CAM technicians were able to mill the copings using a Ceramill Motion 2 milling machine, also in-lab (Fig. 3). The copings would look similar to those in Figure 4 after sintering and pre-shading, with a variety of colors available.

05 Seen here after being placed on the model, the patient's copings were ready for porcelain build-up (Fig. 5), using the pictured GC Initial Zirconia porcelain in BLD-2 coloration (Fig. 6).

06 The author later drew lines to best create his surface textures onto the copings (Fig. 7) and used a diamond burr in order to produce more detail (Fig. 8). He next polished his work with Wagner Diamond Polishing tools, before beginning the glazing process (Fig. 9) and placed the finished restorations on the model (Fig. 10).

07 The restorations were later tried in the mouth and he photographed the patient from an upside-down view point (Fig. 11) and a right-side view (Fig. 12) and a left-side view (Fig. 13). The author photographed the crowns, pre-cementation, in the mouth, next for a try-in smile view and then in a rest position (Fig. 14).

08 These last five images (Figs 11-15) are meant to demonstrate the match in color between the gingival, middle area and incisal edge of the natural teeth versus the newly fabricated lateral restorations.

### CONCLUSION

In the author's opinion, natural teeth do not have the same consistency of color as the formula we see in traditional shade tabs, which is why he always uses his ceramic tabs. In fact, when natural teeth are segmented, some of the dentin color that is revealed—A, B, C or D—allows us to choose our base color and follow it as the formula we use for the dentin in our restorations. We can also utilize Enamel Effective color to overlay with different thicknesses outside and help create a staining effect on the final prosthesis. These three components create a perfectly matched restoration if they are used properly. **lab**

### ABOUT THE AUTHOR

Luke S. Kahng is an accomplished lab technicians specializing in high end ceramic restorations. Luke has served on several major dental journal boards as a contributing member. Luke invented the Chairside Shade Guide—Volumes 1 and 2 and then expanded the offering to a unique ceramic shade guide system named the Seasons of Life Selection. Luke is owner and president of his own lab, LSK121 Oral Prosthetics, one of the largest dental laboratories in the country, located in Naperville, Ill. He has published more than 100 articles in major national dental publications, along with several books.