

The design of your dental practice says a lot about you. You want to project an image of comfort, cleanliness and safety while expressing your personality and reinforcing your brand. With insights from dental architects, design consultants and practicing dentists, *Building or Refreshing Your Dental Practice* is a roadmap for navigating these issues and more, such as:

- Building an expert project team
- Financing your build or remodel
- Choosing an office site that meets your requirements
- Anticipating potential legal issues
- Determining your dental equipment needs
- Integrating your dental office décor, colors and finishes with your brand
- Incorporating green dental office design tactics

Featuring full-color photography from real dental practices, this dental office design book covers all the bases for building, renovating or simply refreshing your space. Let our team of experts inspire you to make a lasting impression on those who matter most: your patients.

"The ADA has done an outstanding job bringing the dental design industry's leading experts together to give you the most comprehensive information in the market about dental office design in one book. It would take hours of courses and hundreds of dollars to gain the knowledge every dentist needs to know before designing and building their office that is discussed in these pages."

— Stephanie Morgan, R.I.D., L.E.E.D. A.P.
Author, Chapter 9: Exterior Considerations

"Developing and building your own office space presents a steep learning curve for any busy professional. Dental offices, in particular, present special challenges to even the most knowledgeable practitioner. This book is filled with specific and essential knowledge of what to ask, who to ask and how to maximize your investment."

— John Adams, A.I.A.
Author, Chapter 3: Location Selection and Siting Concerns

"*Building or Refreshing Your Dental Practice* addresses every element of the design process. In addition to achieving ideal form and function, the successful design of your office should provide an experience for your patients. Get inspired to invest in the practice of your dreams!"

— Nikki Skomal, Associate I.I.D.A.
Author, Chapter 8: An Experiential Approach to Dental Office Design and Branding

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Building or Refreshing Your Dental Practice: A Guide to Dental Office Design

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A Guide to Dental Office Design



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Building or Refreshing Your Dental Practice

A Guide to Dental Office Design



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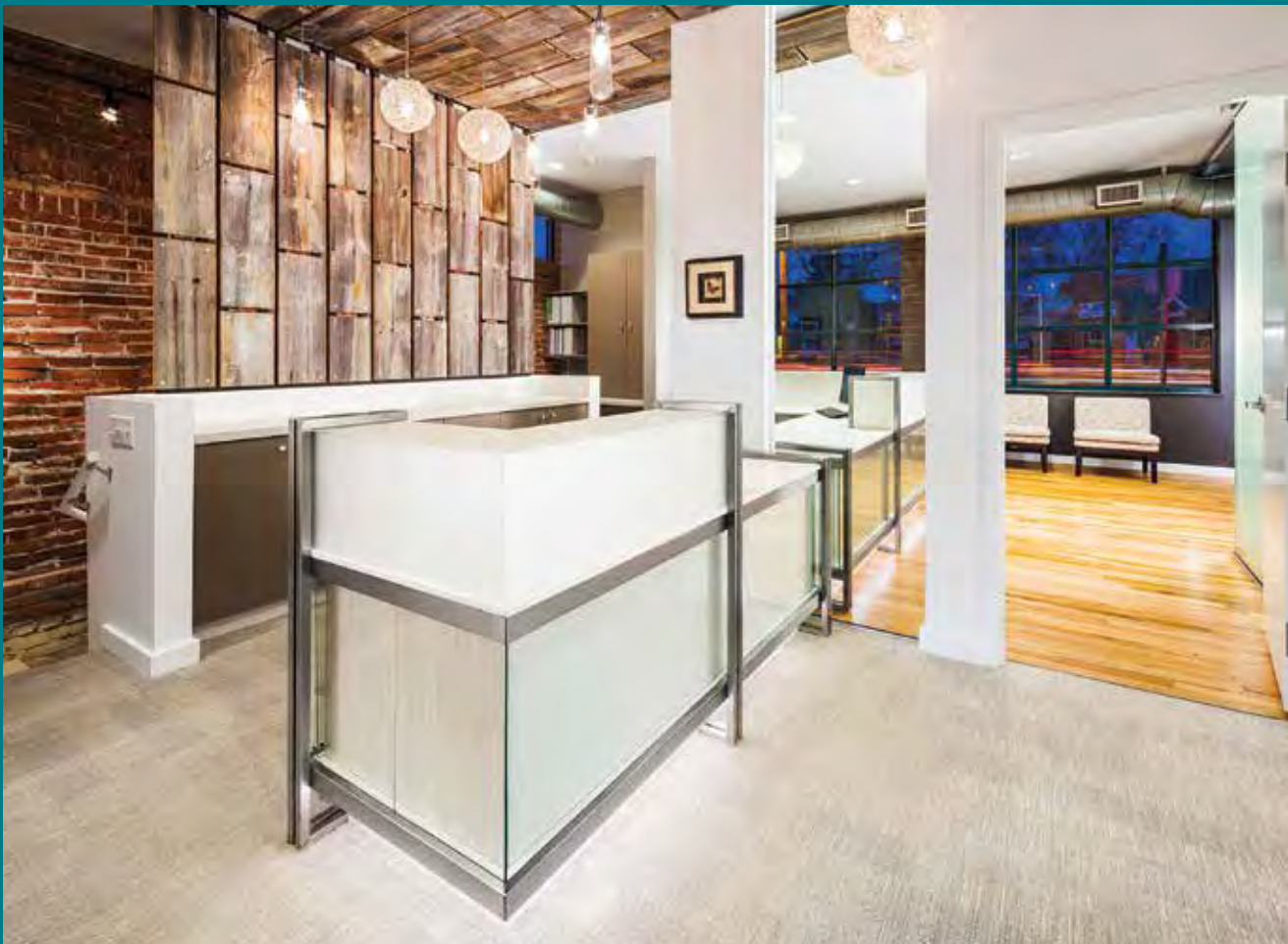
A Guide to Dental Office Design

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Chapter 1:

Building a Team You Can Trust





Chapter 1:

Building a Team You Can Trust

By Gordon F. Osterhaus Jr., D.D.S.

LEARNING OBJECTIVES

- Develop a criteria for selecting a trustworthy team that keeps your best interests at the forefront
- Understand and control the inherent pitfalls associated with new dental office development
- Reduce the risk of contractor change orders by preparing detailed design documents
- Research and find a mortgage that will work for you — and save money in the process
- Learn how to turn your dental equipment sales rep into a high-performance ally

Building a trustworthy team is a critical process in office construction or remodeling. While reading this text, you will come to understand the importance of certain steps, procedures, and services, along with the people who provide them. You will also learn about certain flaws that are deeply imbedded in the systems surrounding dental office development. Once you recognize these flaws, you can take command of them and make sure your project not only stays on schedule, but, more importantly, stays within your budget.

Assembling Your Team

The vendors you hire for your new dental office development project play an integral role in the success of your new practice. If any one of them drops the ball, you will lose both time and money, and you may suffer the effects of those losses for years.

Beware: there are far too many “I’ll refer all my clients to you, if you refer all your clients to me” relationships in the dental industry. You may benefit from asking the person who is assembling your team to give you several recommendations to consider in each field.

