

Dentil clinics design

Dentil clinics:

Dental clinics are clinics specialized in treating diseases of the teeth and gums that are part of the mouth.

Some of these clinics specialize in dental treatment only, and some are also specialized in performing surgeries that treat the face and jaws and what has to do with those parts of the human body.

The modern dental office is a high-tech/high-touch environment.

Dental design specialist must be continually educated in changes in technology and in dental

Practice management.



Reception waiting area.

Importance of Design and Planning

Designing and planning are of major importance for efficient functioning, avoiding logistic problems and wastage of money in future as well as creating a unique identity of the clinic in a competitive environment.

Even a small dental clinic is a complex design because of multiple services involved. So, the design and construction require extraordinary teamwork. Collaboration and coordination are required between dentist, interior designer, equipment installers, and agencies like carpenter, electrician, plumber, fabricator, false ceiling maker and so on. And here like a captain of cricket team, dentist is the leader of whole team. Making a dental clinic can be quite overwhelming, especially for the first time because there are many things one is not sure about. So, to simplify things, here are basic parameters of dental clinic design.

Parameters of Dental Clinic Design

1. Choosing the clinic space
2. Functioning of Layout
3. Functioning of chair and other equipment's
4. Planning of services
5. Lighting and ventilation
6. Selection of materials
7. Hygiene and sterilization
8. Storage Design
9. Clinic Identity

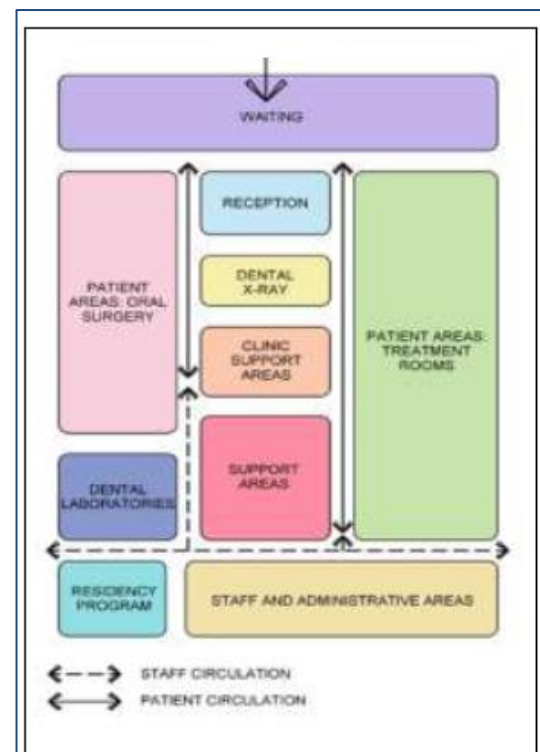


Table 10-1.
Analysis of Program
General Dentistry

No. of Dentists	1	2
Waiting Room*	12 x 14 = 168	16 x 18 = 288
Business Office/ Reception	12 x 16 = 192	12 x 16 = 192
Treatment Coordinator	8 x 10 = 80	8 x 10 = 80
Operatories ^a	3 @ 10 x 11½ = 345	6 @ 10 x 11½ = 690
Lab	8 x 10 = 80	8 x 10 = 80
Sterilization Alcove or Room ^b	6 x 12 = 72	6 x 12 = 96
Tech Closet ^c	4 x 4 = 16	4 x 4 = 16
Staff Lounge	10 x 10 = 100	10 x 12 = 120
Toilets	2 @ 8 x 8 = 128	2 @ 8 x 8 = 128
Hygiene Operatory	10 x 11½ = 115	2 @ 10 x 11½ = 230
Pan/Ceph Alcove	6 x 8 = 48	6 x 8 = 48
Soiled Holding/ Laundry	6 x 6 = 36	6 x 6 = 36
Housekeeping Closet	8 x 8 = 64	8 x 8 = 64
Private Office*	10 x 10 = 100	10 x 14 = 140
Storage	5 x 6 = 30	6 x 8 = 48
Mechanical Equipment Room	6 x 8 = 48	6 x 8 = 48
Tel. Equip./Server Closet	4 x 5 = 20	4 x 5 = 20
Biohazard Storage	4 x 4 = 16	4 x 4 = 16
Subtotal	1,658 SF	2,340 SF
20% Circulation	331	468
Total	1,989 SF	2,808 SF

*Number of persons by 20 SF each.

