

*Covid-19 is stressing everyone out! Stress takes a toll on teeth! People sometimes find themselves clenching their teeth during the day, and they may or may not realize that they are bruxing at night. Many wake with aching jaw muscles, tender teeth, and TMJ issues. In my observation, everyone bruxes if even only a little. Often a simple C+ Retainer/Occlusal Night Guard will relieve symptoms if worn while sleeping. This also prevents tooth movements, attrition, and I believe that it prevents and reduces abfraction lesions. I have been using these for 20+ years and have come up with these instructions to simplify the process. You must execute each step perfectly and only practice will make this a routine process with consistently good results. C+ thermoplastic material by Dentsply seems to be the proper density and composition to have the proper give and not become brittle and crack over time. With heavy bruxers it seems to last longer than other plastic formulations. Please consider making both upper and lower to be worn at the same time for several reasons: 1) Plastic skidding on plastic is the best combination to prevent premature wear of the material; 2) the additional 2nd sheet of thickness provides a better therapeutic splint value; 3) with both in place the teeth are now retained/stabilized and will not tend to be moved by forces caused by the ramps and planes from the wearing of a single arch appliance. **Single-arch biteplanes cause unretained teeth to move - and never for the better!***



MICHAEL J. WALL DMD MS
specialist in orthodontics
www.drwall.net

©2021

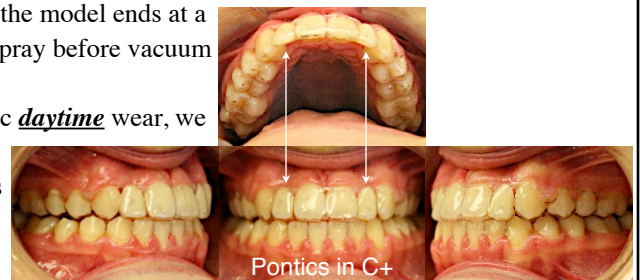
Materials we use to fabricate a set of retainers in ~30 minutes while the patient waits:

- 1) Alginate: We use Heavy Body Fast Set, however, any alginate, and other impression materials will work. Practice to become consistent.
- 2) Whip Mix Snap Stone: Sets fast and if careful you can remove from the impression material in ~5-8 minutes.
- 3) Vacuum Former Machine.
- 4) We use .040" C+ Plastic is from Dentsplysirona: <https://www.dentsplysirona.com/en-us/shop/essix-c-plastic.html>
C+ VAC 040 SQ PK 100 Manufactured for Denstply GAC International, Inc. (631)419-1700
NOTE: I have sampled many plastics by many vendors and this particular plastic works best. **Too soft and it **initiates** bruxing because of the chewiness (frustrating to the patient); **too hard** and it quickly wears down and often **cracks** (frustrating to the dentist). Properly fitting upper and lower worn simultaneously holds up to occlusal forces over time. However, the practice of dentistry is exactly that! The making of good appliances is a skill perfected by repetition. Practice, practice, practice. You will do it if you find value in the appliances!
- 5) To cut the C+ plastic I have purchased many "dental" thermal knives over the years and found them all to be weak and a total waste of time and money! Do not cheap out - you will be sorry! I recommend that the thermal knife is be least 100 watts. We use this **Sabre Detail Master IV (100 watts)** "wood-burner" - that I purchased locally at **Woodcraft** - in Kalihi. It makes cutting plastic easy! Safer too! Don't forget to purchase the knife and blade ~\$30. They can also be ordered online at Woodcraft.com or Amazon.com for ~\$185. And to make it safer, I added this footswitch to turn it on only when I step on it. I control the heat with pressing and releasing the foot pedal also sold at Woodcraft.
- 6) Crown and Bridge Scissors to "**nibble cuts**" because bigger cuts will distort the plastic!
- 7) #400 Wet/Dry Sandpaper to smooth the cut edges. If you want your patients to wear these you must make them comfortable and smooth!



