

Record Base and Occlusion Rims

Record base: an interim denture base (temporary form) used to support the record rim material for recording maxilla-mandibular records.



Requirements of record base:

1. The record base must have rigidity.
2. The record base must have accuracy and stability.
3. The borders should be developed in the same manner as borders of finished denture.
4. All surfaces that contact lips, cheek and tongue should be smooth, round and polished.
5. The crest, labial and /or buccal slopes should be thin to provide space for teeth arrangement.

The accuracy of maxillo-mandibular relation record is affected by:

- * Rigidity of record base.
- * Stability of record base.
- * The movability of the record bases.
- * The smoothness of the polished surfaces contributes to the comfort of the patient.
- * The more comfortable and compatible the record bases are to the tissues, the more normal are the jaw movements.

Types and materials used in construction of record bases:

- * **Temporary record bases:** They are discarded and replaced by denture base material, once their role in establishing jaw relation, teeth arrangement and try in is complete.

Types of temporary record bases:

1. Shellac base plate.
2. Reinforced shellac base plate.
3. Cold cure acrylic resin.
4. Visible light cure acrylic resin.
5. Vacuum formed vinyl and polystyrene.
6. Base plate wax (rarely used because it lacks rigidity and dimensional stability).

***Permanent record bases:** they are not discarded and become part of the actual base of the finished complete denture.

Types of permanent record bases:

1. Heat cure acrylic resin.
2. Gold.
3. Chromium-cobalt alloy.
4. Chromium-nickel alloy.

Occlusion Rims (record or bite rim)

Occlusion rim: the occlusal surfaces fabricated on record bases for the purpose of making maxillomandibular relationship records and/or arranging teeth - called also occlusion rim.

Requirements of occlusal rim:

1. The position should be in the anticipated position of the artificial teeth.
2. It must be securely attached to the base.
3. The occlusal surface must be smooth and flat.
4. It should be contoured to support the lip and cheeks accurately.
5. All the surfaces should be smooth.

Materials used in construction of occlusal rims:

1. Wax:

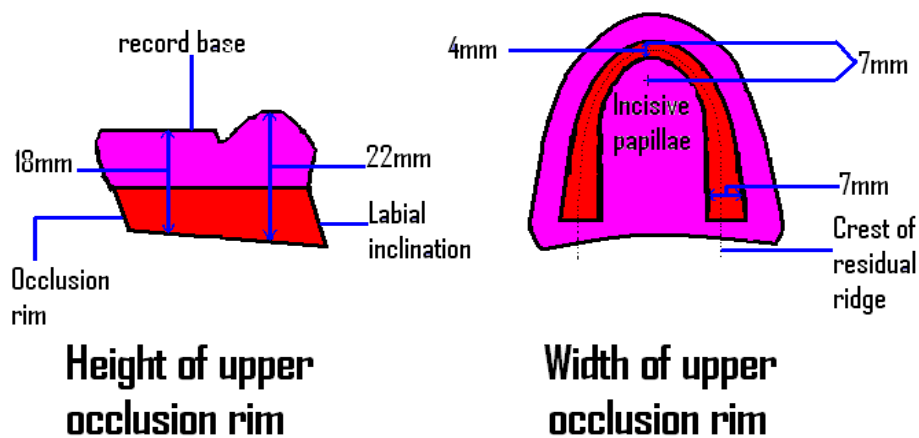
- a. Bite blocks wax (readymade occlusion rim).
- b. Paraffin wax or base plate wax sheets (hand made occlusion rim).

2. Modeling compound.

Wax is used more frequently, since it is easier to manage in the registrations and in the arrangement of teeth.

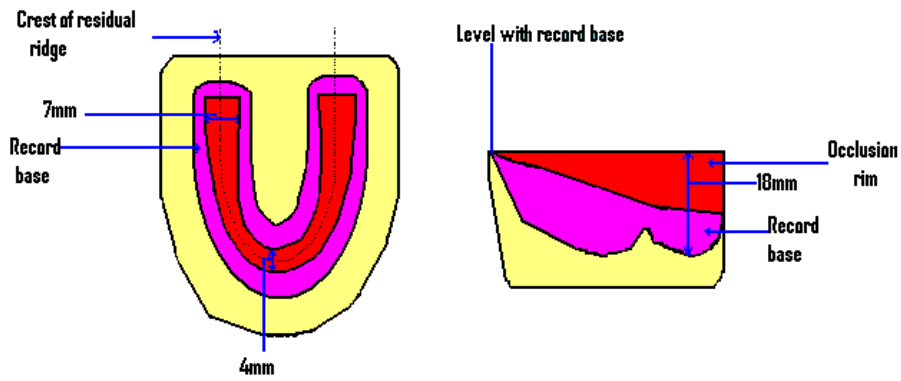
Measurements of maxillary occlusion rim:

1. The maxillary rim should have a slight labial inclination and the maxillary labial surface should be 7 mm anterior to the line bisecting the incisive papillae.
2. The final wax rims should be 4 mm wide anterior and gradually, become wider posterior to measure 7 mm.
3. They should be directly over the crest of the residual ridges.
4. The occlusal height of maxillary rim should be 22 mm from the labial flange lateral to the labial frenum and 18 mm from the buccal flange to the tuberosity area.



Measurement of mandibular occlusion rims:

1. It should occupy the space over the crest of the residual ridge.
2. The occlusal height should be 18 mm from the labial flange lateral to the labial frenum and should be level with the acrylic base posteriorly.
3. The labio-lingual thickness should approximately 4 mm anteriorly and also increase posteriorly to be 7 mm in molars area.



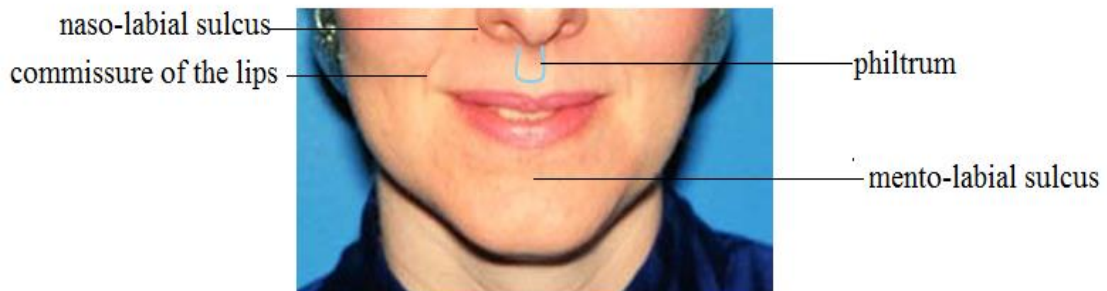
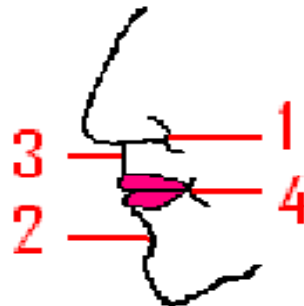
Width of lower occlusion rim

Height of lower occlusion rim

All above points regards in the laboratory work, while in patient mouth we have other guides used in occlusion rims construction.

The best anatomic guides to aid in determining the proper contouring of anterior section of upper and lower occlusion rims:

1. The naso-labial sulcus.
2. The mento-labial sulcus.
3. The philtrum.
4. The commissure of the lips.



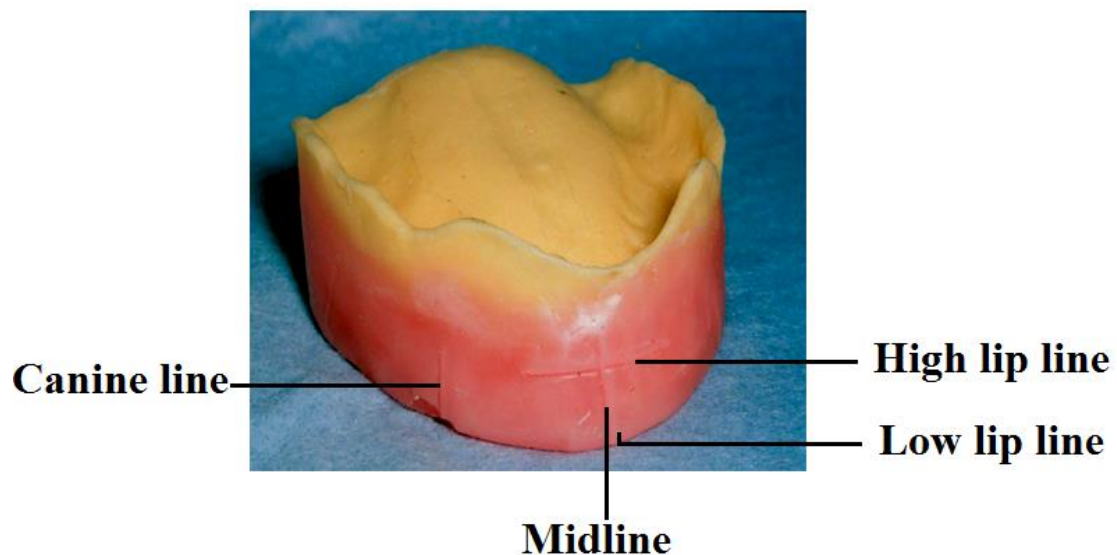
Uses of occlusion rims:

1. In determination of jaw relation which include:

- a. Determination of the vertical dimension.
- b. Determination of the centric and eccentric jaw relation.

2. In selection of teeth:

- a. The position of midline can be determine
- b. Canine line (cuspid line) is drawn on occlusal rim at the corner of mouth on each side when occlusion rims seated in mouth and in occlusion.
- c. Width of 6 anterior teeth is equal to distance between the 2 canine lines.
- d. The width of posterior teeth is equal to distance between the canine line and end of wax rim posterioly.
- e. The high length of anterior teeth is determined by drawing high lip line (gum line, or smiling line) .When patient smiling; the whole of anterior incisor should be seen.
- f. The low lip line (speaking line, or relaxed lip line) is a line drawn on wax rim when lip is relax, in this case 2 mm of anterior teeth should be seen.



3. Setting up of teeth.

4. Orientation of occlusal plane.

5. Determination of shape of arch.

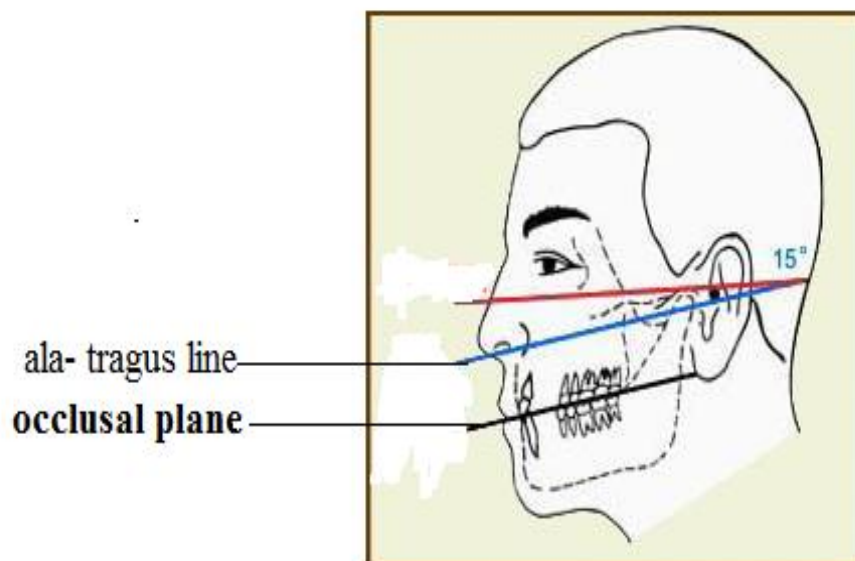
6. Support of the facial musculature.

Occlusal plane

The average plane established by the incisal and occlusal surfaces of the teeth. Generally, it is not a plane but represents the planar mean of the curvature of these surfaces.

It's an imaginary surface which is related anatomically to the cranium and theoretically attached the incisal edges of the incisors and the tips of the occluding surfaces of posterior teeth.

The height of the occlusal plane (the vertical length of maxillary occlusion rim anteriorly) should be 1-2 mm below the relaxed upper lip and this will be different from patient to other and affected by the age of the patient and type of the lip. Generally there are 1-2 mm showing from the incisors in the average dentulous patient but each case should be considered separately in relation to the height of the lip, age of the patient and sex of the patient, e.g. for the patient that have long lip the height of the occlusal plane should be with the border of the upper lip, while for the patient with short lip there is more than 2 mm showing from upper lip. So each case should be considered separately for best appearance.

