

TECHNIQUES

SUGGESTED PREPARATION TECHNIQUES AND TIPS

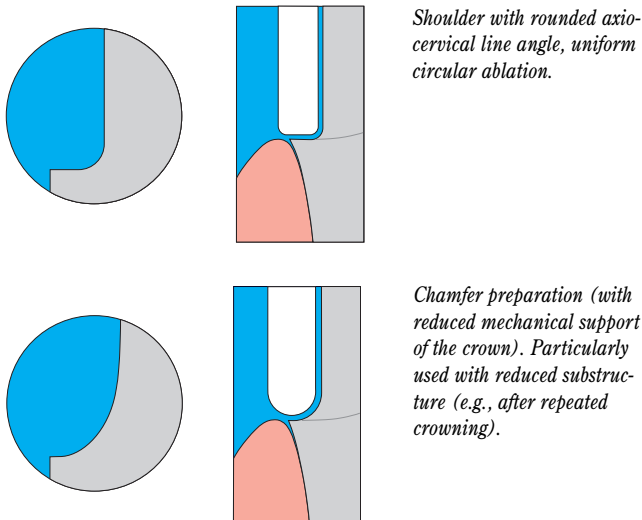
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1. All-Ceramic and Resin Restorations

Technique Tips:

- Ensure even reduction of the anatomic form.
- Provide enough room for the ceramic to allow adequate strength.
- Sharp transitions and sharp internal edges/line angles or undercuts **MUST** be avoided.
- Margins should have a pronounced chamfer or shoulder with butt joint margins. Avoid tapered margins, feathered edges or bevelled shoulders.
- Ensure there is an adequate path of insertion.

Suggested Margin Preparation



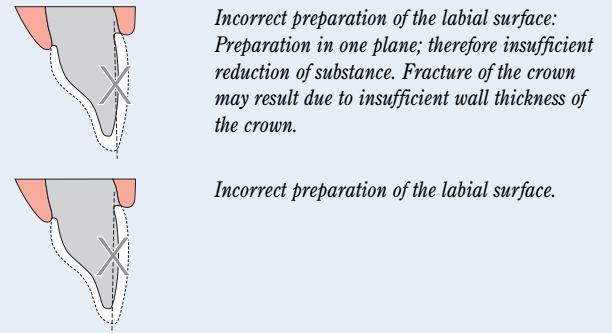
Common Preparation Errors

1. Insufficiently defined and finished preparation margins.

- Uneven preparation limit ("gutter" preparation, vertical unevenness).
- Irregular marginal reduction of layers (horizontal unevenness).
- Wrong shape of preparation limit.
- Unnecessarily deep subgingival preparation.
- Preparation in root dentin.

2. Poorly controlled tooth reduction.

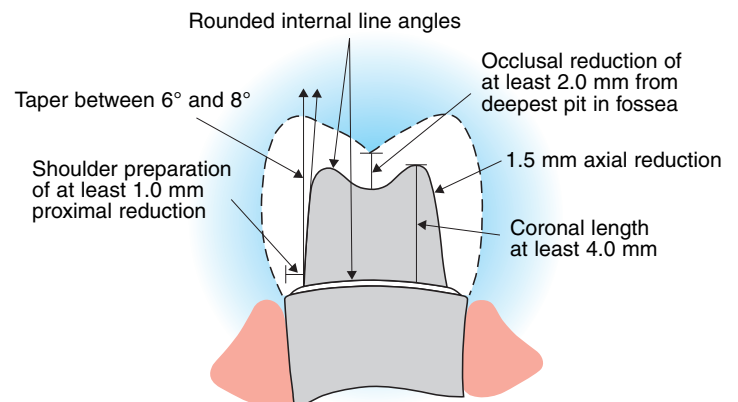
- Excessive reduction, especially in the upper anterior teeth (vestibular) and premolars.
- Excessive incisal/occlusal reduction causing reduced retention and stability.
- Insufficient reduction at the palatal side of the upper anterior teeth (malfunction occlusion).
- Excessive taper.