Here is a list of the team members who can help you successfully complete your dental office:

- Dental equipment consultant/supplier
- Commercial real estate agent/broker
- Financial lender
- Architect/designer
- Contractor
- Technology specialist
- Accountant
- Attorney
- Practice management advisor

Dental Equipment Consultant/Supplier

A dental equipment consultant can meet with you to discuss your 10-year plan. Once a 10-year plan has been established, he or she can help you determine the required square footage for your office. While you are looking for your dental office space and applying for loan pre-approval, the consultant can assist you in making intelligent equipment decisions. Your consultant should care more about getting the best value and staying within your dental equipment budget than about the commissions generated from your equipment purchases.

Once you sign a lease or purchase agreement, get loan pre-approval, and make all your equipment decisions, you and your consultant can see the architect to begin developing a space plan for your new office. While the space plan is being developed, the equipment consultant can help you select a technology specialist with dental experience, who can help finalize technology decisions that fit within your budget. Dental equipment and technology decisions must be made before the space plan is approved and the engineering phase has begun. Having the discipline to make informed equipment and technology decisions before the engineering stage — and stick with these choices — is extremely important to your budget. Failing to finalize dental equipment and technology choices and include all their requirements in your construction documents is one of the biggest inherent weaknesses in the process of dental office development.

Once you sign a lease or purchase agreement, get loan pre-approval, and make all your equipment decisions, you and your consultant can see the architect to begin developing a space plan for your new office.

The dental equipment consultant can then create, or help the architect create, a custom dental equipment specification sheet that becomes part of your construction documents. This custom dental equipment specification sheet gives essential directions to the architect's engineers. While the engineers are working on their piece, the equipment consultant can aid the architect, with your input, on the design of your millwork (subcontractor-built) cabinetry. The consultant can also offer input into the design of your operatory ceiling grids as they relate to your ceiling-mounted dental lights, computer monitors, and microscopes. Once the architect sends construction documents to the city for permit, the dental equipment consultant can review the plumbing, electric, and mechanical pages (which the engineers have created) to ensure all equipment requirements are on paper. If items are missing after review, the equipment consultant can meet with the architect and create an addendum of these missing items to include in the bidding process to help eliminate contractor change orders. The dental equipment consultant must apply this level of diligence so that the dollar amount quoted to you by the contractors is as close as possible to the final billing.

The construction documents and addendum can now be sent to the contractors for bid. Once the contractor is chosen, the tenant improvement stage begins. The dental equipment consultant can be present at the job site at all the critical stages, to

help ensure that the contractor meets all your dental equipment requirements. Depending on the dental experience of the contractor, your consultant may need to make between 14 and 20-plus visits to the job site during construction. Every piece of equipment has unique requirements, so the dental equipment consultant must do the homework necessary to ensure a smooth and uneventful installation.

Unfortunately, here is another inherent weakness in the dental industry that needs to be addressed. Not all "dental equipment consultants" in the United States have the experience and training to handle all the responsibilities described above, and some have no expertise in dental equipment or reading construction documents. Not all dental equipment salespersons are qualified to handle all the responsibilities of a dental equipment consultant. If you are considering working with a dental equipment consultant or a dental equipment salesperson, ask him or her some hard questions about their experience, training, and commitment. Work with a qualified attorney to make sure that any contract you sign with a consultant or salesperson clearly spells out his or her responsibilities and the timeframe for carrying them out. If you assume that a dental equipment consultant or salesperson will spend the time necessary to perform all the above-mentioned services, but he or she doesn't, the resulting chaos will cost you significant time, money and headaches.

The dental equipment consultant can create, or help the architect create, a custom dental equipment specification sheet that becomes part of your construction documents. This custom dental equipment specification sheet gives essential directions to the architect's engineers.

Commercial Real Estate Agent/Broker

Two kinds of people can help you find your ideal dental office location: a commercial realtor and a dental office transition specialist (broker). It is crucial that they have dental experience and familiarity with local dental market conditions. You should also understand that they are compensated differently.

Two kinds of people can help you find your ideal dental office location: a commercial realtor and a dental office transition specialist (broker). It is crucial that they have dental experience and familiarity with local dental market conditions.

Commercial realtors earn money by receiving a “split commission” with the lessor or seller’s agent. You pay them nothing directly to help you find the space and negotiate a fair lease or purchase agreement. They have nothing to gain by steering you toward any specific property, because they get paid the same percentage no matter which space you prefer. (The exception to this rule is if they show you one of their listings.) The realtor approach gives you the widest range of choices and only one person to deal with. Commercial realtors only represent you, the buyer, while the lessor or seller has their own agent. Be sure any realtors you work with understand that you are only interested in viewing office space that meets the square footage requirements predetermined by you and your team. Also ask them to tell you if any of the properties they show you are one of their listings to prevent any perceived bias.

In contrast, dental office transition specialists (brokers) generally focus on selling existing dental offices. In some states they can represent both the buyer and the seller, although a buyer or seller may perceive this as a conflict of interest and prefer that his or her broker not

represent the other party. They sign a contract with the seller, entitling them to be the only person who may “list” a property for sale, but only for a limited period of time, usually four months. If the property doesn’t sell, the seller can sign a new contract with a different broker and begin the process again. The broker is also instrumental in determining the office sale price.

In addition to representing prospective buyers and sellers of dental practices, brokers sign similar contracts with property owners who would like to lease or sell. Because of time constraints, a broker may focus on showing clients his or her listings first, rather than other properties for which he or she will be required to split a commission. If you are considering working with a broker, it is important to understand whom he or she will represent and the range of the listings that he or she will show you.

Occasionally the real estate agent or broker finds an interesting dental office space, but the developer’s agent, preferring to keep the entire commission, may insist on dealing with the dentist directly. Don’t do it alone! Many commercial realtors or brokers will still work for you behind the scenes for an hourly rate. They won’t get a split commission, but you will still get their expertise to secure the fairest lease or purchase agreement possible. Often the total hourly cost may be recouped less than six months into the lease or purchase agreement due to various concessions that your agent may secure.

Other important terms in your lease or purchase agreement may involve the following:

- Signage
- Tenant improvement allowances
- A covenant of exclusivity
- The lease term
- Contractors with dental office experience from which to choose for tenant improvements

Financial Lender

Two of the most common sources for dental loans are banks and health care finance companies. There are many differences.

Most banks offer a variable floating rate, a fixed percentage over the prime rate, which will fluctuate with the prime rate. Health care finance companies, on the other hand, offer a fixed rate with simple interest. Health care finance company rates will be initially higher than those from a bank. When you assume the risk, with a variable floating rate, the bank is covered. When health care finance companies assume the risk, with a fixed rate, you're covered. Your payoff with a fixed rate is the security that your monthly payment won't change.

Banks will often ask for a 10 to 20 percent down payment of the amount borrowed. Health care finance companies require little or no down payment. Banks typically ask for collateral, such as a home or property. In most cases, health care finance companies will use the dental equipment or practice as collateral.

