

# **Esthetic Alternatives to Amalgam –**

## ***Contemporary Materials and Techniques***

*presented by*

Ronald D. Jackson, DDS, FACD, FAGD, FAACD



**South East Wales  
Independent  
Practitioners  
Group**

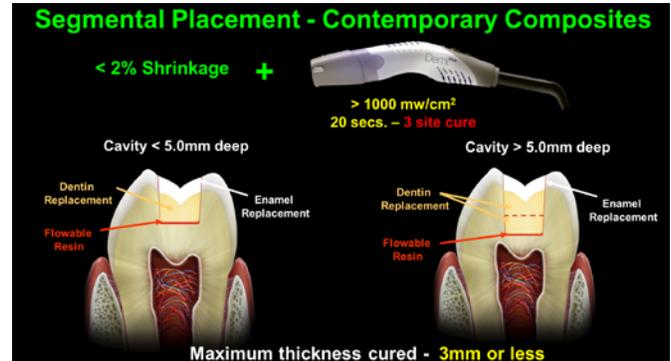
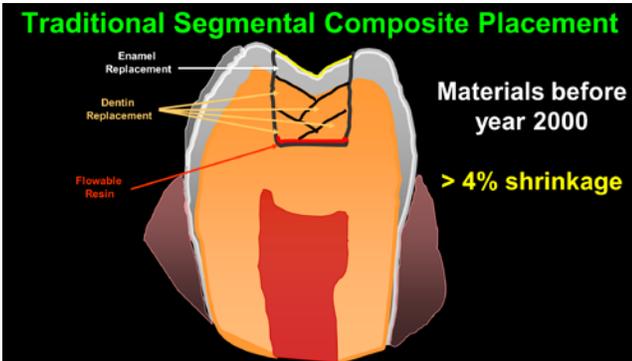
**Cardiff, Wales**  
March 23, 2012

## **MATERIALS LIST**

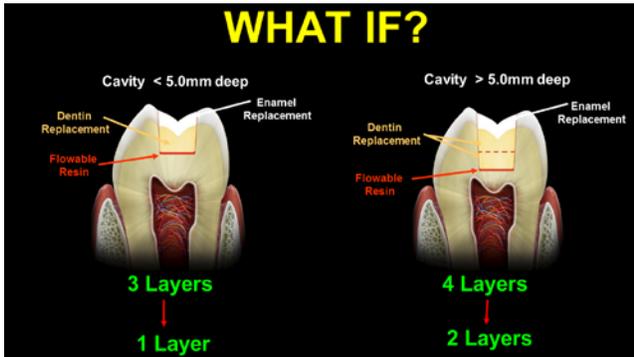
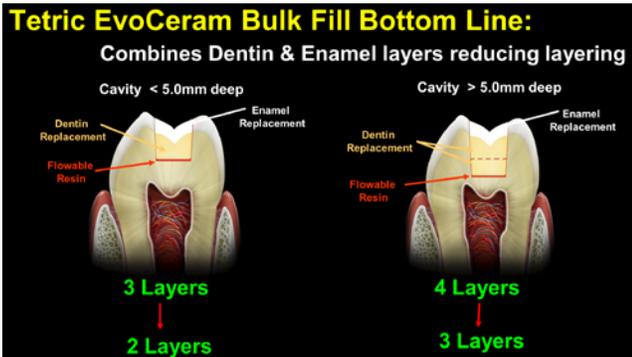
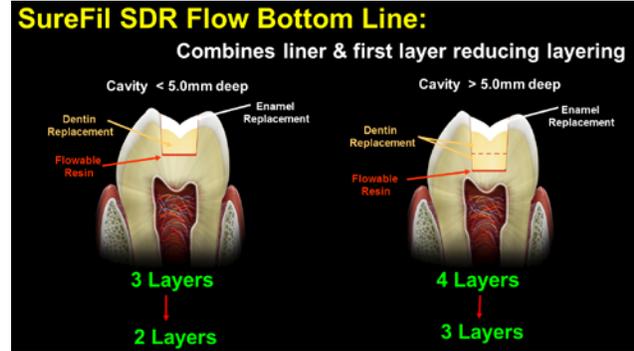
### **CLASS II POSTERIOR Direct Resin Restorations**

