INDIRECT BONDING SIMPLIFIED

Indirect
Bonding Simplified

TERRY A. SELLKE, DDS, MS
Co-Clinic Director, Master Clinician, Professor (Ret.)
University of Illinois at Chicago 30+ Years
Private Practice 1974 to Present in Northern Illinois
INDIRECT BONDING SIMPLIFIED

The Tray Fabrication System
(IDB: Part 1)

TERRY A. SELLKE, DDS, MS
Co-Clinic Director, Master Clinician, Professor (Ret.)
University of Illinois at Chicago 30+ Years
Private Practice 1974 to Present in Northern Illinois
Indirect Bonding is difficult to learn and do because it is very Technique Sensitive
INDIRECT BONDING SIMPLIFIED

Quality IDB trays begin with Quality Impressions

Distortions in impressions will lead to distortions in models and ultimately to improperly fitting IDB trays...bond failure
INDIRECT BONDING SIMPLIFIED

**Some Keys to Good Impressions:**

- Use Orthoprint® alginate from Zermack®.
- Use DCA disposable trays.
- Apply Waterpik™ adhesive to the tray to ensure the alginate does not pull away from the tray.
Think “crown and bridge”...not ortho. Forget the “roll”; we need sharp impressions of the teeth and gingival tissue.
This is a Poor Impression:
Second molars could not be indirect bonded.
INDIRECT BONDING SIMPLIFIED

**Pour Up Technique:**

- Pour up immediately.
- Use Whipmix® Jadestone die material (crown and bridge stone).
- Vacuum mix!!!
Fight the Urge to Flick Off Positive Bubbles:

This can create a “negative” crater. The resulting “bump” in the custom tray will displace the IBD tray from the teeth at bonding i.e. bond failure.
Mark Bracket Position on the Model

Use a positioning Guide

Individualize as Needed

**MBT™ Versatile+ Appliance Bracket Placement Guide**

<table>
<thead>
<tr>
<th></th>
<th>U7</th>
<th>U6</th>
<th>U5</th>
<th>U4</th>
<th>U3</th>
<th>U2</th>
<th>U1</th>
<th>Upper Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.0</td>
<td>4.0</td>
<td>5.0</td>
<td>5.5</td>
<td>6.0</td>
<td>5.5</td>
<td>6.0</td>
<td>+1.0 mm</td>
</tr>
<tr>
<td>B</td>
<td>2.0</td>
<td>3.5</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>5.0</td>
<td>5.5</td>
<td>+0.5 mm</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td>3.0</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
<td>4.5</td>
<td>5.0</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>2.0</td>
<td>2.5</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
<td>4.5</td>
<td>-0.5 mm</td>
</tr>
<tr>
<td>E</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>3.5</td>
<td>4.0</td>
<td>-1.0 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>L7</th>
<th>L6</th>
<th>L5</th>
<th>L4</th>
<th>L3</th>
<th>L2</th>
<th>L1</th>
<th>Lower Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.5</td>
<td>3.5</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>5.0</td>
<td>5.0</td>
<td>+1.0 mm</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>3.0</td>
<td>4.0</td>
<td>4.5</td>
<td>5.0</td>
<td>4.5</td>
<td>4.5</td>
<td>+0.5 mm</td>
</tr>
<tr>
<td>C</td>
<td>2.5</td>
<td>2.5</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
<td>4.0</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>3.5</td>
<td>3.5</td>
<td>-0.5 mm</td>
</tr>
<tr>
<td>E</td>
<td>2.0</td>
<td>2.0</td>
<td>2.5</td>
<td>3.0</td>
<td>3.5</td>
<td>3.0</td>
<td>3.0</td>
<td>-1.0 mm</td>
</tr>
</tbody>
</table>
Mark Bracket Position on the Model

- Scribe vertical lines on ALL TEETH to mark the long axis of the tooth.
- Use panorex as aid.
Mark Bracket Position on the Model

Anterior Teeth:

• Place relative to incisal edge
• Consider future needs for enameloplasty
Mark Bracket Position on the Model

Posterior Teeth:

- Place relative to marginal ridges.
- Mark horizontal lines and place brackets and tubes relative to them.
INDIRECT BONDING SIMPLIFIED

**Bracket Heights:**

- Use MBT™ or Sondhi™ bracket positioning guide.
- I like Dr. John Kalange’s approach to position the bracket/tube to “level” the marginal ridges (versus using cusp tips to set bracket height).
Illustration of Model with Lines Scribed to Guide Bracket Placement
INDIRECT BONDING SIMPLIFIED

Center the Bracket for Rotations or Off Center to Overcorrect Severe Rotations.
INDIRECT BONDING SIMPLIFIED

*If you can’t air dry overnight:*

- Use a toaster oven to dry the model.
- We dry them 20 minutes at 300 degrees.
- Cool for 30 minutes
Place Separating Agent:

- We use Foil Cote - 1:4 dil.
- Air dry the model
Lab technician places brackets on the model using a “Wick Stick” (from Ormco) to initially determine the height of each bracket.
Illustration of a “Wick Stick”
The Dr. finalizes bracket positioning and removes excess flash.
INDIRECT BONDING SIMPLIFIED

We ONLY Use APC™ Brackets.