Bank loans and most health care finance companies can tie up your credit line for future purposes, such as personal loans. Because there are exceptions to this rule with some health care finance companies, check to see if any are willing to keep business and personal credit lines separate, as long as you don't default. If you decide later to purchase a home, for instance, your business loan will not appear on your credit report.

Banks add points to cover closing costs, attorney fees, etc. Closing costs will increase the bank's adjusted annual percentage rate (APR) when compared to a fixed rate. Health care finance companies have a minimal fixed-rate filing fee.

Health care finance companies have experience in dental loans. They know that only a small percentage of dentists default on their loans. Commercial loan bankers view you as "new business," and their default rate for all new businesses is very high. As a result, funding a bank loan can involve significant red tape and paperwork. Funding with a health care finance company is typically less burdensome.

When financing a fixed-rate mortgage, by law the lender must provide you with a "truth in lending statement," which explains the adjusted annual percentage rate (with closing and other costs factored in). What's more, it clearly explains the total cost over the life of the loan. When banks offer a variable floating rate, they are unable to tell you what the total cost will be because it's impossible to predict interest rates. Health care companies with fixed rates can tell you exactly what your total cost will be. However, they are not required to and generally won't volunteer the information. So insist on it! This becomes even more important if you are offered, for instance, a 15-year loan as opposed to a standard 12-year loan. The monthly payment will be lower for the 15-year loan, but at what cost?

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Architect/Designer

All architects are not equal. Some offer a wide array of services, but others don't, with resulting disparities in pricing. Hiring the cheapest architect may end up costing more. The dentist may save several thousand dollars up front with a less expensive architect, but may spend many times that amount before the project is finished — all because certain important services aren't included in the architect's fee, which leaves the dentist vulnerable at critical stages.

When comparison shopping, ask for a fee that includes these minimum architectural services:

- Creating a “complete” set of construction documents
- Obtaining a permit from your municipality to begin construction
- Creating a custom “dental equipment specification sheet” with your dental equipment consultant or supplier
- Designing cabinetry for your office
- Monitoring the contractor bidding process
- Completing the design phase for your new office

Creating a Complete Set of Construction Documents

Any architect you hire will create a set of construction documents. The question is whether they are “complete.” I recommend that you pay the architect to create a fire protection plan (sprinkler system) as part of your construction documents. Many don't include this service in their fee, relying instead on the contractor to produce it. You're going to have to pay someone to create it, so the cost is a wash, but if the architect includes it in your construction documents, then you get city approval prior to beginning construction. If the contractor has to produce the fire protection plan after construction begins, he or she must submit it to your municipality separately for permit, which may cause a delay of several weeks.

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Obtaining a Permit from Your Municipality to Begin Construction

If you hire an architect who is licensed in your state, he or she will send the completed construction documents to your municipality to obtain a permit to begin construction. After review, the architect will receive the initial “city comments” from the planning board. These comments are typically questions or concerns that the city planners want your architect to address before they issue a permit. The architect will address these comments and resubmit for permit. The city will then respond either by issuing your permit or with more comments. You should expect your architect to continue addressing the city’s comments in a timely manner until the permit has been received. The architect only occasionally receives city approval after the first submission.

If you hire an out-of-state architectural firm, its service may be limited to completing your construction documents and sending them to you. You may then have to hire an additional architect with a license in your state to file for your permit. There may be certain regional exceptions to this regulation, so do your homework to understand the time and total costs involved.

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Creating a Custom Dental Equipment Specification Sheet with Your Dental Equipment Consultant/Supplier

Consider these two alternate scenarios:

1. Before the engineering stage, my architect and dental equipment consultant/supplier created a custom “dental equipment specification sheet.” This sheet became part of my official construction documents that went out to contractors to bid. When the contractor finished my project, the final payout was virtually identical to the original bid quoted. I stayed within my budget.
2. My architect and dental equipment consultant/supplier were lax in providing the necessary written detailed equipment information. As a result, many equipment requirements were missing from my construction documents. This lack of detail created an abundance of change orders during tenant improvements, and my construction costs spiraled out of control. When the contractor finished my project, the final payout was much higher than the original bid quoted. I was well over my budget, and my available working capital shrunk dramatically.

Unfortunately, the second scenario happens too often in the dental industry. *The industry’s failure to provide the architect’s engineers with detailed written dental equipment requirements is the single biggest flaw in the process of opening a new dental office.* Not having complete control of the engineering phase in your project will adversely affect your budget. Only two people can provide this written information for the engineers, your dental equipment consultant/supplier and your architect. Spend more up front to hire the companies willing to create a custom dental equipment specification sheet for you. They will save you many times the cost of this investment, as well as time delays and complications.

Custom Dental Equipment Specification Sheet Checklist

The more written details included in your custom dental equipment specification sheet, the better your protection against change orders. A thorough custom dental equipment specification sheet should be completed before the engineering phase begins and before the construction documents go out to bid to the contractors, and should include the following:

- A detailed list of every piece of dental equipment and dental manufactured cabinetry going into a given office, either now or in the future, no matter if you are buying equipment new from a dental equipment company, moving used equipment, or buying it on eBay®.

- An assigned numerical identification, followed by the quantity, for every piece of equipment, to identify the exact location in your office that you want it located.

- Columns for cold water, hot water, drain, air, vacuum, natural gas, nitrous oxide, oxygen, and vent. Any piece of equipment that requires any of these features receives a check in the corresponding box.

- The number of electrical amps each piece of equipment draws, as well as whether it requires a 110- or 220-volt circuit.

- Identification of any equipment that requires dedicated circuits, low-voltage wiring, a remote switch, or any unusual nema (plug) configurations.

- A "remarks" column carrying descriptions more detailed than those the bidding electricians and plumbers will see in their corresponding pages in the construction documents.

- Columns clarifying who is responsible for providing and installing every piece of equipment or cabinetry going into your new office.

- A highlighted comment on each of the engineer's respective mechanical, plumbing, and electrical pages. This comment might read: "Please refer to dental equipment specification sheet for further dental equipment requirements." It will alert the bidding subcontractors to additional equipment requirements that aren't on their sheets, which they will request from their contractor.

- A list of "Dental Equipment General Notes," equipment requirements that require further clarification.

Spend more up front to hire the companies willing to create a custom dental equipment specification sheet for you. They will save you many times the cost of this investment, as well as time delays and complications.

When your architect is ready to send the finished set of construction documents to the city for review, ask him to delay sending them out to bid until your equipment consultant/supplier has reviewed the plans one last time. The consultant/supplier should review the mechanical, electric, and plumbing pages for any remaining omissions, discrepancies, or errors in the dental equipment requirements.

The consultant/supplier can then meet with the architect and create a list (addendum) of these remaining missing requirements. The addendum becomes part of the official construction documents that will be sent to the contractors to bid. These requirements must be on paper to protect you from “change orders” during the construction phase of your project. This extra effort from your dental equipment consultant/supplier and architect is worth its weight in gold.

