

# ORTHODONTIC OFFICE DESIGN

## Remodeling Options and Solutions

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**T**he term “remodeling”, as applied to an orthodontic office, can cover a wide range of activities, from minor alterations in an existing floor plan for improved practice efficiency to major, all-encompassing projects requiring both internal and external changes.<sup>1</sup> To help avoid cost overruns, specific project goals should be established; in most cases, especially if structural changes are involved, professional help will be required. The checklist shown in Figure 1 can guide you in determining whether to proceed with the plan you have in mind.

### Exterior Remodeling

If your remodeling involves changing the exterior of a building or adding on to an existing facility, the costs can be substantial. An architect can coordinate the style and materials of an addition with the present structure, but the choice of materials will greatly affect the cost of expansion or remodeling. In general, a wood-frame structure is the least expensive to alter and the simplest to blend in with other materials by using paints or

stains. Concrete block is easily disassembled for placement of support beams, and it can then be painted or stuccoed as desired to mask any changes. Brick, although readily dismantled, can be difficult to blend. While manufacturers try to retain the same colors over the years, slight differences in clays can make matching a problem. Precast concrete, often used in the exterior walls

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#### ✓ What additions will be possible?

- Exterior additions to the building
- Interior space available for development
- Interior space available only to remodel

#### ✓ What are the specific goals and end points for the project, within a preliminary budget?

#### ✓ Will work permits or other legal paperwork be required?

#### ✓ How will the project affect practice time?

- Detailed conceptual plan for accurate bids
- Sequential plan if work is to be done in stages

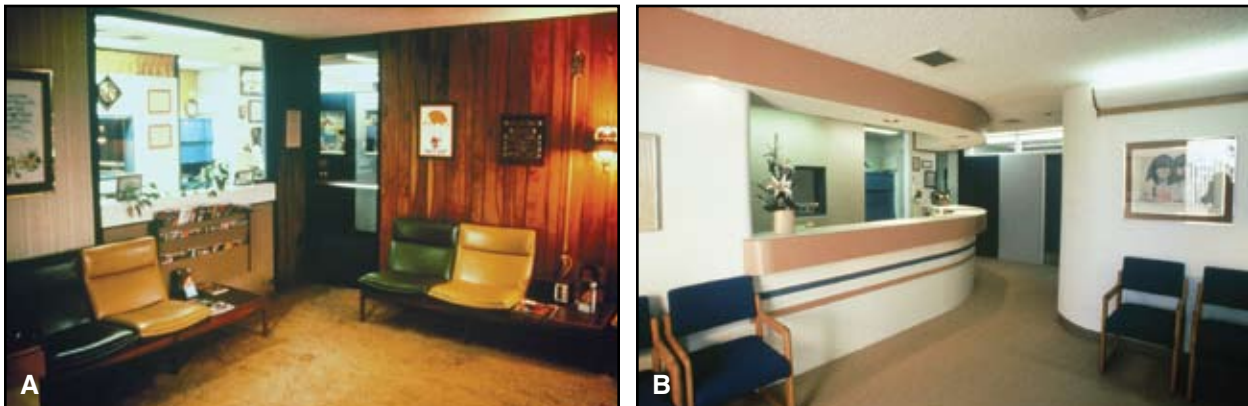
#### ✓ How is the budget affected by new information gathered in the bidding process?

#### ✓ After the bidding: Is this a worthwhile project to consider?

Fig. 1 Checklist for orthodontic office remodeling projects.



**Fig. 2 A.** Former electrical warehouse to be remodeled into orthodontic office for Dr. W. Jim Moore, Pine Bluff, AR. **B.** After exterior remodeling and landscaping.



**Fig. 3 A.** Dark, crowded reception area and waiting room in need of redesign and redecorating. **B.** New reception area, with ample work space for two receptionists and more open seating area.

of larger office buildings, is the most expensive material to alter; jackhammers and special equipment are required for exterior remodeling.

Figure 2 shows an orthodontic remodeling project for Dr. W. Jim Moore in Pine Bluff, AR. The original exterior of this former electrical warehouse consisted mainly of painted cinder-blocks with a brick facade. The concrete floor required extensive trenching to supply utilities throughout the office. The exterior redesign called for disassembling the concrete blocks and placing curved, prefabricated windows with support beams between them. The roof line was extended on the south side; an added trellis not only improved the building's appearance, but acted as a shield to reduce heat and glare from the sun in the operatory. Because the building was set back from the

curb, an adjacent building blocked its view from passing drivers. In the remodeling, an attractive curved wall was designed to have the effect of bringing the office closer to street traffic. This project is also a good example of how a building's appearance can be improved by landscaping.