- Ambient light will begin curing the Transbond™ resin.
- Store the models (after brackets initially placed by lab technician) in a Sondhi light proof box to prevent curing prior to final check by the doctor.
INDIRECT BONDING SIMPLIFIED

Illustration of Sondhi Light Proof Box™
After the Dr. does final check, the brackets are cured in a Triad® Machine.
Short clinical crowns or partially erupted teeth may require a small amount of carving of the “soft tissue” on the model for better bracket placement.
If carving is necessary, it is important to duplicate the contour of the tooth surface that you would expect subgingival.
INDIRECT BONDING SIMPLIFIED

This requires good knowledge of dental anatomy.

The DOCTOR should do the carving.
INDIRECT BONDING SIMPLIFIED

Cure 5 Minutes in Triad®

The Bottom Line
Successful Strategies For Private Practice Orthodontists
INDIRECT BONDING SIMPLIFIED

The Steps of IDB Tray Construction
Block out undercuts of bracket hooks (only) with PVS impression material
INDIRECT BONDING SIMPLIFIED

Block Out Undercuts:

This is sufficient with all APC™ and other brackets from 3M Unitek.
INDIRECT BONDING SIMPLIFIED

Block Out Undercuts:

Other manufacturer’s brackets, such as Damon™ and In-Ovation™ have more undercuts and cause a “blow out” of the 1.5mm soft tray (poor bracket retention, brackets displaced).
We Use Disposable Cartridges

Use Aquasil Ultra LV® by Densply (same as used for Invisalign®).

Set up an assembly line to block out undercuts on multiple sets of trays from a single cartridge.
Placement is UNDER the hooks, NOT enclosing them!
INDIRECT BONDING SIMPLIFIED

Making the Soft Tray

A 1.5mm (soft) mouth guard tray is made using a Biostar®
**Important!**

The brackets are out of the beads several mm. This is to ensure that the soft tray material completely envelopes the brackets and adapts to the model gingival to the brackets and hooks.
We Use 1.5mm Bioplast® Material for the Soft Tray
INDIRECT BONDING SIMPLIFIED

Trim excess soft tray material using scissors
INDIRECT BONDING SIMPLIFIED

🌟 Spray the soft tray with silicone spray.

🌟 The silicone is a separating medium.

🌟 If you forget, the hard tray will stick to the soft tray and tray removal will be challenging!
DON'T FORGET THE SILICONE SPRAY!!!

(Otherwise, you will have a “ruff” day!)
Making the Hard Tray

Cover the model (with the soft tray and embedded brackets) with lead pellets to the gingival margin of each bracket or tube.
INDIRECT BONDING SIMPLIFIED

Remember, IDB is Technique Sensitive!!!
Making the Hard Tray

If you cover MORE of the bracket with beads, the hard tray will “float” and not ensure good adaptation of the soft tray (and brackets) when bonding. This reduces bond strength!
Making the Hard Tray

If you don’t COVER ENOUGH of the bracket with pellets, the hard tray will engage undercuts and be difficult to remove.
Using the Biostar®,
Make a .75mm Biocryl (Hard) Tray
Hard Tray after “Suck Down” in Biostar®
Remove hard tray from soft tray & model.

Cut out hard tray with straight handpiece.
Soak the model and soft tray in water to release brackets from the model.
Ease the soft tray off of the model
INDIRECT BONDING SIMPLIFIED

Trim any excess soft tray (mouth guard) material with scissors.
The PVS Undercut Relief is Removed Now

This facilitates soft tray removal after brackets are bonded.
Mark the midline with a permanent marker (Sharpie®). This facilitates tray seating at the bonding appointment.
Occasionally we will need to microetch a "custom pad" to remove loose plaster from the composite.

If you need to do this, use a very short burst. Then aggressively blow off all silica dust from the tray (which can lead to a poor bond).
INDIRECT BONDING SIMPLIFIED

Clean bracket pads with denatured alcohol to remove separating medium.
INDIRECT BONDING SIMPLIFIED

If you observe the “custom pad” made of Transbond adhesive seems “soft” as you apply denatured alcohol, light cure the pads with your plasma light/LED light to final cure the resin.

This is should be VERY rare. It indicates you are not adequately curing the custom pads in the Triad machine.
INDIRECT BONDING SIMPLIFIED

The Finished IDB Tray
Ready for the Bonding Appointment
The trays are now ready for placement. We store in a retainer case until the patient’s bonding appointment.
INDIRECT BONDING SIMPLIFIED

The Tray Fabrication Protocol
(IDB: Part 1)

TERRY A. SELLKE, DDS, MS
Co-Clinic Director, Master Clinician, Professor (Ret.)
University of Illinois at Chicago 30+ Years
Private Practice 1974 to Present in Northern Illinois