Designing Cabinetry for Your Office

The architect and the contractor are both qualified to design cabinets for your new office, but it may be preferable to have your architect be responsible for cabinetry design and include the drawings in your construction documents.

First, when your construction documents go out to the contractors for bid, a separate line item indicates the cost to build your new dental office cabinetry. If these drawings are not included in your construction documents, the cost quoted for building your cabinets may only be a wild guess. Remember, any contractor trying to win your project will have an incentive to quote a cost in the low range if specific design features are not detailed. This situation can leave you vulnerable to change orders.

Second, the cabinetry design phase can be quite time consuming, as can the construction itself. If this process doesn't begin until after tenant improvements are underway, you run the risk of project delays when the cabinets aren't ready to install at the appropriate time. If your architect has included the cabinetry design in your construction documents, delays will not become an issue.

Monitoring the Contractor Bidding Process

Monitoring a construction bidding process involves much more than looking for the lowest total bid. If three contractors are bidding on your project, the architect will typically develop a spreadsheet with three vertical columns. At the top will be the name of each construction company. Below those names will be a series of horizontal line items, including, for example, plumbing costs, electrical costs, millwork cabinetry costs, flooring, fire sprinkler system, and painting. The goal is to ensure an apples-to-apples comparison. If a line-item cost is missing from one of the contractor's bids, the architect will call the contractor to see if this overlooked cost might be included in another line item. If two of the contractor's costs for a particular line item are similar, and the third is substantially lower, the architect will again call to ensure that this lower cost indeed covers all the requirements pertinent to the line item in the construction documents. Architects act much like the referee in a basketball game, making the players play within the rules. Rely on them to navigate you through this sometimes very tricky process.

The architect and the contractor are both qualified to design cabinets for your new office, but it may be preferable to have your architect be responsible for cabinetry design and include the drawings in your construction documents.

Beware of the contractor trickery that involves allowances. Let's assume that the architect has called for specific lighting fixtures for your new office in the construction documents. Two of the bidding contractors quote you a similar cost for these light fixtures. The third quotes you an "allowance" for these fixtures of a much lower dollar amount. What the allowance indicates is that the contractor will only cover the costs of these fixtures up to a maximum of this lower dollar figure. The remaining costs will be added onto your final construction costs. This is a ploy to gain an edge on competitors by appearing to have a lower bid. Any time allowances are involved, the total cost quoted for your project ends up being a mirage.

Completing the Design Phase for Your New Office

The interior design phase of your construction documents is typically done by the architect during the time that the engineers are working on their piece. Occasionally a contractor, rather than an architect, does this for a client after the bidding process, which can present several disadvantages. First, the bids you receive from the contractors will probably contain multiple allowances because no firm design decisions have been made in your construction documents. The other disadvantage to having a contractor do the design phase after tenant improvements have begun is the risk of delays. Often the design items you

choose after construction begins have a long lead time or are on back order, forcing the contractor to put your project on hold until the items arrive. This time constraint may force you to accept less desirable alternatives.

Contractor

Tenant improvement costs will likely be the single biggest expense you will incur when opening your new dental office. They are also the expense that can fluctuate the most from the beginning to the end of your project, often wreaking havoc on your budget.

Hire a contractor who has experience building dental offices. An inexperienced company may underbid the project, not fully understanding its complexities and underestimating the time necessary to complete your project. If you live where experienced contractors are unavailable, it becomes even more important for you to get everything on paper to avoid expensive change orders.

Ask contractors for a bid that includes a full-time superintendent. A salaried employee of the construction company that you hire, the superintendent is the most important person involved with the construction of your project. He or she is responsible for ensuring that all the tenant improvements are built according to your plans and making sure that none of the subcontractors

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deviate from the plans to save costs. The superintendent coordinates all the various subcontractors and makes sure they show up as scheduled. He or she is the person who works closest with your dental equipment consultant/supplier to make sure your equipment requirements are met. **Warning:** When a construction company takes on more projects than it can handle, the superintendent will often end up being assigned to several projects at once, leaving you with only a part-time manager. Inevitably, less supervision over the numerous subcontractors involved means more mistakes and delays during tenant improvements.

Avoiding change orders saves significant back-end construction costs. You can also save additional costs on the front-end of your project. When you and the architect made decisions during the design phase of your plans, many may have been based on esthetics, without you really knowing the total cost. If even the lowest bid ends up being higher than your budget, value engineering can play an important role in bringing that cost back in line. When value engineering, the contractor will make suggestions about what you can substitute in place of the design decisions specified in your plans and tell you the resulting lower costs involved. Most contractors are familiar with the cost of materials. A contractor who is good at value engineering can save you a lot of money, and it only costs the contractor a little bit of time. Of course, for this to work, you are going to have to make concessions with your previous design decisions.

Sometimes a dentist will already have a relationship with a contractor he or she likes, or has the name of one highly recommended by a trusted colleague, and may elect to bypass the traditional bidding process. This can be to the dentist's advantage, but only if the contractor is willing to attend all the design phase meetings with the dentist and the architect. If the dentist clearly states a budget for tenant improvement costs, the contractor can concurrently value engineer the project as the design phase progresses, guiding the dentist and architect in making decisions that keep final costs on target. In the construction industry, this process is called a negotiated bid.

One other tip for protection against financial catastrophe: Insist that your contractor purchase performance bonds and payment bonds that guarantee contractor performance and shield the dentist from contractor default. The American Institute of Architects (A.I.A.) has standardized performance bonds and payment bonds that guarantee contractor performance and shields the dentist from contractor default. Insist that your contractor purchase these standardized bond forms used by the A.I.A., which have repeatedly held up in court and passed the test of time.

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Technology Specialist

The technology specialist has the biggest learning curve of any of the vendors you will need to hire for your project. “Plug-and-play” results can be realistically expected only if all the pieces of this complex puzzle have been judiciously planned, designed, and implemented (installed). The value of dental experience in this arena cannot be overestimated.

Planning for technology installation in your new office takes a great deal of research and due diligence. The first step should be to understand the practice management software and capture (imaging) software, the foundation of any digital office. The design stage consists of determining where the technology equipment and devices will be located in your office, and what they require to properly function. A critical element of the design phase also involves validating all the individual components as to how they need to be integrated, programmed, and set up. This validation process is a key step towards ensuring a problem-free installation, and demonstrates the value of experience. Trial and error can be very expensive and frustrating. The specialist’s previous experience with a variety of digital and radiology equipment will also be a huge advantage to both you and your staff during training, an important element of the installation phase.

Should the specialist purchase your computer hardware from a large reputable company or custom build your CPUs (central processing units)? CPUs from large, reputable manufacturers come in a variety of sizes, ranging from large to very small, to fit every possible situation. A custom-built CPU starts with a “white box,” which generally comes in two sizes, large or medium. A white box won’t have a manufacturer’s name on the outside, because it is typically made up of components (such as the processor, hard drive, and video card) from a variety of manufacturers. A technology specialist may build their own CPUs to gain a pricing edge over the competition. He or she can piece together various components that may be on sale or discounted to produce a less expensive CPU. If these components are compatible — and

that’s a big if — another concern involves warranty issues. If a technology specialist who builds their own computers goes out of business, you have no warranty coverage for these CPUs, while CPUs purchased from a reputable manufacturer still have applicable warranty coverage.