^aSize of operatories varies with doctor's practice preference for delivery of instrumentation and location of casework.

^bSize depends on whether prefab modular system or custom casework.

^cTech closet may be smaller if equipment rack is recessed into casework as in Figure 10-55.

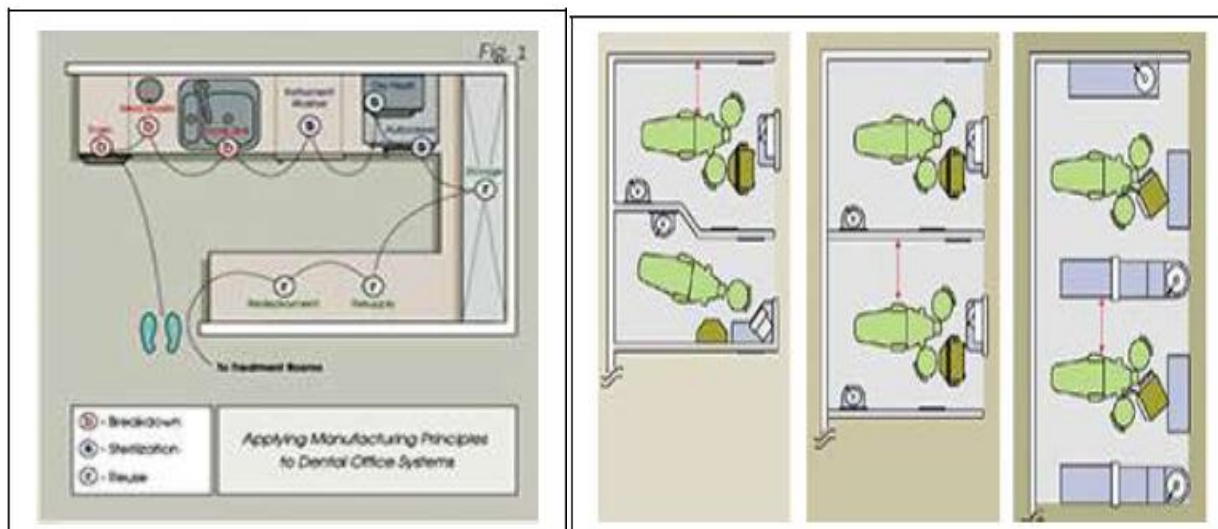
*Shared in two-doctor office.

Choosing the dental clinic space

The clinician should be clear about all the requirements – number of chairs, provision of chairs, kind of X-ray unit, utilization of storage, staff – before buying the space.

Natural light and ventilation play a major role in improving the efficiency of work. Commercial spaces that do not have any window are not at all advisable for making dental clinics.

Number of chairs and its functionality not only depends on the total area of space but also on size and shape of space, entry direction, window location and several other factors. Thus, pre-planning of the layout is required before buying the space.



Functioning of Layout

Basic functions of a dental clinic are:

- 1- Waiting area – executive waiting
- 2- Consulting area
- 3- Dental Operatory
- 4- Laboratory – Scrub Room
- 5- X-ray room (if required)
- 6- Washroom

7-Operation Theatre and Patient Ward (in case of Oral Surgeon)

8-Nursing or Pantry (optional) .