1	<b>Rubber Dam Placement Technique Video:</b>	Coltene/Whaledent
2	<b>Medium Rubber Dam:</b>	Coltene/Whaledent
3	<b>Rubber Dam Clamps:</b>	BW (#A778703), DW (#A778705), NW (#A77388) and PW (#A77389) by Dentsply Professional
4	<b>Matrices:</b>	OpraMatrix by Ivoclar or ConvexiT by Clinician's Choice ( <a href="http://www.clinicianschoice.com">www.clinicianschoice.com</a> )
5	<b>Sectional Matrices:</b>	V3-Ring by Triodent ( <a href="http://www.optident.com">www.optident.com</a> ), Palodent by Dentsply, Compositight by Garrison Dental Solutions, Inc. ( <a href="http://www.garrisonsdental.com">www.garrisonsdental.com</a> )
6	<b>Gel etchants:</b>	Ultraetch by Ultradent ( <a href="http://www.optident.com">www.optident.com</a> ) or Select HV by Bisco ( <a href="http://www.optident.com">www.optident.com</a> )
7	<b>Placement Instruments:</b>	Posterior Composite Placement Set according to Dr. Ron Jackson (#AERJK) by American Eagle, Inc. ( <a href="http://www.optident.com">www.optident.com</a> )
8	<b>Contact Instruments:</b>	Contact Pro by C.E.J. ( <a href="http://www.cejdental.com">www.cejdental.com</a> ), TriMax by AdDent ( <a href="http://www.optident.com">www.optident.com</a> )
9	<b>3 Step Total-etch or 4<sup>th</sup> Generation Adhesives:</b>	Optibond FL by Kerr, All Bond 2 or All Bond 3 by Bisco (universal), Scotchbond MP (directs only) or Scotchbond MP Plus (universal) by 3M/Espe, etc., etc.
10	<b>2 Step Total-etch or 5<sup>th</sup> Generation Adhesives:</b>	Optibond Solo Plus (universal) by Kerr, ExciteF (universal) by Ivoclar, One Step Plus by Bisco (universal), XP Bond (Universal) by Dentsply, Single Bond Plus (universal) by 3M/Espe, PQ1 (direct only) by Ultradent, Liner Bond 2V (universal) or SE Protect (direct only) by Kuraray, Gluma Comfort Bond (universal) by Kulzer, etc., etc., etc.
11	<b>Low Viscosity (flowable) resins:</b>	Revolution 2 by Kerr, Tetric EvoFlow or Heliomolar Flow by Ivoclar, Dyract Flow/TPH <sup>3</sup> Flow by Dentsply, AeliteFlo LV by Bisco, Flowline by Kulzer, Filtek Flow Plus by 3M/Espe, Gradia Direct Flo by GC, etc.
12	<b>Medium Body Resins:</b>	Premise by Kerr, Empress Direct (nano-microhybrid) and Heliomolar (microfill) by Ivoclar, Esthet-X HD by Dentsply, Filtek Supreme Ultra by 3M/Espe, Renamel Hybrid and Microfill by Cosmedent ( <a href="http://www.cosmedent.com">www.cosmedent.com</a> ), Enamel Plus HFO by Optident, etc.
13	<b>Customized Composite System:</b>	Sonicfill by Kerr
14	<b>Heavy Body Resins:</b>	Prodigy Condensable by Kerr, Heliomolar HB by Ivoclar, SureFil by Dentsply, P-60 by 3M/Espe, Alert by Pentron, etc.
15	<b>Tints:</b>	Kolor Plus(Brown) by Kerr
16	<b>Finishing burs:</b>	7404, 7406, 274-16
17	<b>Finishing discs &amp; strips:</b>	Optidisc by Kerr
18	<b>Finishing points &amp; cups:</b>	Hawe Finishing and Polishing System by Kerr, ProGloss by Axis, Astropol by Ivoclar, Jiffy System by Ultradent, Flexi Cups and Points by Cosmedent, D♦ Fine resin polishers by Clinician's Choice, Enhance by Dentsply, etc.
19	<b>Final Polish:</b>	Hawe Occlubrush by Kerr, AstroBrush by Ivoclar, Jiffy Brush by Ultradent or Groovy Brush by Clinician's Choice (In Canada – CRD)
20	<b>Camera Materials</b>	Canon 50D and Lingual/Buccal mirror by Norman Camera ( <a href="http://www.normancamera.com">www.normancamera.com</a> ), Columbia Metal cheek retractor by Hu-Friedy
21	<b>Magnification Loupes:</b>	Orasoptic Research/Kerr ( <a href="http://www.orasoptic.com">www.orasoptic.com</a> )
22	<b>Fiberoptic Illumination:</b>	Discovery by Orasoptic