### Interior Remodeling

Figure 3A shows a crowded, inefficient reception area and waiting room in need of rehabilitation. In this office, there was no additional floor space to carry out the needed design improvements. Objectives of the modest remodeling project were to:

- Reduce patient backup in front of the small appointment desk.



**Fig. 4 High-mounted building sign; street signage parallel to drive-by traffic.**

- Make space for two receptionists to handle appointments at the same time.
- Open the reception desk for easier communication with patients by removing a glass partition.
- Update the reception seating, color scheme, and wall paneling.
- Eliminate a swinging door that encroached into the patients' traffic pattern.
- Disguise the low (less than 8') ceiling.

Through the judicious use of space-creating strategies,<sup>2</sup> it was possible to accomplish all the desired changes without increasing the square footage of the office (Fig. 3B). The swinging door and glass reception windows were eliminated, providing better traffic flow and more open access to the reception desk. A corner of the reception room was cut back and replaced by an inviting curved wall. This opened up enough space for a curved, contemporary reception desk that increased the 6'-wide work space to 14 running feet of countertop. Two receptionists can now work simultaneously and comfortably in their own spaces, eliminating backups, and can communicate more easily with patients in the reception room.

A curved soffit follows the reception desk lines and provides warm, soft downlighting on the work areas. The dark paneling was removed, and all the walls were painted white—a common trick used to give a feeling of spaciousness.<sup>2</sup> A subtle carpet design was selected to further enhance this open impression. Around the perimeter of the reception room, narrow soffits were installed to direct lighting up to the ceiling, giving the illusion of height without the expense of raising the ceiling.

### **A Total Remodeling Project**

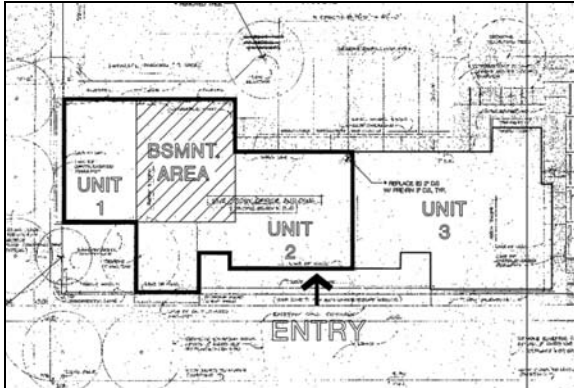
The details and decisions involved in a major remodeling project are illustrated by the following account of one doctor's recent experience. Dr. Gary Kloberdanz has a successful practice in Greeley, CO. A demographic and economic analysis showed a clear opportunity to establish a second office in Fort Morgan, 54 miles away, where Dr. Kloberdanz already had a substantial patient base. That he had gone to high school in Fort Morgan and had many friends still living there was an additional factor in the decision to establish another practice location.

Dr. Kloberdanz found a commercial building for sale in a centrally located, active business area. The single-story brick building was highly visible to drive-by traffic, with spacious, easily accessible parking. It contained three business offices, but its architectural style showed the potential for remodeling into a more professional-looking medical facility. The purchase was made, and through some modest external improvements, a makeover was accomplished at minimal expense.

A large tree whose roots were wreaking havoc in the parking lot was removed, and surface repairs were made. Some stucco was repaired under the soffits. Minor window alterations were made to help create a new, central main entrance to the office. Signage was added to convey the message that this was a professional building with an orthodontic clinic (Fig. 4).

### **Interior Remodeling Decisions**

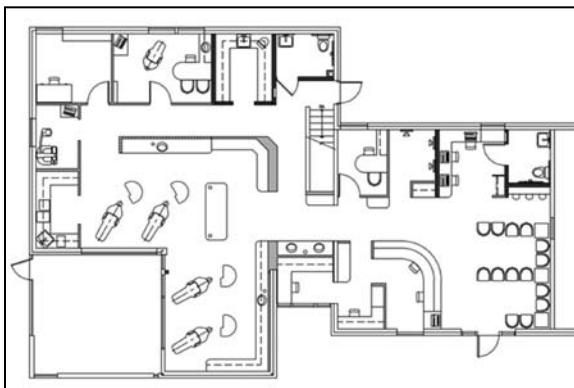
The building was 35 years old. Fortunately,



**Fig. 5** Two original office units (1 and 2) to be combined into new orthodontic office for Dr. Gary Kloberdanz, Fort Morgan, CO.



**Fig. 6** Three-dimensional artistic rendering of remodeled courtyard by architect Brian Bucher.\*



**Fig. 7** Final remodeling plan, showing operator, reception room, and support areas.

the roof was a truss design with its support bearings on the external walls, which avoided the need for internal stress-bearing walls and interior beams to support the roof. Because interior beams determine the placement of walls, they often have an adverse effect on traffic patterns in a floor plan, and they can increase costs or compromise results if workarounds are attempted. Without these internal beams, the space from outside wall to outside wall could be opened up, allowing a virtually unrestricted floor plan.