If you purchase custom-built CPUs, your technology specialist must get involved with the custom cabinet design throughout your new office to ensure that these CPUs fit inside the cabinets where indicated, with adequate room for air ventilation.

Be sure your technology specialist offers adequate backup support. Is someone available to either immediately fix your problem from a remote location or send service people to your office on short notice?

If your practice is a HIPAA covered entity, you will require a business associate agreement with your technology specialist if he or she will have access to patient information. Work with a qualified attorney to develop appropriate business associate agreements with any outside individual or entity who will have access to protected health information (PHI) as defined by HIPAA, which can include dental records, images and radiographs, billing records, and insurance information such as explanations of benefits (EOB). HIPAA requires covered entities to safeguard PHI in electronic, hard copy, and spoken form.

Planning for technology installation in your new office takes a great deal of research and due diligence. The first step should be to understand the practice management software and capture (imaging) software, the foundation of any digital office.

Accountant

Your accountant should be a certified public accountant (CPA) who has lots of experience with dentists. One who has served dentists opening a new practice is an even bigger plus, especially when you are in the process of developing a business plan for your lender. Ask several of your colleagues who they use and if they're happy with the firm's service. Don't focus solely on cost because a good accountant can save you a small fortune in tax savings over the years.

Dentists who open a new dental office often underutilize the services offered by their accountant. A CPA can help you determine the length of loan that best suits your particular needs. A CPA can also help you decide how much new dental equipment would be wise for you to initially invest in, based on current tax laws and your unique tax situation.

Attorney

Some dentists begin looking for an attorney only when things go badly. When opening a new dental office, though, there are several instances in which using an attorney can be of great value. You can call your local bar association for a list of attorneys who have experience with the specific service that you're interested in, and ask colleagues about the attorneys they have used for similar matters.

An attorney can:

- Negotiate agreements with landlords or sellers, suppliers, and with team members such as your architect and contractor
- Analyze any alternative to the A.I.A. bond that a contractor may recommend
- Negotiate or review loan documents
- Review any other contracts pertaining to your practice

Practice Management Advisor

Hiring a practice management advisor is optional for a dentist opening a new dental office.

Services that may be of benefit to busy dentists include:

- Interviewing and hiring new office employees
- Completing paperwork for third-party contract services
- Training staff
- Creating a personnel manual
- Developing office policies
- Marketing your new practice

The key to any dental marketing strategy is to reach out to your preferred patient niche while maintaining a high degree of professionalism. For a potential patient to take notice, you will need to be creative. A great source of information to help you reach your preferred patient niche and select the most effective medium of advertising is available through a professionally-analyzed demographics report. Many practice management advisors charge a small fortune doing little more than direct mailings or discount coupons in magazines. A creative marketing message offered through the most effective medium available will help set you apart from the "junk mail" dental postcards lying in the recipient's mailboxes.

A qualified attorney should also be consulted for certain of these services, such as your personnel manual, training programs, and marketing.

Summary

Building a new dental office is a challenging and expensive project, one that requires a tremendous amount of planning, coordination, and supervision. Understanding the vital role of each vendor, and anticipating and controlling the inherent pitfalls associated with new dental office development will help you complete your project on time and on budget.

Contributor Biography

Gordon F. Osterhaus, Jr., D.D.S., opened an office in Glendale, Arizona, starting from scratch, and practiced general dentistry as a sole proprietor for 20 years. He subsequently gained extensive experience in dental equipment sales, which inspired a career in new dental office project management. To date, Gordon has overseen the development of 80 new offices. He is founder and past president of Valley Dental Consulting Services, Inc., founder of GFO Publishing, LLC, and has recently attained Lifetime Member status from the American Dental Association. Gordon's new book titled *How to Open a New Dental Office or Relocate Your Current One: A Journey Through the Dark Side of Dentistry* is available online at: www.valleydentalconsulting.com.

Cited Resources/Recommended Readings

- Academy of Dental C.P.A.s
c/o Schiff and Associates, L.L.C.
Allen M. Schiff, C.A.P., C.F.E.
100 West Road, Suite #410
Baltimore MD 21204
Phone: 410.321.7707
Email: info@adcpa.org
Website: www.adcpa.org
- American Institute of Architects (A.I.A.)
1735 New York Ave., NW
Washington, DC 20006-5292
Phone: 800-AIA-3837 or (202) 626-7300
Email: infocentral@aia.org
Website: www.aia.org
- Osterhaus, Gordon F., Jr., *How to Open a New Dental Office or Relocate Your Current One: A Journey Through the Dark Side of Dentistry*. Phoenix: GFO Publishing, 2011.
- This chapter is a brief summary of a topic covered in Gordon's new book, *How to Open a New Dental Office or Relocate Your Current One: A Journey Through the Dark Side of Dentistry*. A more in-depth analysis of this topic, as well as a comprehensive overview of the entire process of new dental office development, can be found in his book.

Chapter 2:

Financial Planning



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WHERE SMILES START



Chapter 2:

Financial Planning

By Wells Fargo Practice Finance

LEARNING OBJECTIVES

- Manage your financial profile to help qualify for preferred loan amounts, rates and terms
- Understand the financial implications of a practice construction, expansion or remodel project and how to calculate whether your practice can absorb your project costs
- Compare financing options and understand the differences between conventional practice financing, Small Business Administration loans, and specialty lender financing
- Differentiate types of lenders and the approaches they use to make credit decisions
- Identify the tax programs that can help maximize your project investment

Perhaps the most exciting aspect of designing your dental practice is watching your vision come to fruition, with the exact ambience, equipment and technology you prefer. But getting there requires the disciplined work of financial planning — the careful investigation of all financial aspects of your project in order to produce a realistic design plan and budget. Sound dull? It's not! Because a careful financial planning process is the beginning of making your dream practice a reality. As you put your financial plan together, the question of whether you can afford this kind of project is definitively answered. You learn about the financial implications of a remodel versus rebuild, the types of loans that are available, how to calculate the amount of debt your practice can manage, and much more. And it all starts long before your project manifests a single blueprint — with a strong financial profile that positions you for maximum leverage with your lender.

NOTE: All financing is subject to credit approval, and if applicable, determination of SBA eligibility.

Manage Your Financial Profile

Ask yourself: “How strong is your financial profile? What does your credit history tell a lender?”

Good credit is the key to both your professional and personal financial investments, and your credit score signifies to lenders your overall creditworthiness. In fact, your credit score is critical in determining the amount of money you will be allowed to borrow and the interest rate you will be charged. While lenders consider a number of factors when making a credit decision, the most critical aspects of your financial profile are your personal debt — including student loans, credit cards and lines of credit — and your overall credit score rating.

Good credit is the key to both your professional and personal financial investments, and your credit score signifies to lenders your overall creditworthiness.