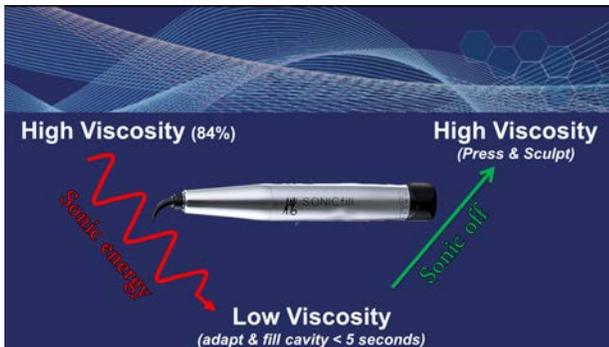


- Current Technique: Time & Effort**
- Obtain proper Isolation
  - Select and place appropriate Matrix
  - Precise execution of the adhesive steps
  - Placement of a Flowable or resinionomer liner
  - Placement, Adaptation and light curing of at least 2 or more increments of composite
  - Adjust occlusion
  - Finish and Polish



## Current Technique: Time & Effort

- Obtain proper Isolation
- Select and place appropriate Matrix
- Precise execution of the adhesive steps
- Placement of a Flowable or resinionomer liner
- Placement, Adaptation and light curing of at least 2 or more increments of composite < 1.5 mins.
- Adjust occlusion < 2 mins.
- Finish and Polish



## SonicFill Highlights

- Upon activation **SONIC energy lowers** viscosity and extrudes composite
- Composite **intimately adapts** to cavity walls without voids
- Cavities 5 mm or less are filled in one **bulk increment** (over 80% of cases)
- Upon deactivation viscosity **increases** for sculpting
- Composite is **non-sticky** and **non-slumping** – allows accurate morphology to be established quickly
- Light cure **each** surface (occlusal-**twice**, facial, lingual) for:
  - 20 seconds with High Power Halogen (Optilux 501)
  - 10 seconds with High Power LED (Demilux)

## SonicFill Bottom Line

After curing the adhesive, the cavity is rapidly bulk filled with a highly filled restorative composite

**The result:**

- Excellent adaptation
- Smooth, “prefinished” surface
- Good to very good esthetics with a single shade and single opacity

## MATERIALS LIST

### Indirect Restorations – Inlays and Onlays

1	<b>Burs:</b>	LVI Global Esthetic Inlay/Onlay Kit LS-7560 by Axis Dental ( <a href="http://www.axisdental.com">www.axisdental.com</a> ) or Esthetic Inlay/Onlay Kit 2500R by Brasseler ( <a href="http://www.brasselerusa.com">www.brasselerusa.com</a> )
2	<b>Epi-Dri</b>	(epinephrine impregnated pellets for hemostasis) by Pascal
3	<b>Resin Cements:</b>	nX3 by Kerr, Variolink II by Ivoclar, Duolink by Bisco, Calibra by Dentsply, RelyX ARC by 3M/Espe or other dual cures.
4	<b>Self-etching resin cement systems:</b>	Multilink by Ivoclar, Duolink SE by Bisco, Panavia F, Clearfil Esthetic Cement by Kuraray
5	<b>Addition reaction silicone impression material:</b>	Take 1 Advanced by Kerr, Aquasil Ultra by Dentsply, Virtual by Ivoclar, Affinity Hydroactive or Multiprep by Clinician's Choice Imprint III by 3M/Espe, President by Coltene/Whaledent, etc. (Wash material use with Auto Access tip from Centrix)
6	<b>Impression Trays:</b>	Triple Tray by Premier, Quad Tray by Clinician's Choice or Directed Flow trays by 3M/Espe
7	<b>Separating Lubricant:</b>	Pro V coat by Bisco