Division of space

There are basically four possibilities for the relationship between consulting and operatory: Consulting and operatory can be completely open without any partition in-between, this will be most suitable for small clinics with a single chair and niche practice. (Fig. 1)



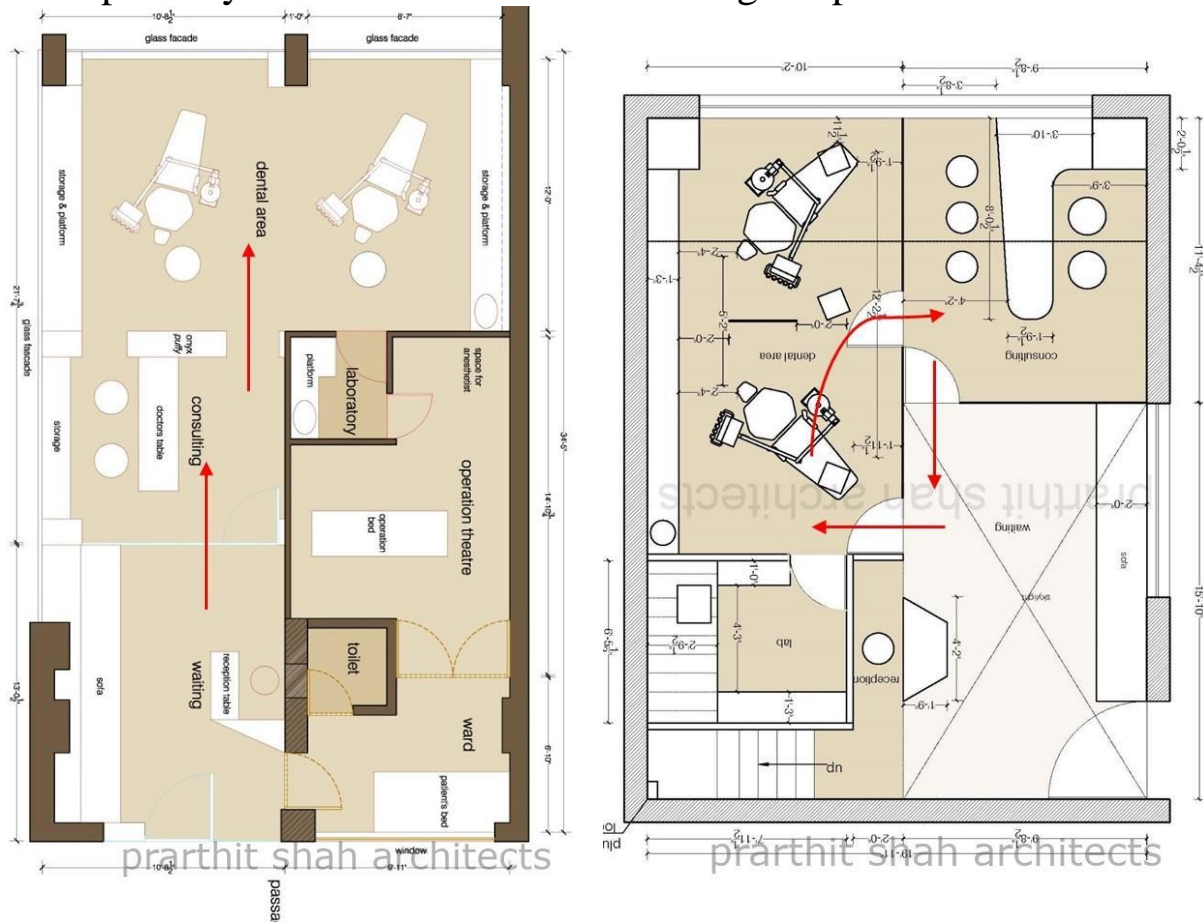
There can be half partition between consulting and operatory, that will provide a marginal visual privacy to the patient without dividing whole space. Consulting and operatory can also be completely separated with glass partition. That will allow audio and visual privacy to consultation. There is also a possibility where one chair can be with consultation room and rest of the chairs is in operatory.

