Principles of Orthodontic Office Design

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All practicing dentists must at some time grapple with the matter of "office design." New graduates usually spend many hours deciding on an office layout to meet their expected needs. Years later, many practitioners are confronted with similar problems. They must either renovate or enlarge their present offices or simply move to more suitable quarters.

Dentistry has changed dramatically during the past two decades. Not only are these changes reflected in new types of fixtures and equipment, but also in the layout of a dental office. Though we may still pursue our personal tastes in matters of office finishing details and decorations, the basic office layout requires a more objective approach. Today, all dentists must consider factors such as work simplification, traffic flow, applied psychology, and the utilization of auxiliary personnel when planning an office.

The orthodontist, like the pedodontist and many general practitioners, serves mostly young school-age patients. With the demand for children's dental services increasing, it is becoming essential that the doctor not neglect functional efficiency in his office design. Moreover, the conventional, adult-oriented office must be modified somewhat to meet the specialized needs of young patients.

Personal examination by the authors of many thoughtfully planned contemporary offices, as well as their own experiences, points to some basic guidelines governing efficient orthodontic office design. Though specifically related to the practice of orthodontics, these fundamental principles are applicable to any office primarily serving young school-age patients.

FUNCTIONAL DIVISIONS OF THE ORTHODONTIC OFFICE

A modern orthodontic office may be broken down into six areas according to function (Fig. 1): 1) treatment area, including records room and toothbrushing area; 2) reception room; 3) laboratory, darkroom, supply storage; 4) consultation room (private office); 5) receptionist's office, including business area; and 6) rest rooms (public and private).

Some offices boast the added comforts of a staff lounge or conference room. Though fine additions to any office, these rooms are entirely optional depending on space availability.

In a well-designed office the treatment area should comprise about 45% of the total office area. It should include a records room designed to con-

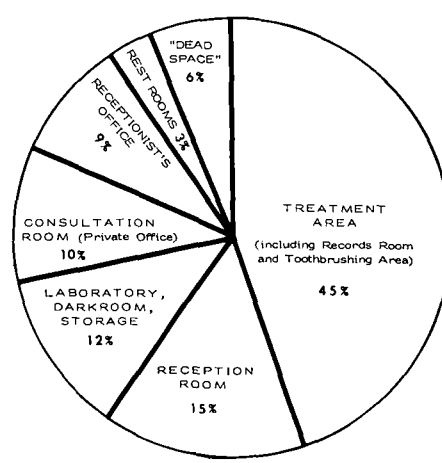

Fig. 1 Functional divisions of the orthodontic office. Percentages indicate the ideal space allotments for a balanced office layout.

tain all x-ray equipment, the study models and x-ray record folders of all current patients, and a chair for record impression taking and examinations at minimum. A patient toothbrushing alcove or "preventive dentistry" niche at the edge of the treatment area should be provided. This serves not only for each patient's preappointment oral hygiene but also for patient education in general. The treatment area proper may be divided into a treatment theater (multiple chair operatory), and one or more single chair treatment rooms. The exact arrangement, of course, depends on the number of square feet available. The treatment theater concept permits spacious rooms and stimulates a relaxed office atmosphere and better patient cooperation.

A surprisingly accurate rule of thumb is: *allow 110 square feet for each chair planned whether it be in a single chair operatory or a treatment theater.* For example, if three chairs are intended, a total of 330 square feet should be earmarked for the treatment area *including* the toothbrushing and records areas.

The reception room should occupy approximately 15% of the total square footage making it the second largest component of a functional, efficient office. In different terms, the adequate reception room should be about one-third the size of the entire treatment area.

The laboratory, darkroom, and supply storage areas, collectively, should involve 12% of the total office area. These three categories are grouped as one functionally, because none of them *directly* serves the patient or parent. There is no rule for apportioning this space but obviously the laboratory would require more space than either the darkroom or supply storage. Of course, this space allotment is predicated on the fact that all darkroom and laboratory work is done on the premises and not sent out.

The consultation room and private office area should occupy approximately 10% of the total square footage. Case presentations and examination reports to parents are conducted in the consultation room. This percentage is particularly applicable if the consultation room doubles as the private office (which is usually the case in a solo-type practice).

The receptionist's office including secretarial and business areas encompasses 9% of the "well-proportioned" orthodontic office.

The rest rooms, both public and private, should consume approximately 3% of the available space. This statistic assumes the presence of one rest room for public use and another, perhaps smaller, rest room adjoining the doctor's private office.