Dr. Kloberdanz estimated that the practice would require a four-chair operator with the usual support systems. Combining two of the building's three original office units would provide an area of approximately 2,400 square feet for the orthodontic office; the remaining unit could be rented out (Fig. 5). A neglected courtyard at one corner of the building, it was hoped, might provide a view for the operator or reception area, whose locations were yet to be determined.

Since each of the two units to be combined already had a restroom, the new office met the code requirement for separate male and female restrooms. They had to be expanded and modified to qualify as handicapped-accessible, but a great deal of time and money was saved by eliminating the need for new plumbing lines and sewer hookups.

A basement can have a major influence on the development of a floor plan for a remodeling project. The basement provides easier access for supply and placement of plumbing and electrical lines to the floor above, which becomes a tremendous advantage in reducing costs—especially if the floor above is a concrete slab, as is common in commercial buildings and dental offices. Dr. Kloberdanz's building did have a concrete floor, but only a small half-basement, mostly beneath Unit 1. This provided space for storage, a future staff lounge, and a large utility room. Its location became a key factor in placing the new operator, laboratory, and sterilization rooms, all of which required extensive plumbing and electrical installations. Because of the basement's limited size, it

\*Bucher Design Studio, 300 General Palmer Drive, Palmer Lake, CO 80133; [www.bucherdesign.com](http://www.bucherdesign.com).

did not eliminate, but greatly reduced, the amount and cost of concrete trenching required in the floor above.

### ***Courtyard and Entrances***

The large corner courtyard had been poorly maintained, with both view and access limited to one office. It became evident that a spacious operatory floor plan could include an exciting view of the courtyard. A south-facing brick wall was eliminated and replaced with a new full-height window, which opened up a splendid view of the 18' × 16' courtyard (Fig. 6). The original courtyard was partially enclosed by a 6½'-high brick wall that was stepped down at one end, providing no security or visual privacy. To avoid the problem of matching new and old brick colors, a high wrought-iron fence was added as an extension to the higher brick wall for security. Within the garden, tall bushes planted by the fence would provide visual privacy for seated patients.

Units 1 and 2 had separate street entrances, but the position and size of the new operatory encroached on the entrance to Unit 1. Again, important operatory considerations determined the final floor plan. The entrance to Unit 2, which was an attractive and more centrally positioned glass door with two glass side panels, would become the new main street entrance to the office. This decision set the location of the reception area. With the waiting room at one end (the former Unit 2) and the operatory at the opposite end (Unit 1), the main patient traffic pattern was established. The rest of the office layout began to fall into place (Fig. 7), providing a smooth, circular secondary traffic pattern within the office.

Remodeling projects, besides introducing attractive changes within the office environment, give the doctor and staff the opportunity to incorporate fresh ideas into their work routines. Of course, caution should be exercised in departing from established, time-tested systems. A good way to avoid major mistakes in office design is to apply the axiom, "The work patterns of the doctor and staff determine the floor plan." With due consideration of Dr. Kloberdanz's well-trained staff and his interest in cutting-edge office management,

this guideline was followed. At the same time, subtle yet beneficial changes were introduced into the final floor plan.

### ***Heating and Air Conditioning and Ceiling Treatments***

Any major remodeling will likely involve the heating and air-conditioning systems. Even a smaller job that requires only a few walls to be added or removed can affect the efficiency of the entire system. Expert advice should be sought in advance, so there are no surprises in costs or in the comfort level of the office. A modern office usually has central forced-air heating and air conditioning, with ductwork running through the building for delivery to various rooms. This will usually determine the potential height of ceilings (Fig. 8).

Suspended ceilings are a distinct advantage in remodeling commercial buildings, offering complete access to concealed utilities simply by removing acoustical tiles. Some interior designers favor plaster ceilings to accentuate a color scheme, to create a warm and attractive environment, or to reduce the "commercial" look of a space, especially in a reception room. An interesting soffit design with creative mood lighting instead of cold



**Fig. 8 Reception area with heating and air-conditioning ducts and electrical lines exposed in plenum (2' space between roof and ceiling). Top of 18" soffit above framework of future reception desk indicates final height of reception room (8'4").**



**Fig. 9** Acoustical tile used in spacious reception room for noise control.



**Fig. 10** Wide passageway from reception area to operatory maintains feeling of openness.



**Fig. 11** Brushing alcove at left, with archway leading to operatory.

fluorescent fixtures can further soften a commercial appearance. Still, a high-grade acoustical tile provides an important advantage in sound control, especially in a busy reception area that might include game areas, kiddie alcoves, study corners, and—in the most recent trend—computer areas for teenagers and adults.