8	<b>Temporary material:</b>	E-Z Temp by Cosmedent ( <a href="http://www.enlightensmiles.com">www.enlightensmiles.com</a> ) or Telio CS Inlay/Onlay by Ivoclar
9	<b>Amalgam Carver:</b>	CV4T by Hu-Friedy for carving E-Z Temp
10	<b>Consepsis Scrub:</b>	Ultradent ( <a href="http://www.optident.com">www.optident.com</a> )
11	<b>ICB brushes:</b>	Ultradent
12	<b>Chlorhexidine:</b>	Consepsis with Blu-max Infusor tip by Ultradent or Cavity Cleanser by Bisco ( <a href="http://www.optident.com">www.optident.com</a> )
13	<b>Aluminum Oxide discs:</b>	3M/Espe, Kerr, Shofu or Cosmedent
14	<b>Gel etchants:</b>	Ultraetch by Ultradent or Select HV by Bisco
15	<b>Restoration holders:</b>	Pic-N-Stic by Pulpdent, Truegrip by Clinical Research Dental or OptraStick by Ivoclar or GripTab by Triodent ( <a href="http://www.optident.com">www.optident.com</a> )
16	<b>3-Step Total Etch or 4<sup>th</sup> Generation Adhesives:</b>	All Bond 2 or All Bond 3 by Bisco, Scotchbond MP Plus by 3M/Espe
17	<b>2-Step Total Etch or 5<sup>th</sup> Generation Adhesives:</b>	Optibond Solo Plus by Kerr, Excite F or Excite F DSC by Ivoclar, One Step Plus by Bisco, XP Bond by Dentsply, Single Bond Plus or Scotchbond Universal by 3M/Espe, Gluma Comfort Bond by Kulzer
18	<b>2-Step Self Etch Adhesives:</b>	Optibond XTR by Kerr, All Bond SE by Bisco, Liner Bond 2V or DC Bond by Kuraray, Prelude by Danville Materials (800-827-7940)
19	<b>Silanes:</b>	Various manufacturers
20	<b>Desensitizers:</b>	BisBlock by Bisco, Super Seal by Phoenix Dental ( <a href="http://www.phoenixdental.com">www.phoenixdental.com</a> ), Hemaseal & Cide by Advantage Dental Products ( <a href="http://www.advantagedentalinc.com">www.advantagedentalinc.com</a> ) or MicroPrime G by Danville Materials ( <a href="http://www.danvillematerials.com">www.danvillematerials.com</a> )
21	<b>Esthetic Trimming Knife:</b>	Goldknife G38 by American Eagle Instruments ( <a href="http://www.optident.com">www.optident.com</a> ) or CR21 by Hu-Friedy
22	<b>Finishing and Polishing:</b>	Opti 1-step by Kerr, Enhance discs, points and cups by Dentsply for finishing. Astropol by Ivoclar for polishing. Many other systems are available for finishing and polishing resins.
23	<b>Final polish resins:</b>	Hawe Occlubrush by Kerr, Jiffy Brush by Ultradent, AstroBrush by Ivoclar, or Groovy Brush by Clinician's Choice
24	<b>Aluminum Oxide strips:</b>	3M/Espe or Cosmedent
25	<b>Microetcher:</b>	Microetcher II by Danville) or Dentoprep by Clinician's Choice or Ultrablasters by Ultradent
26	<b>CoJet sand:</b>	3M/Espe
27	<b>Proxi-Fit articulating paper holder:</b>	Panadent Corp. ( <a href="http://www.panadent.com">www.panadent.com</a> )
28	<b>Magnification Loupes:</b>	Orascoptic Research/Kerr (800-369-3598)
29	<b>Fiberoptic Illumination:</b>	Discovery by Orascoptic
30	<b>Medium Rubber Dam:</b>	Coltene/Whaledent also, video on placement technique. Less allergenic Dermadam by Ultradent. Dam Napkins by Coltene/Whaledent
31	<b>Rubber Dam Clamps:</b>	BW (#A778703), DW (#A778705), NW (#A77388) or PW (#A77389) by Dentsply Professional
32	<b>Provisional Cements:</b>	NeoTemp by Teledyne Getz, Tempbond Clear by Kerr or TelioCS link by Ivoclar
33	<b>Crack Detection:</b>	Frac Finder (Denbur) or Tooth Slooth by Tooth Slooth (dealer)
34	<b>Transillumination:</b>	MicroLux Transilluminator by AdDent, Inc. ( <a href="http://www.addent.com">www.addent.com</a> )
35	<b>Diode Lasers:</b>	Odyssey 2.4G or Navigator by Ivoclar
36	<b>Putty Former:</b>	Express putty Firmer Set #6160J by 3M/ESPE
37	<b>Curing Lights:</b>	Demi Plus by Kerr or BluePhase G2 or 20i by Ivoclar
38	<b>Ceramic Etching Gel (red):</b>	IPS Empress 5% Hydrofluoric Etch by Ivoclar
39	<b>Clearance Guides:</b>	Belle de St. Claire / Belle de St. Claire Flextabs by Kerr
40	<b>Alginate Alternative:</b>	Alginot by Kerr or Counterfit by Clinician's Choice

## INDICATIONS:

1. Aesthetics
2. Moderately broken down tooth – (Tooth Conservation and Tooth-reinforcement)



## CONTRAINDICATIONS:

1. Deep proximal box RUBBER DAM !
2. Over-engineer large restorations in:
  - Second Molars
  - Endodontic Teeth
  - Heavy Bruxers and Clenchers

## Ceramics for Inlays and Onlays

### Low Fusing

- Duceram LFC (Dentsply)
- Finesse (Dentsply)
- Omega 900 (Vita/Vident)