Patient movement

Patient movement inside the clinic also has two possibilities:

- 1- If waiting area and operatory are in open layout than from waiting area patient can go to operatory via consulting area. In this case, every patient will pass in front of the clinician but consultation will not have privacy.
- 2- In second scenario, from waiting area patient can be taken directly to operatory by receptionist. Dentist can check and take the patient to consulting area for explaining the treatment plan and finally patient can

directly come out in waiting Such a loop moment will help in making operatory hassle-free while maintaining the patient flow



Functioning of chair and equipment's

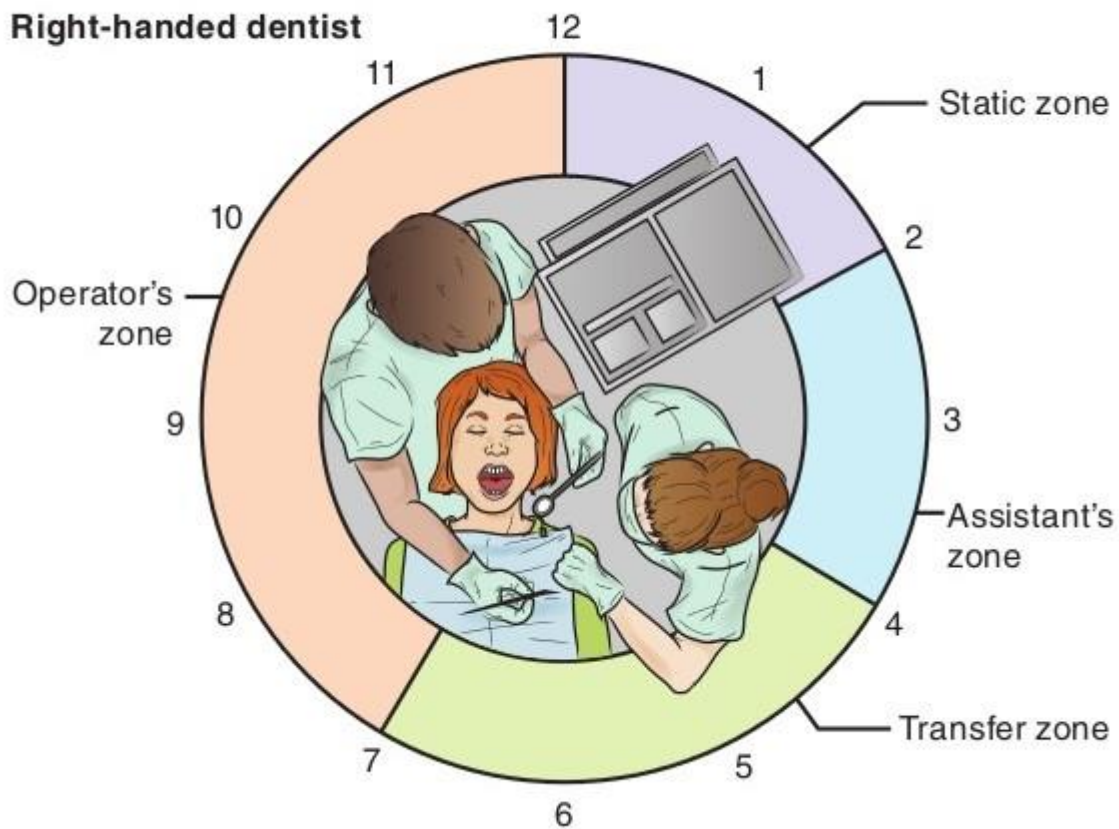
One of the most crucial aspects is to make dental clinic design layout in a way that leaves enough space to work around the chair. For normal practice in Indian context, ideal space for one chair would be 10 feet x 7 feet. When space is limited one can accommodate one chair in minimum 8.5 feet x 6 feet space.

Basic diagram of four-handed dentistry suggests 7 o'clock to 12 o'clock positions as clinician's zone (Fig. 5) but every specialist dentist should keep space around the chair according to their own preferable work positions.