Factors Used in Calculating Credit Scores

Your credit score is a numeric expression of the information contained in credit reports generated by three major credit bureaus — Equifax, Experian, and TransUnion. These credit reports summarize your credit history including the types and amount of debt you have held in the past and your timeliness in making payments. Certain credit events can have a highly negative impact on your credit reports, including charge-offs, debt collections, bankruptcy, foreclosure, tax liens, and judgments.

The credit score itself is assigned by an independent rating company, with the most widely used scoring systems provided by FICO (Fair Isaac Corporation) and VantageScore 3.0. Credit score rating is not a precise art, as each rating company develops its own score range and lenders have their own definitions of what comprises a good or poor credit score. FICO and VantageScore 3.0 each use a score range from 300 to 850, with higher numbers indicating the borrower is a more favorable credit risk, and lower numbers indicating the borrower is a less favorable credit risk.

Credit scores from FICO for the general population are typically comprised of the following mix of personal information:

FIGURE 2.1: HOW CREDIT SCORES ARE CALCULATED

CREDIT FACTOR	% OF TOTAL SCORE	CONSIDERATIONS FOR IMPROVING YOUR SCORE
Payment history	35%	Have you made your payments on time?
Outstanding debt	30%	How much do you owe? Have you “maxed out” your credit line?
Credit history	15%	How long have you held your credit card accounts?
Pursuit of new credit	10%	Have you made numerous applications for new credit? Are you taking on more debt?
Types of credit in use	10%	Do you use a variety of types of credit?

Source: www.myfico.com/crediteducation/whatsinyourscore.aspx

Five Actions That Can Ruin Your Credit Score

While occasionally being a day late on a bill payment may not ruin your credit score, there are five specific credit actions that can definitely lower your credit rating. In some cases, dramatically. Do everything in your power to avoid these credit situations:

- **Maximized credit card.** A credit card that is “maxed out” — charged up to, or close to, the limit of the credit line assigned to the card — indicates to lenders that you are not in control of your debt.
- **30-day late payment.** While a payment that is a day or two late may be overlooked, a 30-day late payment is a red flag to lenders indicating you may be having difficulty repaying your loans.
- **Debt settlement.** Settling debt with a creditor is better than simply not repaying the loan, but still has a negative impact on your credit score.
- **Foreclosure.** Foreclosure on a personal or business mortgage will have a significant negative impact on your credit score.
- **Bankruptcy.** Bankruptcy is the worst case scenario and will significantly downgrade your credit rating for many years.

Clearly, mismanagement of your debt can result in a poor credit score and, consequently, result in serious damage to your overall financial profile. Based on the formula for granting loans, credit mismanagement is likely to *lower the amount of credit available to you and require a higher interest rate on loan payments.* This can significantly impact the amount you pay over the life of your loan, as shown in figure 2.2.

Ultimately, a poor financial profile can impact your ability to build a solid foundation for dental practice success, including:

- Less money to design your practice according to your vision
- Restrained ability to develop a competitive operation
- Fewer funds for growth in salaries, marketing and overhead
- Less profit due to higher loan expenses
- Potentially a decreased opportunity for full practice success

The good news is that *you* have control over building and maintaining your financial profile.

FIGURE 2.2: HOW CREDIT AFFECTS INTEREST RATE*

CREDIT SCORE	SAMPLE RATE	SAMPLE PRACTICE LOAN MONTHLY PAYMENT*	TOTAL AMOUNT OF ADDITIONAL PAYMENTS OVER LIFE OF LOAN
766+	5.75%	\$3,293.08	
726-765	6.47%	\$3,401.86	+\$13,053.60
670-725	6.89%	\$3,466.27	+\$20,782.80
665-669	7.30%	\$3,529.82	+\$28,408.80
Below 665	Applicant may be turned down		

* Payments based on a 10 year, \$300,000 practice loan

Ten Simple Steps Towards a Healthy Financial Profile

Following are 10 simple steps you can take to improve your credit rating and ensure a healthy financial profile:

1. Maintain at least two or three revolving credit accounts such as credit cards and lines of credit. This shows you are creditworthy and able to manage debt.
2. Avoid applying for credit from too many lenders. Multiple credit inquiries within a short period of time negatively impact your credit rating.
3. Demonstrate that you know how to use your credit wisely by not using all the credit available to you.
4. Make on-time monthly payments on credit cards, mortgages, installment loans and student loans. Remember, many service providers do report late payments and collections to credit bureaus.
5. Consolidate your personal loans in order to improve cash flow and generate a better financial profile.
6. If you are in dispute with a creditor, continue to make minimum monthly payments while working towards a resolution.
7. Notify creditors in writing of your address change.
8. Avoid co-signing or guarantying a loan for a friend or family member, as it has the same impact on your credit as being the primary borrower.
9. Protect your identity. Review your personal credit report at least twice a year to ensure accurate reporting of all accounts. Inform all credit bureaus in writing of any discrepancies.
10. Keep copies of all agreements, documents clearing judgments or liens, and letters from creditors clearing discrepancies in your loan history. Note that all credit information stays on your records for up to 10 years.

Begin improving your financial profile at least 12 months before starting your practice design project. With a strong financial profile, you have far greater leverage for obtaining affordable financing at the best possible rates.

Investigate the Financial Implications of Your Project

When planning a practice upgrade, many doctors find themselves weighing the pros and cons of remodeling or expanding their existing facility versus building a new office from the ground up. There are both practical and business reasons why either option might be desirable, but what are the financial considerations when trying to make this decision?

Advantages of Remodeling an Existing Practice

It should be no surprise that remodeling a current facility will likely be less costly than building from the ground up, as you are working with an existing structure. If your current space allows room to grow, you can direct a larger percentage of your funds to the décor as you are not paying to develop completely new walls, flooring, electrical services and plumbing.

In addition, with a more modest budget required for a remodel versus building from the ground up, you may find it easier to obtain project financing that fully meets your needs, particularly if you are starting a

new practice and have not yet established the cash flow history upon which project funding may be based. While a remodel may not allow you to incorporate all of the features of your dream practice, you should still have adequate funding for modifying the floor plan to improve traffic flow, incorporating current equipment, expanding functional areas and enhancing office décor.

A key benefit of remodeling or expanding an existing practice versus constructing a new building is that it does not necessarily have to disrupt your patient base — patients will continue to find you at the same location where you have always been. However, you will need to carefully plan for the down time your practice may experience while under remodel. This can ultimately be a costly undertaking if your project is not properly managed and runs beyond schedule.

Investment Benefits for Ground-Up Projects

While designing and building a practice from the ground up can require a larger financing package, you can realize a significant investment advantage with this approach — particularly if you purchase the commercial real estate that underlies your practice.

A key benefit of remodeling or expanding an existing practice versus constructing a new building is that it does not necessarily have to disrupt your patient base — patients will continue to find you at the same location where you have always been.