A. Posterior Crowns

For Posterior Crowns created with:

- IPS Empress® Esthetic – Bonded
- IPS e.max® Press – Cemented/Bonded
- Procera® AllCeram – Cemented
- Cercon® – Cemented
- Zeno® Tec, Contessa™ Zirconia, Lava® – Cemented



B. Veneers

For Veneers created with:

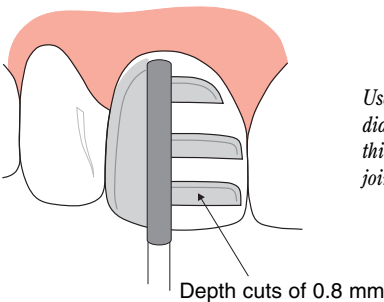
IPS Empress® Esthetic – Bonded

IPS e.max® Press – Cemented/Bonded

Aurum's Cristal™ Veneers (minimal prep) – Bonded

Technique Tips:

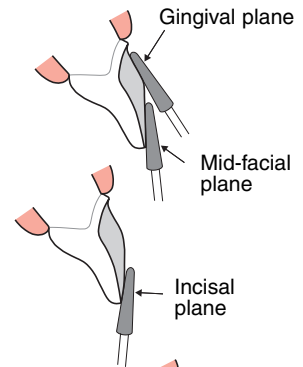
- On average, allow for a minimum of 1 mm of porcelain. A reduction greater than 1 mm may be required in areas masking severely discoloured enamel.
- Allow for veneer thickness of approximately 0.8 mm labially (with incisal covering).
- Proximal margins are completed labial to contact point. Preserve contacts wherever possible. It may be necessary to prepare through the proximal contact point when clinical conditions dictate (such as slice prep), interproximally to obtain proper emergence profile. Close black triangles.
- Provide a definite finish line for the technician with a chamfer lingual preparation and a 0.5 mm labial gingival finishing line.



Use medium grit, round-ended diamond bur to remove uniform thickness of facial enamel by joining the depth-cut grooves.

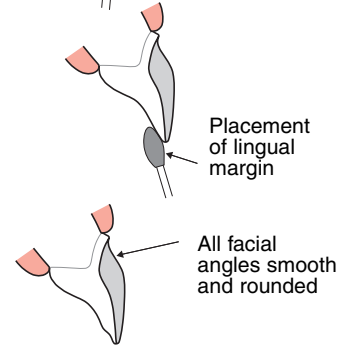
Incisal Preparation:

- Overlap of incisal edge is recommended.
- Long bevel lingual preparation.
- Lingual butt margin provides greatest strength as butt shoulder.
- 0.5 mm labial gingival finishing line.
- All line angles rounded, preparation smooth.



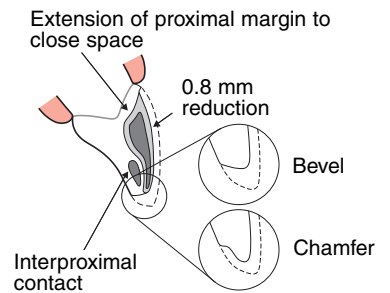
Interproximal Extension:

- Using round-ended diamond bur, extend the interproximal preparation from the gingival chamfer into the interproximal space. NOTE: Eliminate all discoloured enamel into the interproximal (i.e., elbow prep).



Lingual Reduction to Increase Length:

- Reduce tooth surface in stress bearing areas to provide bulk of porcelain for function.
- Angle diamond bur to eliminate undercuts and establish deep chamfer on lingual aspect of preparation.



C. Anterior Crowns

For all Anterior All Ceramic Full Crowns created with:

IPS Empress® Esthetic – Bonded

IPS e.max® Press – Cemented/Bonded

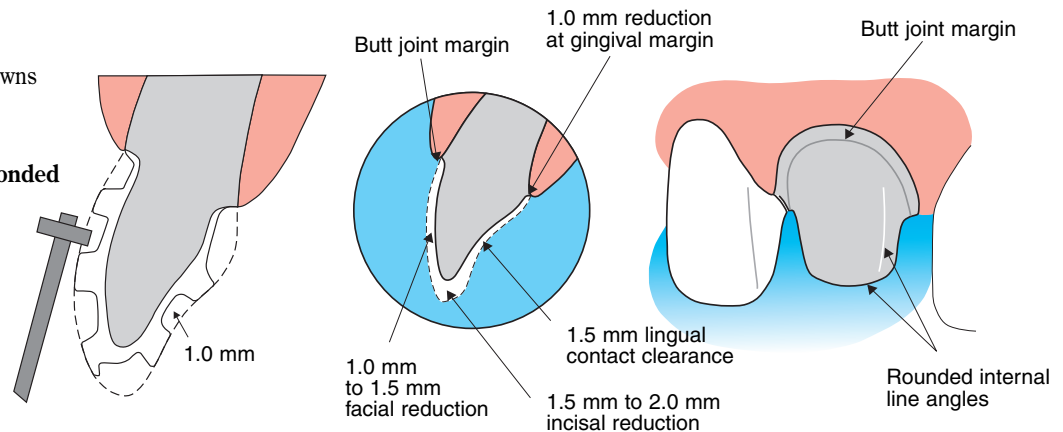
Procera® AllCeram – Cemented

Cercon® – Cemented

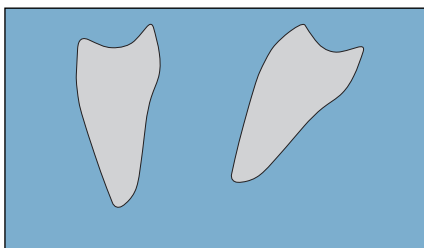
Cristobal® + – Bonded

Zeno® Tec, Contessa™ Zirconia,

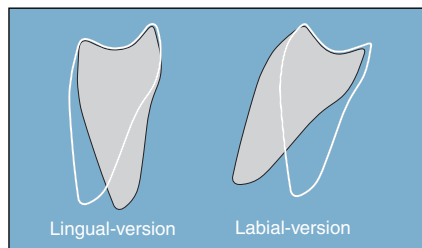
Lava® – Cemented



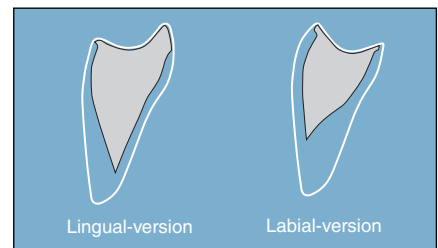
Preparing Teeth for the Correct Arch Form



Original position of teeth.



Preferred final position of teeth.



Actual preparation required to achieve preferred final position of teeth.

D. Anterior 3-Unit Bridge Preparation

For 3-unit Anterior Bridges created with:

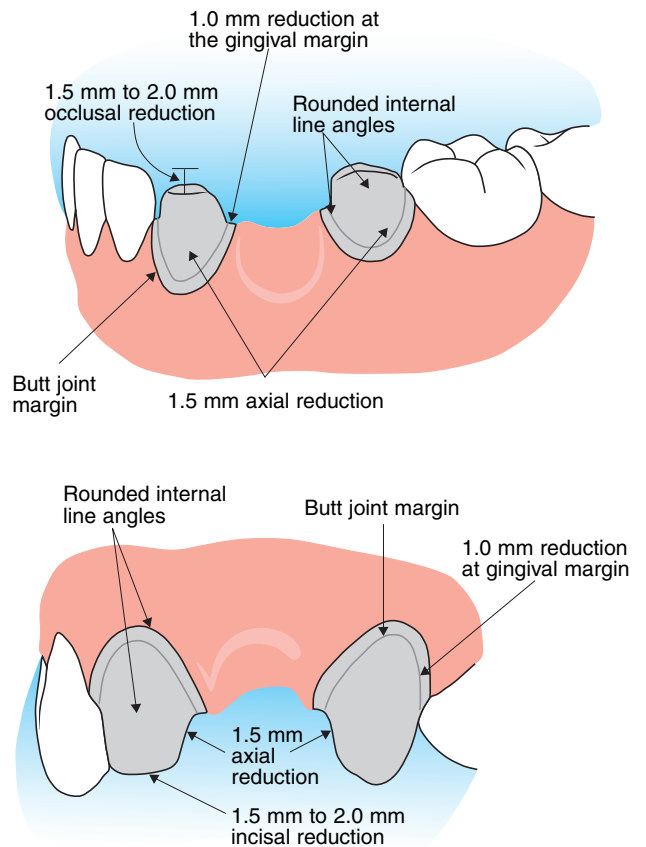
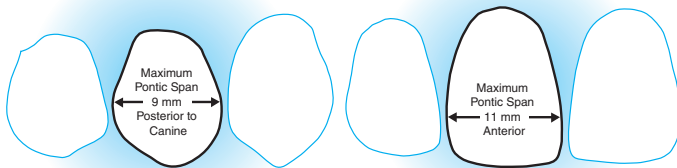
IPS e.max® Press – Cemented/Bonded