### Pressed / Milled

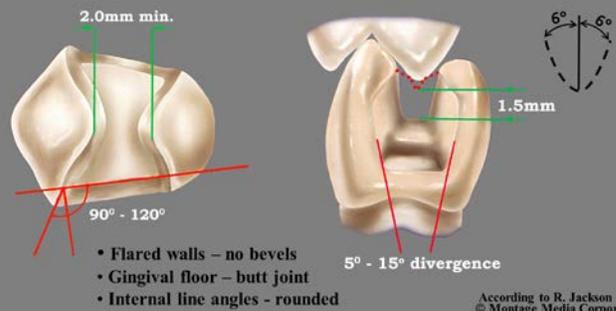
- IPS Empress, IPS e.max (Ivoclar)
- OPC, OPC 3G (Pentron)
- Authentic (Jensen)
- Finesse All Ceramic (Dentsply)

## Resins for Inlays and Onlays

- Concept HP (Ivoclar) – 24yrs.
- Premise Indirect (belleGlass NG) (Kerr) – 15 yrs.
- Cristobal (Dentsply) – 13 yrs.
- Sculpture Plus (Pentron) – 13 yrs.
- Sinfony (3M/Espe) – 12 years
- Tescera ATL (Bisco) – 9 yrs.
- Ceramage (Shofu) – NEW
- Lava Ultimate (3M/Espe) – NEW

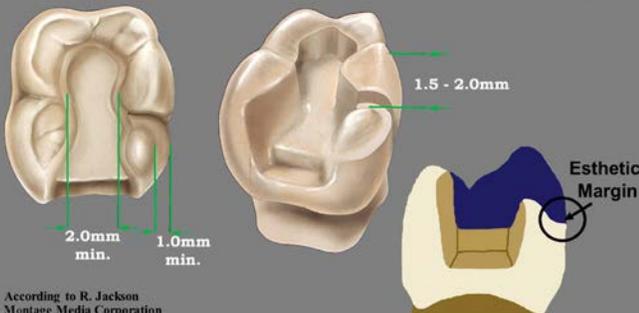
**Fiber Reinforcement** (Crowns/Bridges)  
Vectris (Ivoclar), Fibrekor (Pentron), U beam (Bisco)

## Preparation for Aesthetic Inlay



According to R. Jackson  
© Montage Media Corporation

## Preparation for Aesthetic Onlay



According to R. Jackson  
© Montage Media Corporation

## Immediate Dentin Seal (IDS)

"Dual-bonding", "Resin Coating", "Pre-Seal", "Prehybridization"

### Seal DENTIN with ADHESIVE at PREP

"The dual bonding technique: a modified method to improve adhesive luting procedures"

- Paul SJ, Schärer P  
In J Perio Rest Dent 17: 536-545, 1997

"The Effect of Resin Coating on the Interfacial Adaptation of Composite Inlays" (CSE + PLF)

- Jayasooriya PR, et.al  
Oper Dent 2003, 28: 28-35

"Immediate Dentin Sealing: A Fundamental Procedure for Indirect Bonded Restorations"

- Pascal Magne, DMD  
J Esthet Rest Dent 17: 144-155, 2005

### "Immediate Dentin Sealing Supports Delayed Restoration Placement"

- Magne P, So W, Cascione D  
J Prosthet Dent 98: 166-174, 2007

Group 1 – Inlay prep, temp 2 weeks, bond inlay

Group 2 – prep, IDS, temp 2 weeks, bond inlay

Group 3 – prep, IDS, temp 7 weeks, bond inlay

Group 4 – prep, IDS, temp 12 weeks, bond inlay

Control - Direct Composite

Positive Control – Direct composite  
Negative Control – Group 1 (no IDS)

Results:

Control, IDS Groups 2-4 = Same    Group 1 - No IDS ↓ 75%

## Ron Jackson's preferred IDS Adhesive for Inlays / Onlays & Crowns

2-Step Self Etch

1-Step Self Etch



Kerr

OR



Bisco

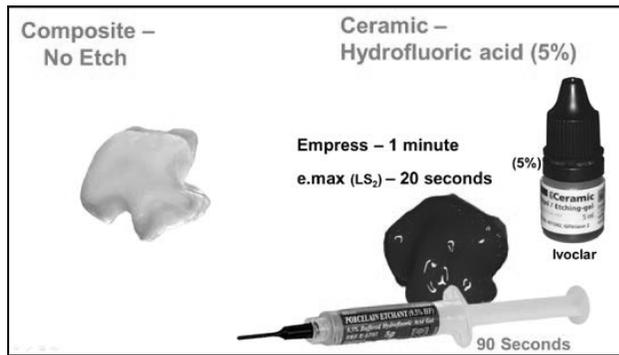
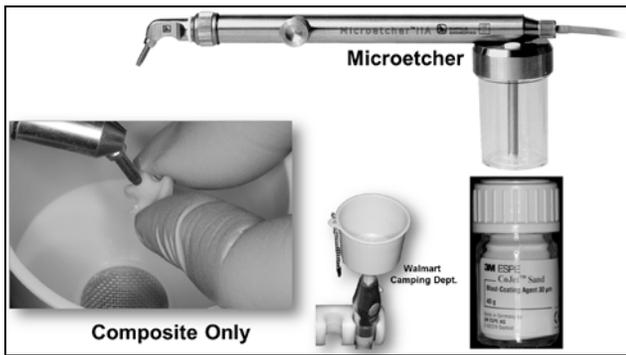
www.optident.com