Movement of chair arms should be considered with proximity to adjacent platform and storage. If one is planning for wall mount X-ray unit than it has to be checked in the layout itself that arms are reachable to necessary chairs.

Generally, X-ray unit arms are 6 feet long but if required one can pre-order longer arms.

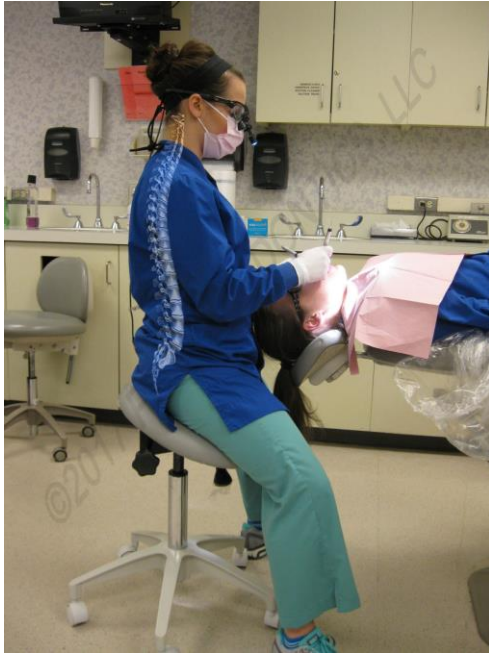
Planning of dental equipment's with rest of the interior is crucial for efficiency because even a small mistake can cost huge if neglected. For example, if X-ray unit is kept below air conditioner, normal water leakage will cost damage of the whole X-ray unit.



Dental Ergonomics

Ergonomics is the design science that fits the work to the worker. Application of dental ergonomic will increase comfort for the dental team and decrease work-related disorders. Dentists often suffer from low back pain, neck and shoulder pain, wrist and hand problems, stress etc. These are results of awkward posture, forceful exertions, and repetitive motions like scaling and

vibrating hand tools. These problems can be tackled with appropriate work postures shadow-free lighting and organizing equipment's and materials in a manner that reduces posture deviation while working.



Planning of services

Dental clinic has multiple services integrated with each other. So, if one starts execution without planning, the clinic will end up with pipelines and wires meshed up in every corner.

While planning can fetch absolutely brilliant result like just simply chair on the floor without any box or pipes visible! (Fig. 8 &9) To make pipes invisible all the service lines has to be taken under the floor and a small chamber has to be made right below the chair. All the services will directly get connected to the chair from this chamber. These services include electric connection, water inlet, RO water inlet, plumbing outlet, HDMI cable, Suction, and Compressor inlet. Such under floor services will not only give clean look but will also allow hassle-free movement around the chair.

In such a case, the floor has to be raised 5 to 6 inches above the slab and location of the chair has to be finalized before doing the flooring.

All other services namely – plumbing, electrical, Lan cable, air condition, CCTV cameras, intercom, music system, compressor, power backup should be planned in the layout before starting execution.

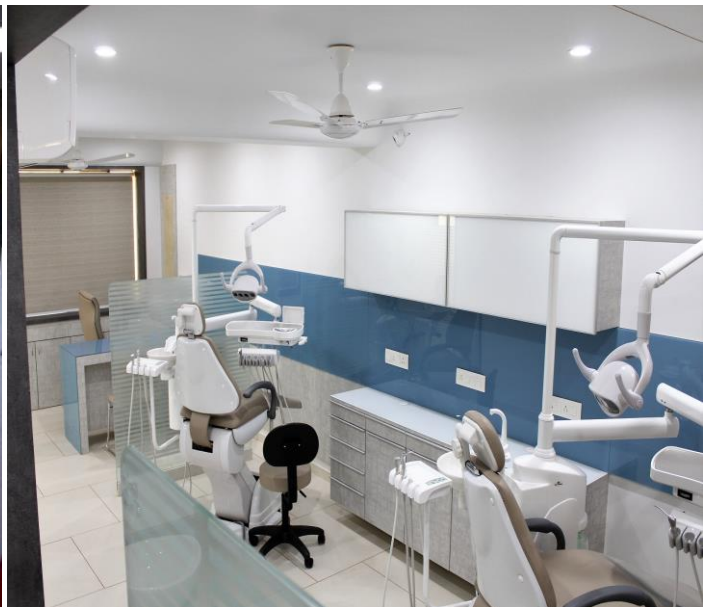
To transfer data from RVG to screen, HDMI cable is used and it is not possible to make a joint in HDMI cable. So, a 2-inch separate pipe has to be placed under the floor to carry this cable.