Cercon® (up to 20 mm span) – Cemented

Zeno® Tec, Contessa™ Zirconia, Lava® – Cemented

Technique Tips:

- Very important: Ensure there is adequate space occlusal-gingivally and buccal-lingually for interproximal joints.
- In the anterior region, the connector dimensions are to be 4 mm (occlusal-gingival) and 4 mm (buccal-lingual).
- In the premolar region, connector dimensions are to be 5 mm (occlusal-gingival) and 4 mm (buccal-lingual).
- Maximum pontic spans will vary from patient to patient depending on the tooth position, size, condition and arch position of the retainers.
- Pontic spans should not exceed 9 mm posterior to canine and 11 mm anterior to canine (IPS e.max® Press).
- Measurements for this determinant are made from the unprepared abutment surfaces next to the edentulous space.



E. Inlay Preparation

For Inlays created with:

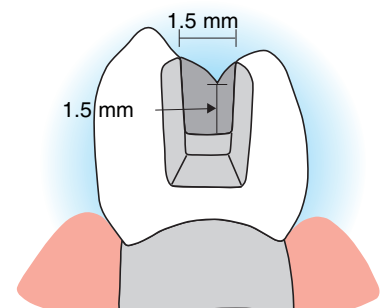
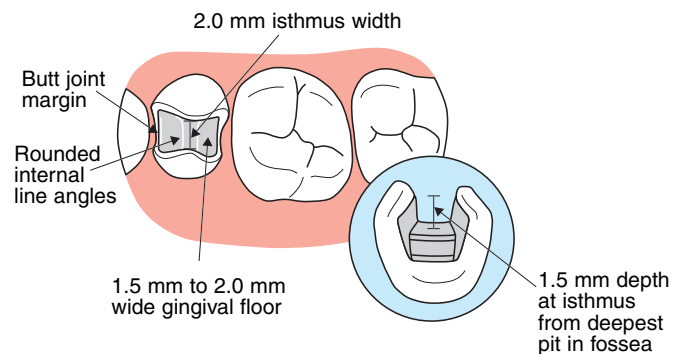
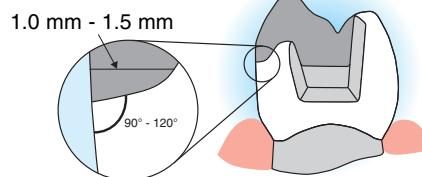
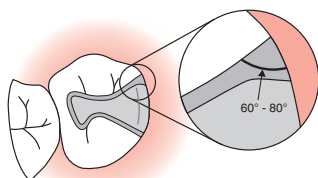
IPS Empress® Esthetic – Bonded

Cristobal® + – Bonded

Composites – Bonded

Technique Tips:

- Ensure all walls end in a butt margin. **No flared or feather edge margins.**
- Enamel surfaces created by parallel preparation are generally sufficient for acid etching with flat cusps; a diverging preparation helps optimize acid etching of the enamel.

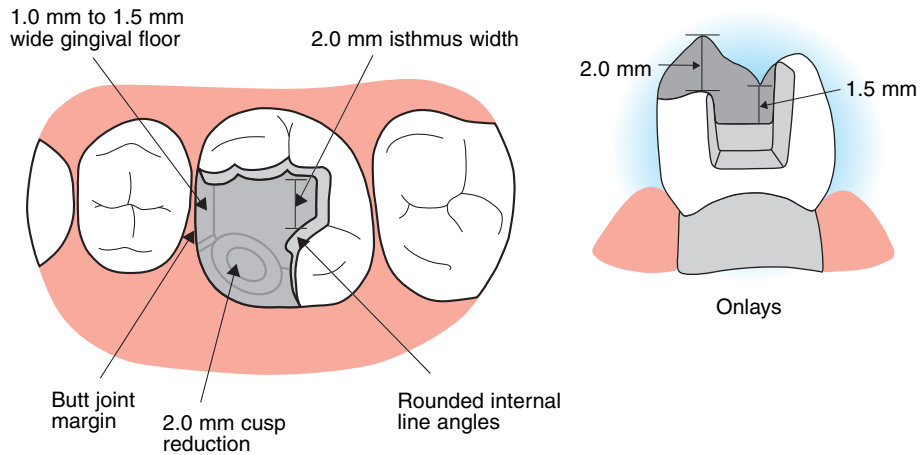


Inlays

F. Onlay Preparation

For Onlays created with:

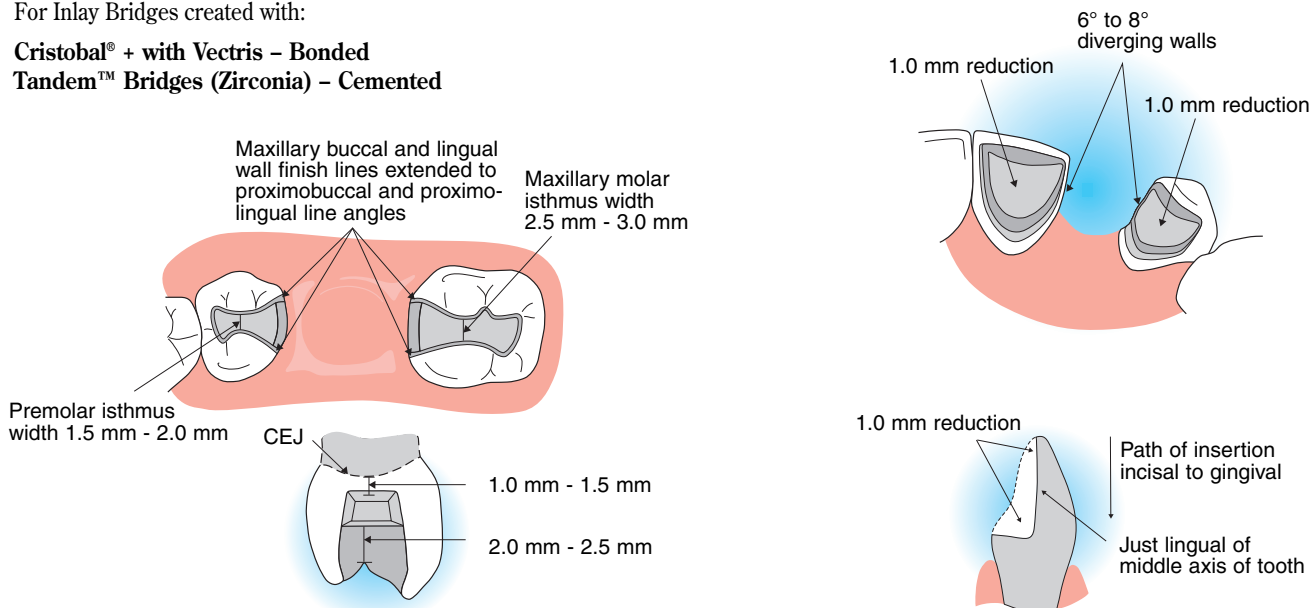
IPS Empress® Esthetic – Bonded
Cristobal® + – Bonded



G. Posterior or Anterior Inlay Bridge Preparation

For Inlay Bridges created with:

Cristobal® + with Vectris – Bonded
Tandem™ Bridges (Zirconia) – Cemented



2. Pressed Ceramic on Metal

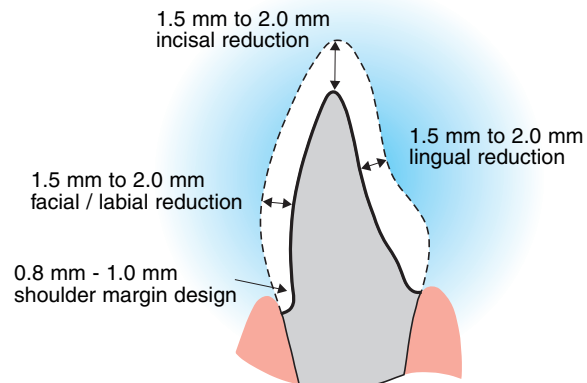
For restorations created with:

Princess™ – Cemented

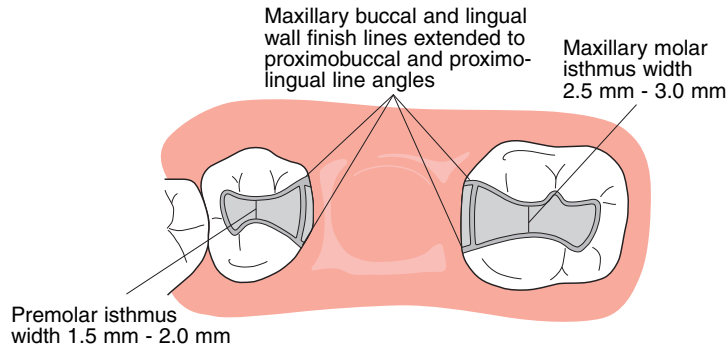
Critical Considerations

- Requires deep chamfer or shoulder margins.
- Preparation must include 180° (on labial surface) or 360° deep chamfer or shoulder margin.
- For non-vital teeth, a non-metallic post and/or build-up system is recommended.