Immediate Dentin Sealing	
Feature	Benefit
1) Immediate Pulp protection	1) Without additional exposure to bacteria during provisional phase – better, more rapid pulpal healing "Sealing for Healing"
2) Patient Comfort	2) Sensitivity to cold while in provisional reduced or eliminated
3) Better, Smoother Prep	3) Ease of fabrication -increased accuracy
4) Increased Bond Strength (Stress-free bond development) & Elastomeric effect	4) Better marginal integrity over time

### PREPARATION

1. Select the base shade of the restoration, with special emphasis on the occlusal for inlays and occlusal and buccal for onlays. Record amount and color of pit and fissure stains and overall value as per generic lab prescription.
2. After anesthetizing the patient, remove old amalgam with your favorite amalgam removal bur. Remove all caries in the usual manner with round burs in the slow speed handpiece. Perform occlusal preparation to create draw in the enamel. Select large or small occlusal prep bur depending on size of the cavity. Prepare the proximal box using the appropriate size proximal preparation bur.
3. Preparation depth should be 1.5mm. (minimum) and isthmus width 2.0mm. minimum. Onlay preparations require a minimum of 1.5mm. occlusal reduction, 2.0mm. if functional cusp. Proximal walls should be flared 5 to 15 degrees (10-12 degrees is ideal). The margin of the floor of the proximal box should be a butt joint. In tight proximal areas, butt joint on the gingival margin can be achieved without damage to the adjacent tooth using the end cutting bur in the kit. Note: bevels as used in gold inlay/onlay preparations are not indicated. See preparation diagrams illustrated earlier.
4. If there should be a small pulp exposure, obtain hemostasis using an EpiDri (see materials list) or diode laser. Proceed with Immediate Dentin Seal (IDS) – See #5 below.
5. Immediate Dentin Seal (IDS) – Apply Consepsis (Ultradent) or Cavity Cleanser (Bisco), let sit for 30 seconds, suction and blot excess. Etch and Bond dentin using 2-step selfetch adhesive (All Bond SE), after curing the adhesive, apply All Bond SE liner across the pulpal floor, cure. Apply flowable into axial wall under cuts to block out, cure. Note: If no undercuts a flowable is not needed. Remove air inhibited layer with alcohol pledget. Reprep occlusal and proximal enamel margins.
6. Take an impression in the usual manner (VPS or iTero). An addition reaction silicone impression material is preferred because it is repourable and the laboratory will require at least three models. (Master Technicians perform four pours)
7. To temporize: Apply ProV Coat liberally to IDS to lubricate, gentle air to thin. Place E-Z Temp in 2mm increments. Light cure each increment for 20 seconds. Do not use a matrix as the temporary needs to engage the undercut of the adjacent tooth contact for retention. However, care should be used to avoid any overhang at the gingival margin. Adjust final occlusion as necessary. E-Z Temp is easily carved using a large cleoid discoid amalgam carver such as CV4T. It is very important not to leave the temporary high. In fact, because there will be occlusal stops on tooth structure, it is permissible to carve the temporary short of occlusion. Final cure another 10 seconds before dismissing the patient. For onlays, use E-Z Temp Onlay. The patient should chew on the opposite side. (See instructions in E-Z Temp kit for more complete description for use.) Another good option is to use Telio CS Inlay/Onlay by Ivoclar. Follow manufacturer's directions.