Five Good Reasons For Building Your Dental Practice:

Here are five good reasons for building your dental practice from the ground up:

1. **Favorable trends in commercial property values.** Commercial property values have been rising over the past few years, but may now be stabilized or heading back downward, according to the Wall Street Journal.¹ This trend can potentially give you more office space for your investment.
2. **Preferential tax treatment.** Just as with your home mortgage, you can deduct 100 percent of commercial mortgage interest right off the top of your business income. You can also write off depreciation expenses for the office building over a 39-year period using straight line depreciation (that is, depreciated by equal amounts each year over the property's useful life). The mortgage deduction and building depreciation write-off reduce your taxable income, increasing your profit for the year.
3. **Long-term appreciation.** History has shown that real estate appreciates over time, and this will likely continue. When you own both your practice and underlying commercial real estate, you're making two investments in one — in the value of your practice, and in the long-term appreciation of your property. Together they provide more options for generating profit and cash flow as you build your practice and approach retirement.
4. **Retirement funding.** When it comes time to retire, some doctors choose to sell both the practice and commercial real estate, maximizing profits and investing net cash to fund their retirement. Others sell the practice only and retain the real estate, leasing the property back to the new practice owner to generate ongoing monthly income. Whichever model you choose, with ownership of both the practice and commercial real estate you have more options for meeting your financial needs.
5. **Favorable rates.** While interest rates may change at any time, the Federal Reserve has continued to keep its benchmark interest rate close to zero, allowing loan rates to remain at historic lows for both commercial and residential real estate. Today it's not uncommon for monthly payments on a 25-year commercial mortgage to be the same or lower than rental payments for a similar space. Plus, only a 10 percent down payment is required when you borrow money under the SBA loan program.

Factor Growth into Your Decision

Whichever option you choose, be sure to factor growth into your office design. Over the years, your patient base, office functions and dental technology will evolve and grow. Plan to accommodate this long-term growth with a design plan and budget that factor in additional staff and equipment — even an additional operatory or two — that your practice can grow into. Remember that you will make payments on your financing package

for 10 or more years, and building growth into your design will help maximize your investment.

To help determine how much growth to build into your project, conduct market research on projected growth for your area over the next decade. Look at summaries of the most recent census data as well as professionally compiled market data reports. Some market data reports are available online, or even through your practice lender.

¹ "Turning Point? U.S. Commercial-Property Sales Plunge in February." Wall Street Journal. Available at <http://www.wsj.com/articles/turning-point-u-s-commercial-property-sales-plunge-in-february-1458639002>. Accessed May 16, 2016.

Can I Afford a Practice Expansion or Remodel?

The best way to determine whether your project is affordable is to develop a cost projection covering all purchases and improvements and broken down into monthly payments. An initial cost projection is designed to give you a general idea of where your funds will be spent, whether you can truly afford your project as planned, and where you might make modifications to your plan to make it more realistic for your budget if necessary. Once you have a cost projection that is feasible for your budget, you can finalize your design plans.

Figure 2.3 is a simplified cost projection for building a four-operator, 2,000 square foot expansion. (Your project may be larger or smaller, and actual costs will vary accordingly.)

FIGURE 2.3: SAMPLE COST PROJECTION — PRACTICE EXPANSION (LEASEHOLD)

INVESTMENT	PROJECTED COST
Leasehold Improvements	\$150,000
Soft costs	\$25,000
10% contingency	\$40,000
Working capital	\$25,000
Equipment / furnishings	\$200,000
Total Practice Loan:	\$440,000
Monthly Payment*: *8% fixed over 10 years	\$5,338 (not including current monthly lease)

An initial cost projection is designed to give you a general idea of where your funds will be spent, whether you can truly afford your project as planned, and where you might make modifications to your plan to make it more realistic for your budget if necessary.

To be of maximum value to you and your lender, eventually you will need to generate a more detailed projection that includes project estimates from your architect, designer and contractor, as well as equipment costs, supply allowance, working capital, moving expenses, signage costs, telephone and computer expenses, and furnishings. Have your accountant review all costs before submitting your projections to your lender for a final loan commitment.

Now that you have an idea of what your project will cost per month, how do you determine whether your practice can absorb this amount of debt? For this you need to generate a debt service calculation, outlined in Figure 2.4:

FIGURE 2.4: SAMPLE DEBT SERVICE CALCULATION

CALCULATION STEPS	EXAMPLE
1. Determine the adjusted net income for the practice	\$ 680,000
2. Determine your personal debt requirements • Home mortgage, car payments, student loans, etc.	\$340,000
3. Divide your income by the amount of your debt (including the practice debt service)	$\$680,000 / \$340,000 = 2.00^*$
4. Debt service ratio	2.00 : 1.00

* Example only. Consult with your financial advisor to determine whether your practice can manage additional debt.

If your debt service ratio is 1.25:1.00 or higher, your practice should be able to generate adequate cash flow to cover your new practice debt. However, be sure to speak with your financial advisor to determine whether your particular circumstances allow you to safely take on the amount of debt your project would require.

Understand Your Financing Options

Before approaching your lender for project financing, understand your financing options so you can make an informed decision about the type of package that will work best for you.

Loan options are based on the type of project you pursue. When it comes to dental practices, whether you are purchasing, starting, expanding or remodeling a practice, your loan is considered “practice financing” and can be structured as either a conventional practice loan, or a Small Business Administration (SBA) loan.

Conventional Financing

Most conventional practice loans are financed over five to 10 years. They can range from variable and fixed-rate loan packages with down payment requirements up to 30 percent and standard repayment terms, to personalized fixed-rate loans with up to 100 percent financing and flexible terms. Flexibility in the repayment schedule allows you to start with lower payments as you are getting your practice off the ground, and increase the size of payments as your business grows.

Small Business Administration (SBA) Loans

SBA loans are guaranteed in part by the government and designed to help new businesses get started. Their many benefits include a lower down payment (as low as 10 percent), longer repayment terms (20–25 years), and competitive fixed and variable rates. The key to an expedited loan process is to work with a Preferred SBA Lender who has been given the authority to make loan decisions on behalf of the government and can move you through the loan process quickly and efficiently.

Specialty Lender Financing

Specialty lender financing consists of a conventional or SBA loan customized by a specialty healthcare lender to meet your particular situation and needs. Using a specialty healthcare lender for your project can save you both time and money. Unlike most local banks, a specialty lender can combine your practice, equipment or property purchases into one loan package, providing a streamlined process with one credit application, one set of fees and one closing. In addition, specialty lenders can provide a broader range of loan options, from short-term fixed rate loans to low variable rate mortgages. They may also offer planning and business tracking resources to help make the remodel, expansion, or build-out process run more smoothly.

Loan specifics may include:

- Up to 100 percent financing with flexible repayment plans
- 10-year amortization
- Low closing costs
- Financing based primarily on historical or projected practice income rather than personal assets

The chart on the next page compares the differences between conventional financing, SBA loans, and specialty lender financing. Before committing to a loan package, carefully review and compare the different financing options with your lender to fully understand the pros and cons of each and how they might affect your particular circumstances. It may also be prudent to discuss the loan package with your financial advisor.