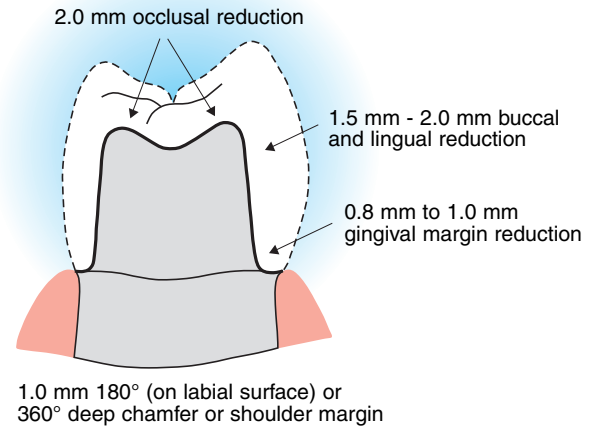
A. Anterior Crowns



B. Inlay (for Inlay type bridges)



C. Posterior Crowns or Abutments



3. PFM

For restorations created with:

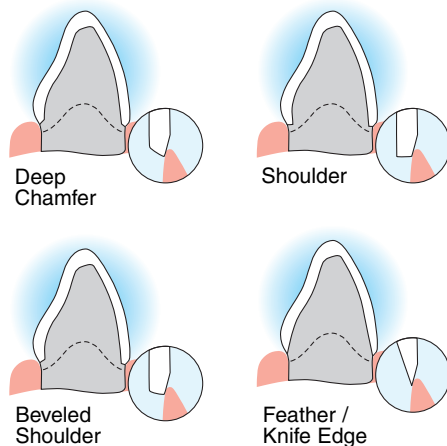
Arizona™ – Cemented

Princess™ – Cemented

NaturalGold™ – Cemented

Technique Tips:

- Create a shoulder (preferred) or deep chamfer with rounded gingivo-axial line angles.
- Be sure to carry the margin interproximally to reduce metal shadow and ensure esthetic quality.
- For a porcelain to margin finish, prepare a chamfered shoulder 0.5 mm subgingivally on the labial aspect of the tooth.
- Tissue must be retracted during impression so that the resultant die is a complete reflection of the prepared shoulder.
- For superior esthetics, you may wish to select a PORCELAIN BUTT MARGIN.



Porcelain margins on knife edge or feather edge are not recommended, as thin porcelain offers no strength and poor marginal integrity.

A. Anterior Crown

Ideal preparation for restorations created with:

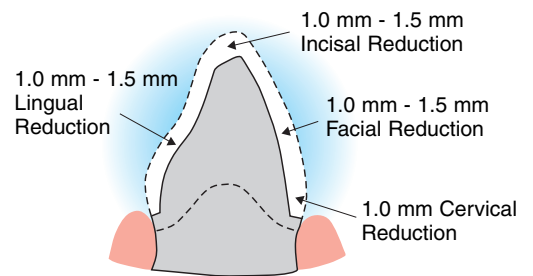
Arizona™ – Cemented

Princess™ – Cemented

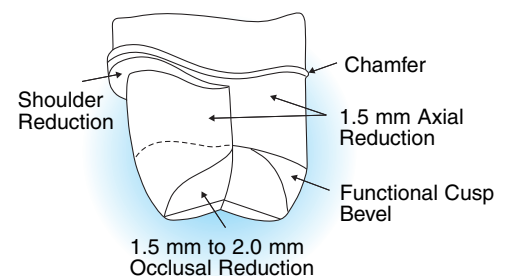
NaturalGold™ – Cemented

Technique Tips:

- Incisal reduction should allow for no less than 2 mm of porcelain in final restoration.
- Ensure a minimum labial reduction of 1.5 mm (insufficient labial reduction can cause poor translucency, bucked centrals and angry patients).