## TREATMENT of the RESTORATION:

### Silanes



## Restoration Surface Treatment Step by Step

### Indirect Composite

1. CoJet
2. MonoBond Plus - 1 min., dry or Other Silanes - 30 secs., dry

### Empress

1. HF etch - 1min., rinse, dry
2. MonoBond Plus - 1 min., dry or Other Silanes - 30 secs., dry

### e.max

1. HF etch - 20 secs.
2. MonoBond Plus - 1 min., dry or Other Silanes - 30 secs., dry

### Zirconia / Metal

1. CoJet
2. MonoBond Plus - 1 min., dry or Z-Prime - 1-2 coats, dry 3-5 secs.

## DUAL CURED LUTING RESINS

Dual Cement (Ivoclar)

Calibra (Dentsply)

Duo Link (Bisco)

NX3 (Kerr)

Variolink II (Ivoclar)

RelyX ARC (3M/Espe)

Permalute (Ultradent)

### Self-Etch Cement Systems

Panavia F (Kuraray)

Multilink (Ivoclar)

Clearfil Esthetic Cement (Kuraray)

Duolink SE Cement Kit (Bisco)



### Self-Adhesive Cements

Unicem 2 (3M/Espe)

Maxcem Elite (Kerr)

SpeedCem (Ivoclar)

Biscem (Bisco)

Clearfil SA Cement (Kuraray)

## INSERTION/CEMENTATION (Etch & Rinse Technique)

1. After anesthetizing the patient, treat the restoration by briefly microetching the internal surface of the composite restoration using CoJet Sand (3M/Espe) in your microetcher and dry. Clean the internal surface with phosphoric acid (Composite) (If restoration is Empress use hydrofluoric acid etch for 1 minute - if e.max use hydrofluoric acid for 20 seconds), wash and dry. Apply Silane (various manufacturers), let sit for 30 seconds, dry OR apply SILANE Primer by Kerr to internal surface of restoration, dry, cover and sit aside. Note: If using Monobond Plus DO NOT use phosphoric acid (CoJet composite and apply Monobond Plus for 1 minute)
2. Remove the temporary and apply the rubber dam. As with any bonding procedure, moisture control is absolutely necessary.
3. The preparation can be cleaned with Consepis Scrub (Ultradent) and an ICB brush (Ultradent) - Do Not bear Down. Wash and dry.

4. Try-in the restoration and test the interproximal contacts with waxed floss. Adjust with aluminum oxide discs if the restoration is composite, if necessary. Use fine diamond if ceramic. NOTE: Unlike porcelain restorations, resin restorations do have some give, and could be forced into place even if the contacts are too tight – though excessive force should be avoided.
5. When the restoration is ready to be bonded, place a matrix band around the tooth to confine the etchant and adhesive to within the margins of the treated tooth. First treat the tooth by applying the 37% etching gel to all the enamel. Don't be overly concerned if some extends slightly onto the dentin. When this is complete, immediately apply the etching gel to the dentin.
6. After 12-15 seconds, wash thoroughly; dry all the excess water around the tooth outside the band. Place high volume suction briefly over the tooth. This sucks up the excess water but leaves the dentin wet. The remaining puddles of water if any, can be blotted with a Multibrush (see materials list). The brush soaks up excess water quickly. When blotted onto a gauze it can be reused again to soak up more excess from the cavity. Just a few blottings will leave the dentin wet/damp without excess water sitting on the surface of the dentin. If the dentin should be too dry in spots after placing the high volume suction over the tooth, additional moisture can be added using the Multibrush wetted with water. **Note: Tooth is treated as if Dentin is exposed even though IDS Technique was used.**
7. Apply the adhesive to the cavity according to the manufacturer's directions. It is important to follow directions exactly to achieve a totally saturated hybrid layer. Dry gently at first by blowing across the tooth. Then dry thoroughly. All dentin must appear glossy before light curing. If not, apply more adhesive, dry and light cure.  
**NOTE:** If using a multicomponent (3 step or 4<sup>th</sup> Generation) universal bonding kit, apply the primer (hydrophilic monomer) according to the manufacturer's directions. It is important to follow directions exactly to achieve a totally saturated hybrid layer. Dry gently at first blowing across the tooth. Then dry thoroughly. All dentin must appear glossy. If not, apply more primer. Depending on the brand, apply a thin layer of the appropriate unfilled or lightly filled bond resin to the entire preparation. Follow manufacturer's directions carefully. Note: Remove matrix band prior to placement of restoration if doing multiples move matrix band to adjacent tooth to help prevent luting resin from flowing into adjacent preparation.
8. Attach a handle to the restoration using a Pic-N-Stic, OptraStick, Truegrip or GripTab.
9. Mix your preferred dual cured resin cement 1:1, and coat the internal surfaces of the restoration. Some cement may also be placed into the preparation, but may not necessary if proper blocking out of the undercuts has been done. If a matrix band was previously placed to protect the adjacent tooth from etching – remove it at this time. Seat the restoration with light pressure. The Pic-N-Stic can be removed by twisting and the position of the inlay/onlay maintained using a plastic instrument or ball burnisher in the central fossa.
10. While maintaining light pressure, remove excess cement with a metal plastic instrument or a rubber tip. Don't use a brush. A pig tail explorer is used in the proximal and at the gingival. A slight excess of cement at the occlusal finishable margins is acceptable. Finally, clean the gingival margin by sweeping dental floss through the contact only once in an occlusogingival direction. This will wipe the excess cement from this margin and minimize the need to finish this area. Leave the floss in place while curing.
11. Cure all accessible margins for 30 - 40 seconds depending upon the power of your light. Maintain light seating pressure for at least the first 10 seconds. It is better to overcure than undercure even with a dual-cured cement. The occlusal should be cured for 30 - 40 seconds also.
12. Remove the floss and use a #12 blade on a scalpel handle to remove any interproximal gingival excess. The CR 21 Esthetic Carving Knife by Hu-Friedy also works well.