If we subtract the percentages allotted to the previous six categories from 100% we are left with a remainder of 6%, representing office "dead space". Dead space is usually expressed in the form of halls and passageways necessary for room-to-room transitions, space that has no primary function except to connect other spaces. Admittedly, this 6% is more often exceeded than not, for halls have a remarkable way of just materializing between rooms. Like weeds in a garden, halls flourish with negligence but yield to attention.

The usual way of minimizing dead space is, wherever feasible, to incorporate the halls as part of the rooms. This allows for larger rooms within a given office area and for the utilization of this valuable space for more than just a walk-through.

The above percentages essentially represent office proportions designed for

function and comfort without accompanying bottlenecks. They were calculated from observation with emphasis on efficient use and conservation of space. Obviously, to the doctor with unlimited space availability these guidelines are somewhat superfluous.

Office Traffic Patterns

Establishing the approximate sizes of the component office units is just the beginning step toward solving a "new office" quandary. The next question is: "How do you put the rooms together?"

The ultimate arrangement of rooms in an office depends primarily on how each room is to be used and who is to use it. Unfortunately, it is virtually impossible to arrange an office to suit the convenience of everyone. For instance, what may be an ideal arrangement for the dental auxiliaries may demand some tricky footwork on the part of the doctor or patient. So, before going to the drawing board, a system of *people priorities* must be set up with which to weigh each design decision. In the orthodontic office the *doctor* should get top priority, followed by the patient, then the parent, and last, the dental auxiliary.

This concept in no way belittles our valued auxiliaries. An analogous situation may be found in the game of chess. On the chessboard the king receives the top priority. He is restricted to very limited movements in all directions. In contrast, the queen is by far the most versatile chess piece, capable of unlimited movement in any direction. She can handle any gamely task with ease, can protect the king, and can control the board. Yet the king, like the doctor, is still number one. The queen is like the dental auxiliary who should possess the most freedom of movement of anyone in the office and thus can adapt the easiest to any design inconveniences.

A schematic diagram illustrates the traffic flow among the rooms in a typical orthodontic office (Fig. 2). The *essential* traffic patterns of the doctor, patient and parent are represented as bold arrows, while *optional* traffic patterns are indicated with small arrows. The traffic flow of auxiliary personnel is not charted since, as explained previously, they are permitted unimpeded traffic to and from any place in the office. The office design principle demonstrated in this diagram is simply: *keep these traffic pathways as short and direct as possible.*

Application of Principles

A sample layout for an orthodontic office successfully designed with the above principles in mind is shown in Figure 3. It is at this stage that the "ideal" office design must be integrated into specific plumbing, electrical and building limitations. Often, difficult problems are encountered. Compromises may appear inevitable. However, the old expression, "Where there's a will, there's a way", holds true for good office design. If most of the rudimentary considerations described here are respected, many potential mistakes in office planning may be recognized and prevented.

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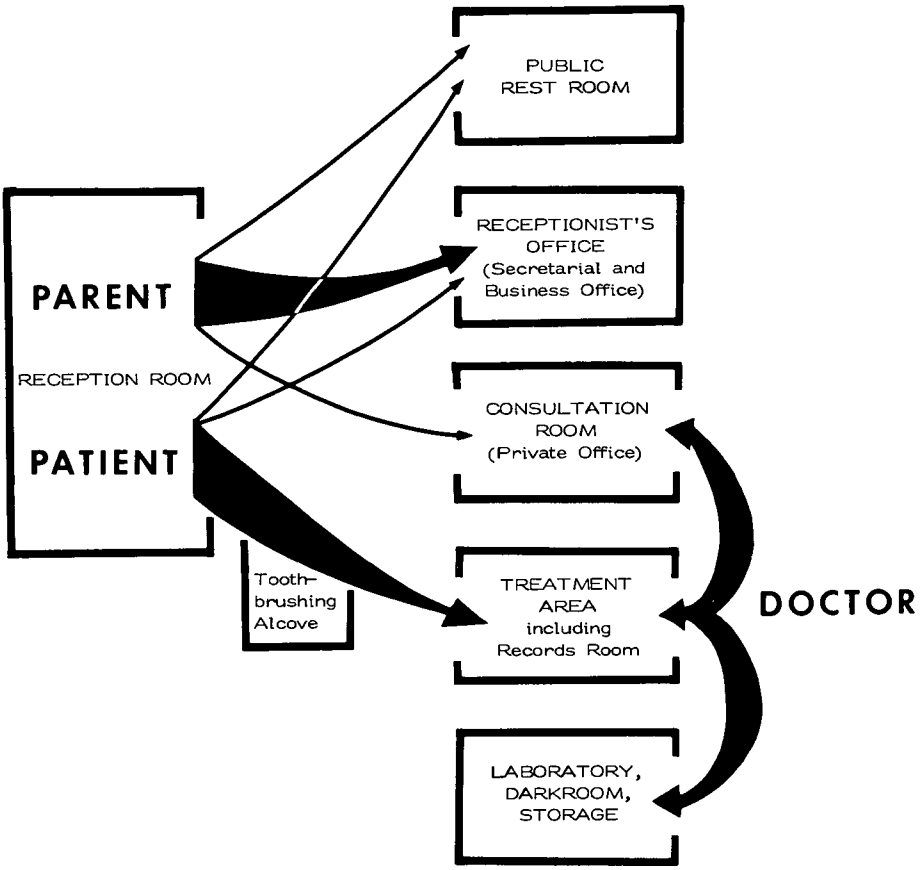