Dr. Kloberdanz installed an acoustical ceiling throughout his office for noise control. The floor plan of his substantial reception area called for a game room, a coffee station, a computer area, and a kiddies' nook (Fig. 9). Soundproofed walls were built to encircle the game room, as well as a discreetly located restroom. A router was installed for Internet radio and public wireless, which does not affect the office's local-area network.

### *Final Floor Plan*

The most important physical features of an orthodontic office in terms of giving patients a positive professional experience are the reception room/secretarial complex, a modern-looking operatory with a view, and an exceptional consultation/exam room setting. Dr. Kloberdanz's 2,400-square-foot office allocates generous space to each of these major areas.

The spaciousness and openness of the 30' × 30' reception room are immediately felt upon entering from the main street door. An attractive, curved front desk, open to the reception room, provides space for two receptionists, with convenient backup rooms for records storage and a staff retreat area. A mini-consultation room across from the front desk can be used by the receptionist when complete privacy is needed, or by other staff when the main consultation/exam room is busy.

The passageway for patients to the operatory is 6' wide, avoiding the constricted feeling of a narrow hallway (Fig. 10; compare to the progress photo in Fig. 8). A spacious alcove, with room for both a toothbrushing sink and a stand-up consultation/instruction station, leads through a 7'-wide archway to the operatory (Fig. 11). The expansive, uninterrupted 40' × 26' ceiling is the dominant feature of the operatory space (Fig. 12). All four dental chairs are placed close to the courtyard windows for an unobstructed view of the future

garden and fountain.

Dr. Kloberdanz uses a rear-delivery system for his chairside working cabinets\*\* (Fig. 13). These provide wide drawers for maximum storage and feature a concealed, flick-of-the-wrist retraction system, with internal space for installing computer and self-contained water systems. Another cabinet is used as an ordering desk, a central island serves as storage for additional high-priority backup items, and the sterilization station is conveniently located. A large on-deck seating area<sup>3</sup> for children and adults frees up more seating in the reception room.

Because the consultation/exam room was intentionally designed with extra square footage to accommodate technological upgrades, it has ample space for a traditional dental chair. Both the pan-ceph room and the laboratory are located nearby. The back entrance provides access to the half-basement, which currently contains a kitchenette, lockers, a changing room, and a large staff eating area.

### Conclusion

If you feel cramped from working in a small or poorly designed space, you will get less satisfaction from your daily work. Almost any remodeling project has a goal of, in some way, capturing additional space or creating an illusion of openness. Some buildings allow a simple extension or addition, making improvements much easier. In most situations, however, improvements will be limited to the space you already have.<sup>1,2</sup>

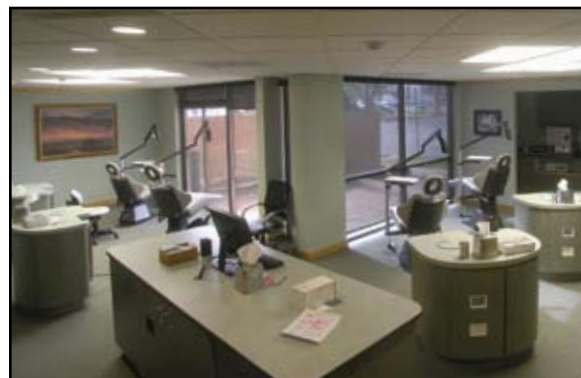
Whether you're planning an exterior remodel, a limited interior remodel, or a total remodeling project, you will need expert advice. An architect, a contractor experienced in dental offices, or perhaps only an interior designer may be required; all three may be necessary for an extensive job. The

\*\*Hamula Delivery System, TOOC, Inc., 22 Gail Court, Sparta, NJ 07871; www.toocinc.com.

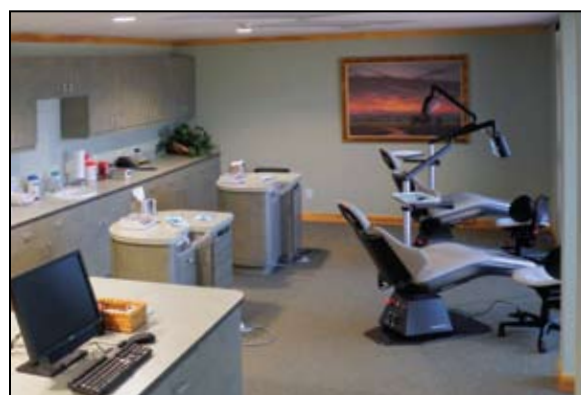
simple concepts presented here will apply to any remodeling project.

### REFERENCES

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**Fig. 12 Four-chair open bay offers unobstructed view of future garden courtyard.**



**Fig. 13 Efficient rear-delivery system with maximum storage and central island backup support.**