***Tips on making appliances for patients with missing teeth:

- (A) **Leave model extra thick. Be extra careful!** Model will fracture at its weakest and thinnest point where there are no teeth! Make modifications before trimming the model.
- (B) **Block out undercuts** in the edentulous areas and anywhere else that is undercut too much. We do not want the retainer to be impossible to place - or too difficult to remove. We use light cured composites.
- (C) **Place a pontic or consider a strut in the space** to cause corrugation to stiffen the appliance. For anterior spaces we usually place a denture tooth for exhetics. For posterior teeth we use a short piece of plastic cut from an applicator handle. Use sticky wax to secure it.
- (D) If possible, be sure that the C+ material wraps around the most distal tooth to increase retention. However, practically speaking, in most cases, we will cut it back to just over the mesial marginal ridge of the last tooth, but it depends on the occlusion.
- (E) To make the model easier to remove after suckdown consider: trimming the model ends at a taper to prevent undercuts, and/or lubricating the model with silicone spray before vacuum forming.
- (F) If a patient is intending to wear a pontic in an upper appliance for esthetic **daytime** wear, we will often make them a separate retainer made of Clear ACE plastic. Caveat: clear plastics are brittle and more challenging to work with. This is a patient with 2 upper lateral pontics embedded in a clear retainer.



Step by Step Making of C+ Appliances / Night Guards



MICHAEL J. WALL DMD MS
Specialist in Orthodontics
www.drwall.net

©2021

1. Start with undistorted alginate impressions!
2. Plan ahead if any adjustments will be necessary: undercuts, pontics, etc. - better to know now!
3. Make sure impressions are ready before mixing stone. Consider filling the tongue area with alginate before pouring. Mist with a surfactant debubbler, or mouthwash. Not too much! Blow out excess.
4. Properly mixed Snap Stone (or other stone) keeps expansion to a minimum. If using snap stone, work fast! Do not distort impression when putting it down to set - careful at the molar areas. Accelerate or decelerate the set by changing the temperature of the water.
5. Let it set according to manufacturers recommendations (~5-8 minutes for Snap Stone) or until it cools back down to room temperature before breaking out of impression. You will learn from failures here!
6. Carefully remove the stone model from the impression and trim stone to ~3mm taller than the teeth in a horseshoe shape. Clean up imperfections in the model.
7. Dry the model before vacuum forming the appliance. We use a microwave for ~10-15 seconds to heat the stone model, then use an air syringe to blow dry and cool back to room temperature. Heat expands the model and makes a looser fitting appliance. (Bad, unless you may want that!)
8. The doctor should now make adjustments to stone now if needed. Block out severe undercuts, or increase embrasure undercuts if more retention needed. If there are large interproximal spaces, consider blocking out with light cured composite. **Expert Level:** You can even move teeth if you like by modifying the stone model. Strategically add composite to model and/or carve the model for planned movements of teeth. If you do this it becomes an "aligner!"
9. Vacuum tips: Insert C+ material into Vacuum Former, **turn on heater faced away from C+ material until the heater is red hot. Then turn heater around to heat/soften C+ material.** We use .040 inch thick C+ material. Let C+ droop about 1/2 inch - then drop material over stone and turn on suction. Suction for about 20 seconds or until material is opaque and seated fully. Then turn off suction and remove everything carefully so you do not distort the warm C+ retainer.
10. **Important:** Place C+ with model into cold water bath for about 30 seconds. We have a refrigerated container of cold water just for this purpose.
11. Remove the bulk of excess C+ material to edge of stone with heat knife. We use this wood-burning knife - Sabre Detail Master IV (100 watts). You need the wattage to make this work! We usually cut over the occlusal of the terminal molar to make removing from the model easier.
12. **Careful-slippery!** Thin the stone with the C+ plastic on the model trimmer. If you do not have a heat knife you can cut the C+ and stone down to size on a model trimmer, but be careful to prevent injury.
13. **Extreme caution** is necessary to gently flex the stone away from the occlusion to break the stone model into small 1-2 tooth sections that can be more easily removed under running water. If the plastic kinks even slightly, the appliance will not fit properly. Signs of plastic deformation, distortion, and a poor fit is rocking or not seating completely. In our office if it is distorted we start back at #1 above with another impression!
14. Using curved crown and bridge scissors, detail trim a straight path along the necks of teeth (CEJ) and slightly overlapping the last tooth. DO NOT SCALLOP! Use small nibble cuts with the tips of the scissors to cut in 1mm increments. This will help to avoid distorting the plastic. *****Important: Nibble Cuts only!***** Attempt to trim the lengths evenly - SYMMETRY for the sake of a comfortable occlusion.
15. Finish by smoothing down all cut edges only with 400 wet/dry sandpaper under running water. Be careful not to sand or scratch any of the tooth surfaces. It will be rough and uncomfortable to patients! Remember - we want our patients to be comfortable and to LOVE the retainers! They will LOVE us too! Because if they have teeth as they go through their lives then we have done our job!
16. Please feel free to call on me if you have any questions. I consider myself part of your TEAM!