Fig. 2 Traffic patterns in an orthodontic office. Bold arrows represent essential traffic patterns, and small arrows represent optional traffic patterns. For efficient room arrangement, these traffic pathways should be as short and direct as possible.

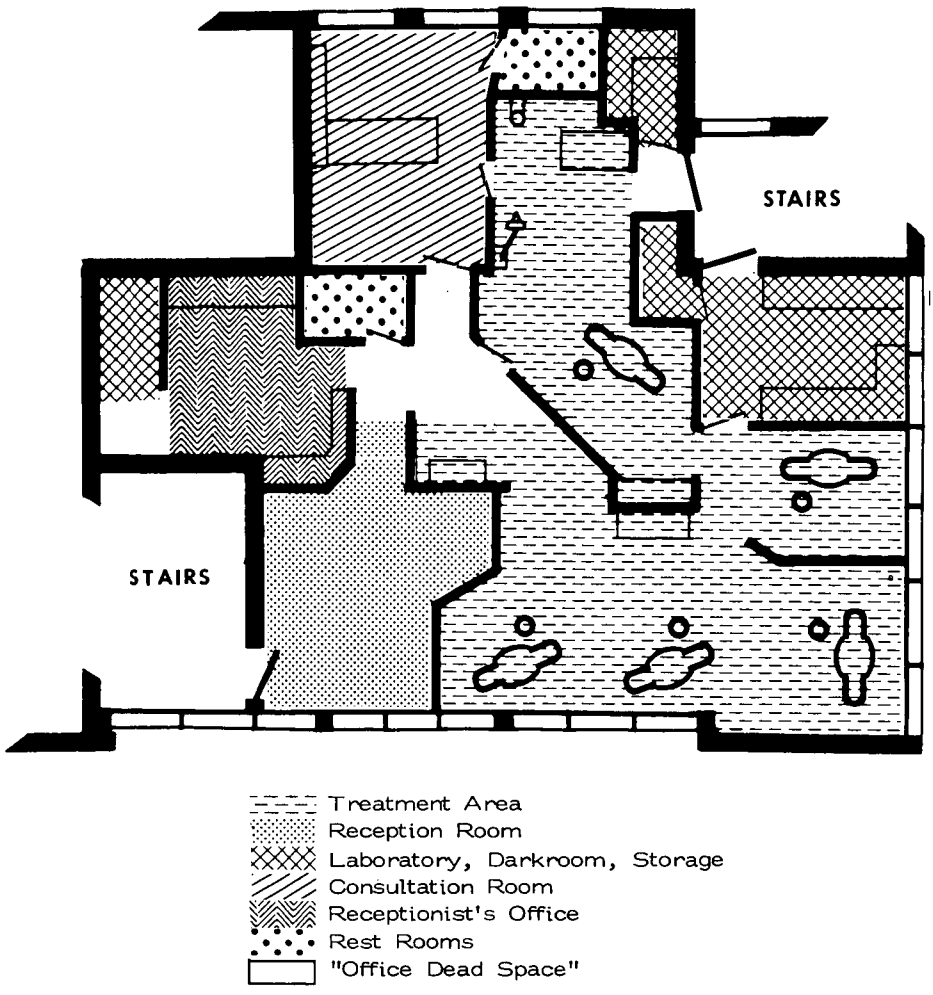

Fig. 3 Sample layout for an orthodontic office successfully applying the design principles. Areas are identified according to function. Total square feet=1200.