Lighting and ventilation

Maximum natural light is preferable for dental clinic as it will improve work efficiency. Also, natural light is considered best in shade matching for cosmetic work.

Ventilation is preferable in laboratory area to allow exhaustion of bad odor and also heat generated from autoclave.

Decorative yellow lighting should be avoided in operatory as it will distract surgery procedure. Uniform lighting is must in operatory because it will smoothen the work procedure.



Selection of materials

For dental clinic interior design, selection of material is a tricky thing as one has to make a fine balance between durability, aesthetics, and budget.

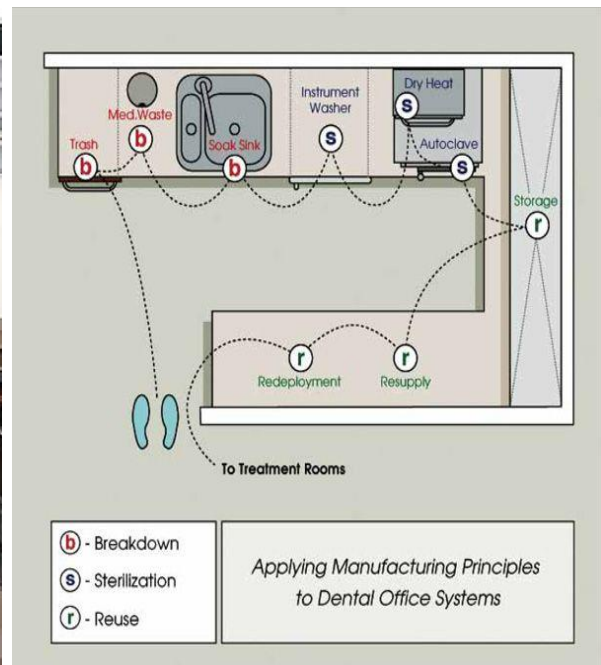
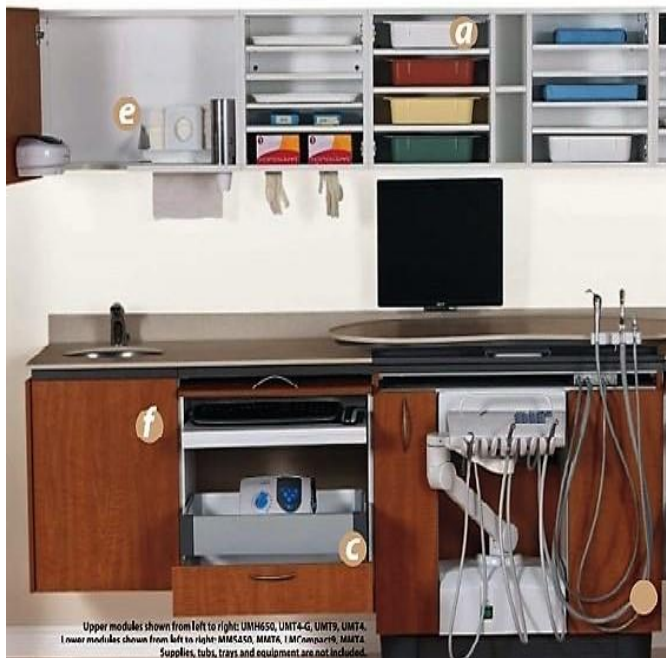
For flooring tiles, marbles are common options. Matt finish tiles are preferable as glossy tiles would reflect the artificial light harshly and would be slippery. Even platform has options of granite, solid surface (Coria) and glass. Granite is the most durable and cost-effective but in laboratory, one has to select such