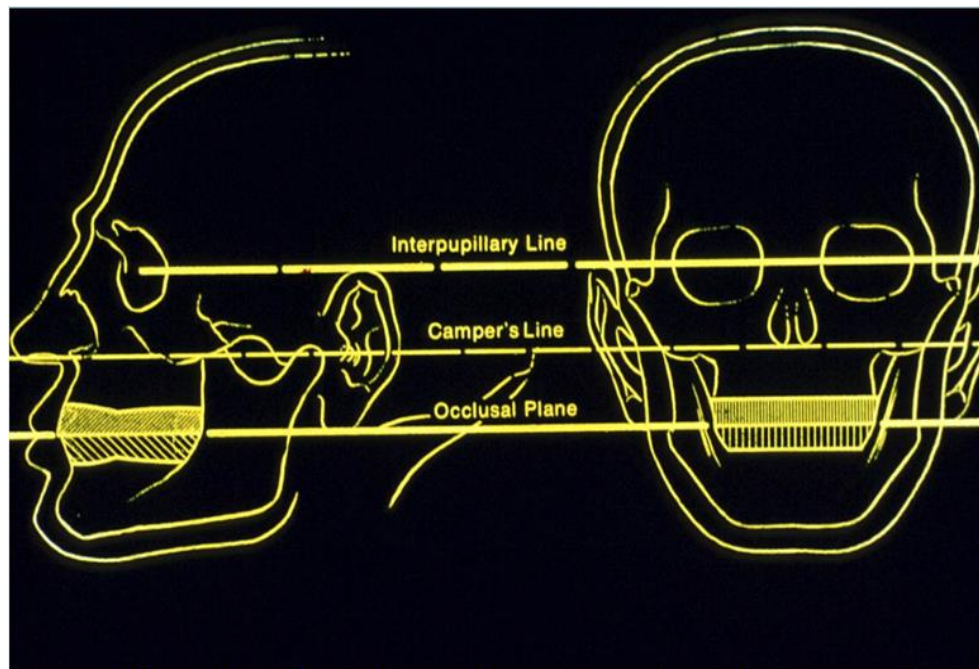


Fox bite (Fox plane guide)

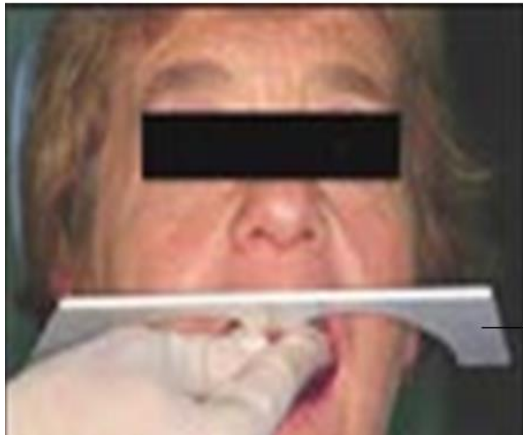
An appliance used to check the parallelism of the wax occlusal rim anteriorly and posteriorly.

*The **anterior part** of the wax rim should be parallel to the **interpupillary line** (this is an imaginary line running between the centers of the two pupils of the eyes when the patient is looking straight forward).

***Posteriorly** the occlusal plane starting from the canine region backward should be parallel to the **(Camper's line)**, this is a line running from the ala of the nose to the superior border of the tragus of the ear (Ala-tragus line).



Fox bite



Fox bite (Fox plane guide)
 anteriorly parallel with
 inter-papillary line



Posteriorly the occlusal plane starting from the canine region backward should be parallel to the **Camper's line**.

MAXILLARY WAX RIM

[Main Menu](#)



Technique

- Place maxillary record base on the cast.
- Heat a sheet of baseplate wax in the Bunsen burner until the wax is very pliable.
- Roll the wax into long tube.
- Starting at the tuberosity, press the roll of wax against the crest of the ridge.
- Seal the wax to the record base with a hot wax spatula. If necessary, fill in voids with additional wax.

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Paraffin wax or base plate wax sheets (handmade occlusion rim)



MAXILLARY WAX RIM

[Main Menu](#)



- All surfaces of the wax rim must be smooth and free of voids
- The posterior section of the rim should be tapered to avoid contact with the retromolar pad
- The curvature of the anterior portion must simulate the curvature of the edentulous arch

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Bite blocks wax (readymade occlusion rim)