13. Remove the rubber dam and check the occlusion with articulating paper. Suitable burs for adjusting resin inlays and onlays are the #7404 and #274-16 by Axis (For ceramic the #379-018). These burs are in the Esthetic Inlay/Onlay Kit recommended in the materials list. The margins and only the adjusted areas are finished using various discs, points or cups. DO NOT touch areas of the restoration that were not adjusted. Finally, a high gloss polish can be obtained using the Jiffy Brush by Ultradent, AstroBrush by Ivoclar, Hawe Occlubrush by Kerr or Groovy Brush by Clinician's Choice.

#### **RENEWALS (repairs)**

1. Roughen any exposed enamel with a coarse diamond.
2. Cut an undercut into the inlay with an inverted cone bur. Be careful not to reduce minimum width or 1½ mm thickness of existing inlay/only.
3. After protecting the adjacent tooth with a band, microetch the surface to be bonded with the microetcher. Replace the band with a new one or turn it around.
4. Apply the phosphoric acid gel first to enamel and then to dentin for 15 seconds. Wash & blot dry.
5. Apply adhesive, dry and cure in the usual manner.
6. Use a restorative resin of choice to fill cavity in the same manner as in a direct composite filling. The cavity should be built up in increments. Finish in the usual manner.

#### **ADDING A CONTACT (resin restorations)**

1. Microetch the area to be augmented with microetcher for 5 seconds. Use CoJet (3M/ESPE) (preferred) or 50 micron aluminum oxide sand.
2. Apply a flowable resin, feather the edges and light cure.
3. Try-in the inlay and adjust the contact in the usual manner.

#### **ADDING A CONTACT (ceramic restorations)**

1. Microetch the area to be augmented with microetcher for 5 seconds. Use CoJet (3M/ESPE) (preferred) or 50 micron aluminum oxide sand.
2. Apply hydrofluoric acid gel for 1 minute, wash and dry.
3. Apply silane let sit for 1 minute and dry.
4. Apply a flowable resin, feather the edges and light cure.
5. Try-in the inlay and adjust the contact in the usual manner.

### **PHOTOGRAPHY**

Equipment:	Washington Scientific Camera Box 88681 Seattle, Washington 98138 253-863-2854 <a href="mailto:wscrcz@aol.com">wscrcz@aol.com</a>	Norman Camera 3602 S. Westnedge Kalamazoo, Michigan 49008 800-900-6676
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Photo Atlas: Posterior Esthetics  
Ronald D. Jackson, D.D.S.  
540-687-8075  
[geraldine@ronjacksondds.com](mailto:geraldine@ronjacksondds.com)

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- Understand contemporary adhesives and biomechanics of adhesion.
- Define the selection process and correct use of adhesives based on the procedure being performed and the restorative material used.
- Identify the indications/contraindications for direct resin as well as aesthetic inlays/onlays.
- Utilize simplified and predictable placement techniques for these restorations.
- Discuss metal -free crown materials, what to use and how to use it, cement or bond.
- Understand effective marketing and communication skills necessary to develop a successful aesthetic restorative practice.
- Direct team members to implement change in the evolving practice.
- Develop the patient's understanding of the importance and principles of Neuromuscular Dentistry.

### Additional topics to be addressed:

#### Direct Posterior Composite Restorations:

- Simplified, predictable placement
- Adhesives and the biomechanics of adhesion
- Avoiding post-operative sensitivity - every time

#### Aesthetic Inlays and Onlays:

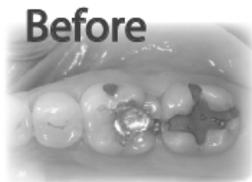
- Preparations - criteria and sequence
- Temporization - ultra-simplified
- Predictable placement using current adhesive techniques
- Treating cracked teeth, when to overlay a cusp, and treating endodontic teeth
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- Longevity expectations

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- Materials selection - Leucite, Lithium Disilicate, Alumina, Zirconia, CAD-CAM
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