**Study Model Trimming**

**Rational:** Accurate trimming of orthodontic study models facilitates proper diagnosis and treatment planning. Well-trimmed, esthetically pleasing models reflect the practitioner's attention to detail and are a part of the patient's legal treatment record.

**Technique**

1. **Pour impressions**
   - Blow excess water from impressions, but do not desiccate
   - Mix **white** stone and plaster in a 50:50 ratio
   - Vacuum mix stone mix for 10-20 seconds to remove air
   - Carefully vibrate stone into impressions and bases
   - Place filled impressions onto filled bases, centering midlines
   - Allow stone to set completely before separation (30-60 minutes)

2. **Pre-trim check**
   - Check occlusal surfaces for obvious bubbles, remove as needed
   - Trim gross excess and plaster extensions (distal of mandibular molars) which interfere with proper occlusion in wax bite
   - Soak models in water to facilitate trimming
   - **Set table at 90° to wheel** (check with jig)

3. **Trim Maxillary Cast**
   - Grind the base of maxillary cast parallel with occlusal plane
   - Grind the heel of maxillary cast perpendicular with mid-palatal raphé
• Using the 30° jig, cut the sides of the maxillary cast 60° to the base—do not overcut!! The center of the cut should be to depth of the vestibule.

• Using the large 60° jig, cut the anterior of the maxillary cast at 30° to the base. These cuts should start at the canine and end at the midline and should be equal in length.

• Using the small 60° jig, cut the posterior angles of the maxillary cast at 120° to the base. These cuts should start be equal in length.
4. Trimming the mandibular cast
   - Using the wax bite, place the casts together in occlusion
   - With the base of the maxillary case on the table, grind the heel of the mandibular cast parallel with that of the maxillary cast

   ![Diagram of maxillary and mandibular casts]

   - place the mandibular heel on the table and grind the base of the cast parallel with the maxillary base

   ![Diagram of maxillary and mandibular casts]

   - with the models articulated, trim the sides of the mandibular cast at 60° to heel with the jig, as described above
   - keeping the models articulated in the wax bite, trim the heels flush and then trim the sides (at 60°) flush
   - round the anterior portion of the mandibular cast smoothly from canine to canine

   ![Diagram of maxillary and mandibular casts]
5. Check Bases
• The maxillary and mandibular models should sit in occlusion when placed on the heels, distal corners and sides
• Lightly freshen up all parallel sides with casts in occlusion as needed
• Bases should be symmetric and 1/2” to 5/8” thick

6. Finishing
• Smooth scratched bases with wet/dry sandpaper
• Fill any voids with a 50/50 mix of plaster & stone, re-sand smooth
• Remove fins of plaster on vestibules or bases
• Label models with last name, first name, age in years-months (e.g. 30-8), date the records were taken, and chart #
• Allow to completely dry and soak in model gloss, if available