B. Posterior Crown



Quick Cementation Procedure for Adhesive Bonding

1. Check restorations on solid models for fit and length.
2. Anesthetize patient.
3. Remove temporaries. Clean off preps, ensuring all temp material is removed.
4. Clean prep using Hydrogen Peroxide and rinse thoroughly with H₂O.
5. Try-in each restoration individually (dry) to check fit.
6. Place all restorations to check contacts and colour (use try-in paste if necessary).
7. Seat the patient upright and verify midline and cant. Get patient's approval before final seat of restorations.
8. Remove restorations, clean with phosphoric acid (10-20 seconds) and thoroughly rinse with H₂O.
9. Apply silane and lightly air-dry, then apply same bonding resin to be used on teeth. Then place restoration in light-protected cover. Another alternative would be to place Kerr Silane Primer on the restoration. Kerr Silane Primer contains both silane and bonding resin in same bottle.
10. Place rubber dam on patient.
11. Etch 2 – 3 teeth using Phosphoric Acid. Do not allow etchant to be on dentin for more than 10 – 12 seconds.
12. Thoroughly rinse teeth with H₂O.
13. Lightly air-dry teeth without desiccating them. Teeth should remain “wet” or “glistening”.
14. Re-wet teeth using Ultracid, SuperSeal or other re-wetting products.
15. Apply primer/adhesive to teeth. Thoroughly apply two coats to teeth prior to light curing. Agitate into prep for 20 seconds. Lightly air-dry teeth (blowing primer/adhesive towards CEJ). Inspect for any excess pooling of primer/adhesive prior to light curing.
16. Light cure primer/adhesive for 10-20 seconds per tooth.
17. Place luting resin in restoration (use **base** only).
18. Place both central restorations together. Do **not** apply initially with full pressure and release. This can cause “suck-back” contamination.
19. Use rubber tip to remove excess luting resin.
20. Once proper seating is confirmed, apply full pressure and tack (light cure) at gingival margin for 5-10 seconds. Do not cure interproximal luting resin.
21. Bring floss down through centrals once and pull through lightly to remove excess luting resin.
22. Light cure **mesial** interproximal luting resin only.
23. Place lateral only, following steps 17 through 21 outlined previously.
24. Place canine and remaining restorations individually, following steps 17 through 21 outlined previously.
25. Go to other side lateral and follow steps 17 through 24 outlined previously.
26. Remove all gross excess luting resin **prior** to final curing of **ALL** restorations.
27. Final cure ALL surfaces of restorations for 10 – 20 seconds on both buccal and lingual of teeth. Remember you are using **BASE** only with your luting resin.
28. Remove cured luting resin with hand scaler, gold foil instrument or Bard Parker. Do not use a diamond or carbide to remove excess luting resin as it will damage porcelain finish.
29. Use Centrix Separating Discs (Smooth) to remove remaining cured luting resin in the interproximal.
30. Use Enhance Cup on slow speed using H₂O and light pressure.
31. Polish areas of adjustment on restoration using Axis Porcelain Polishing Kit with slow speed and H₂O.
32. Take Post-Op photos.

Suggested Conventional Cementation and/or Bonding Materials

IPS Empress® Esthetic, Cristobal® +, Aurum Tandem™ Bridge, Aurum's Cristal™ Veneers

Bonding: Must be bonded using dual cured resin cement with companion enamel/dentin bonding agent. Light cure only resin cement can be used for veneers.

IPS e.max®

Conventional Cementation/Bonding: The e.max system actually contains four different component products. *For Press and Cad components*, can be bonded using dual cured resin cement with companion enamel/dentin bonding agent or can be conven-

tionally cemented. *For ZirPress and ZirCad*, use any conventional PFM cement (Glass ionomer, resin ionomer, adhesive resin cement, Zinc Phosphate, etc.) or can be bonded with Multilink or Panavia F (follow manufacturers directions).

Confessa™ Zirconia, Procerc® AllCeram, Zeno® Tec, Princess™, Arizona™, NaturalGold™, Lava®, Cercon®

Conventional Cementation: Use any conventional cement (Glass ionomer, resin ionomer, adhesive resin cement, Zinc Phosphate, etc.) or can be bonded with Multilink or Panavia F (follow manufacturers directions). **NOTE: Cements with higher expansion rates (e.g., hybrid ionomer cements) must NOT be used.**

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