granite which doesn't get stained by chemicals like betadine. Even stainless-steel sink in laboratory can get rusted and get scratches, so it is better to opt for ceramic or polypropylene basins. Whereas small basins in operatory can be of glass to match with the chair spittoon.

Hygiene and sterilization

Hygiene and sterilization are technically significant aspects while of dental clinic design. Especially laboratory area should be made in such a way that it is easily cleanable and maintenance free. Smallest thing like a built-in dustbin and tissue wipe holder near basin can help in maintaining hygiene level in a big way.

Radiation should be taken seriously and proper lead room and lead door are essential requirements for OPG unit.

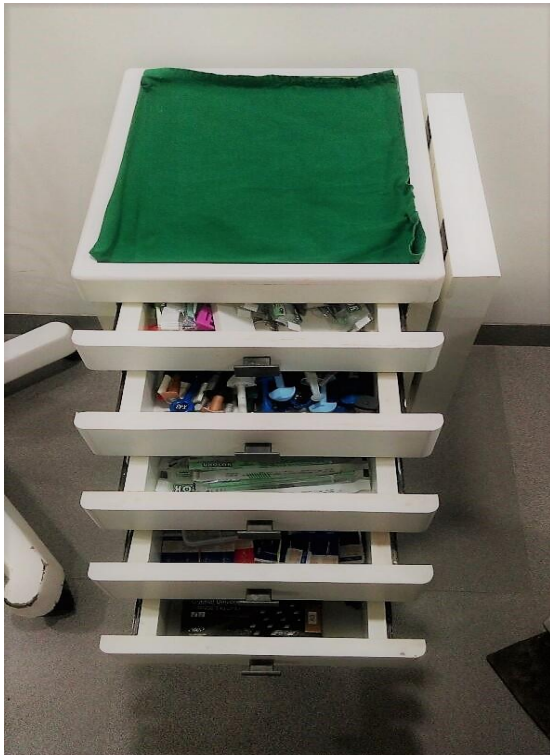


Storage Design

Readymade built-in storage cabinets for dental clinics are available worldwide but it will cost way more than making it on site. While making cabinets on site, each drawer should be made exactly according to the specific instruments that are to be placed in it. Initiative for such planning has to be taken by dentist only.

All equipment's like suction, CPU, inverter, small trolleys, CCTV DVR should be built-in storage only so that nothing is seen outside and it is easy to keep it clean. In small clinics, dental trolley with multiple drawers and folding top can be immensely useful and space saving.

Laboratory area has lot of equipment's and services. Basin, autoclave, UV chamber, micro motor, glass bead sterilizer, ultra-sonic vibrator, freeze and other equipment's should be planned according to sterilization flow of instruments. Such micro planning will increase hygiene and efficiency to a new level.



Clinic Identity

In a competitive era, to give a unique identity of your clinic, the clinic should be designed aesthetically with a specific theme. Branding can be done where same theme and color tone can be maintained in the interior, stationery, visiting card, clinic name board, and website. Clinic logo can be incorporated as part of the interior so that people easily identify with it.



Clinic logo can be part of interior

In dental clinic design if aesthetics go hand in hand with functionality the result would be a very soothing space where clinician would love to work for longer hours and patients would not mind for a painful extraction.

This article is not meant to emphasis on just aesthetical value of the clinic. Only spending more money will not make your clinic a really good workplace. Designing a technical yet aesthetical clinic requires clinician's consistent attention, reasonable budget but most importantly planning at several levels.

Planning the most suitable layout, planning of services, pre-planned equipment's and micro-planning of storage.