FIGURE 2.5: COMPARING FINANCING OPTIONS (LEASED SPACE)

	CONVENTIONAL LOAN	SBA LOAN	SPECIALTY FINANCING
STRUCTURE	<ul style="list-style-type: none"> • Fixed/variable rate • 5-7 year term • Fully amortized • Collateral outside of practice 	<ul style="list-style-type: none"> • Fixed/variable rate • 7a SBA Loan =10 years • Fully amortized over term of loan 	<ul style="list-style-type: none"> • Up to 100% financing • 10-year amortization • Graduated or deferred payments
DOWN PAYMENT	<ul style="list-style-type: none"> • Up to 30% 	<ul style="list-style-type: none"> • 10-15% 	<ul style="list-style-type: none"> • Can be as low as 0%
CLOSING COSTS	<ul style="list-style-type: none"> • 1% typically 	<ul style="list-style-type: none"> • 2.6-3.5% (can be financed into the loan) 	<ul style="list-style-type: none"> • \$500 (paid by borrower)
STRENGTH	<ul style="list-style-type: none"> • Good rates but hard to qualify for 	<ul style="list-style-type: none"> • Lower down payment than traditional lender • Fully amortized term up to 25 years 	<ul style="list-style-type: none"> • Financing based primarily on historical/projected practice income (not personal assets)
MUST HAVE:	<ul style="list-style-type: none"> • Collateral, average to good personal credit 	<ul style="list-style-type: none"> • Average to good personal credit and cash flow (projected or historical) 	<ul style="list-style-type: none"> • Average to good personal credit and cash flow (projected or historical)

Before approaching your lender for project financing, understand your financing options so you can make an informed decision about the type of package that will work best for you.

Select a Lender Who Can Meet Your Needs

Dentists have unique financing needs. Practice construction costs vary depending on where you are located, but can average \$150 to \$250 per square foot for building operatories, office space and reception areas. Additional funding is required for advanced dental equipment, computer systems integration and décor.

Look for a lender with dental industry experience who is familiar with the construction process and special requirements of dental practices:

- Is the lender able to provide cash flow funding to support business operations during and after construction?
- Can the lender allow a flexible repayment structure that increases payments over time as your practice grows?
- Does the lender offer practical and valuable incentives for building an ongoing relationship, or are they interested only in an independent project transaction?

To ensure you have a financing partner who understands your needs and can act as your advocate through the life of your loan, work with a direct lender rather than a financing broker. While financing brokers can shop a good “deal,” they are not necessarily in a position to evaluate and support the full scope of your financing needs and can ultimately cost additional time and money.

Different Approaches to Lending Decisions

There are real differences in the approach lenders take in developing their credit decisions. The two key differences are between collateral-based lending and cash-flow lending.

- Collateral-based lenders typically make credit decisions based on the value of your personal assets and use personal items such as your home, money market accounts, and Certificates of

Deposit as collateral. Your local bank is most likely a collateral-based lender.

- Cash flow lenders use the historical performance of a practice — or, in the case of start-ups, projected revenue and cash flow — to make credit decisions and use the practice as collateral, not your personal assets. Cash flow lenders are usually specialty lenders that specialize in a particular business or industry.

If you are concerned about using your personal assets as collateral for your business, look for a cash-flow lender. This will protect your personal assets while providing a realistic basis for obtaining funding.

Once you have determined the type of lender you prefer, consider asking the following questions of potential lenders to gain an understanding of the type and quality of service they can provide for your project.

- **Which specific markets do you serve?**

Does the lender understand the unique financing needs of dental practices?

- **May I speak with your current dental customers?**

Speaking to references will help you determine whether this lender can support your specific needs. If a lender does not have or will not offer the names of dental customers, move on.

- **How does the approval and funding process work?**

A streamlined process, usually for smaller loan amounts that require only an application, should provide approvals within one to two days. Approvals for larger or complex loan requests involve a more in-depth analysis and should take approximately five to seven days once the required information is received. In all cases, the documentation and funding process varies depending on how quickly required documents are received (e.g., invoices, contractor budgets, copies of lease agreements, etc.) and the overall progress of your project. Funding can occur anywhere from a couple of weeks to several months post-approval.

- **What is your prepayment policy?**
 - Ensure there are no prepayment penalties, and avoid balloon payments if possible.
- **Who will fund and service my loan?**
 - You want to work with a reliable financing team throughout your project that is available to answer questions, provide useful resources, and help you solve any funding issues. Make sure your loan is not packaged and sold to a third party.
- **Who do I call if I have questions or need help?**
 - Make sure your lender can provide a name, not just a department.
- **How can you help if I experience problems in my practice?**
 - You want to know your lender is part of your team and available to help you overcome challenges.

Getting Prequalified

Talk to your lender about your project to determine if it is financially feasible, and ask to be prequalified for a specified amount. In today’s lending environment you will likely need to provide a good deal of documentation, including the following:

FIGURE 2.6: TYPICAL LOAN DOCUMENTATION

BUSINESS CATEGORY	DOCUMENTATION
Practice start-up	<ul style="list-style-type: none"> • Business plan • Cash flow projection • Personal tax returns • Credit application
Experienced dentist building a practice	<ul style="list-style-type: none"> • Personal and business tax returns (2 years) • Current P&L statement • Set of drawings for preliminary project appraisal • Credit application
Experienced dentist going into lease space	<ul style="list-style-type: none"> • Personal & business tax returns (2 years) • Current P&L statement • Credit application

Once you have selected your lender, celebrate! You have just added a critical member to your project team.

Take Advantage of Cost-Saving Opportunities

With various tax incentives available for small businesses, there are a number of ways you can maximize the investment in your practice design through tax deduction and depreciation strategies. In addition to straight line depreciation, here are two valuable tax programs that can help leverage the design investment in your practice. Talk to your financial advisor to find out what additional incentives are available.

Use Cost Segregation to Reduce Building Costs

For businesses that own their building, cost segregation is an IRS-approved method of shifting a significant portion of the depreciable basis of your building from 39-year life property, to five-, seven- and 15-year life property. By reducing the depreciable life of your property, you can greatly accelerate your annual depreciation and reduce your tax liability, generating immediate cash flow. In addition, cost segregation allows easier write-offs when an asset becomes obsolete, broken or destroyed.

The key to cost segregation is viewing a real estate acquisition as consisting not only of land and buildings, but also tangible personal property and land improvements. The process of cost segregation begins with a formal engineering report at the time of property purchase that segregates assets into four categories, identifying any assets that qualify for a shorter depreciable life:

- **Personal property.** This category typically includes non-structural elements such as furniture, wall coverings, fixtures and window treatments, and can be depreciated over five, seven or 15 years.
- **Land improvements.** Typically including items such as sidewalks, fences and significant landscaping, this category is subject to accelerated depreciation over 15 years, generating useful tax savings.
- **The building.** The engineering report will assign separate values to various components of the building so that if a component (such as the roof) subsequently becomes worthless, you can write it off immediately.
- **Land.** Whatever amount of the purchase price is not accounted for in the first three categories is allocated to land, which generally has a low or insignificant value and therefore will not generate significant tax savings.

With various tax incentives available for small businesses, there are a number of ways you can maximize the investment in your practice design through tax deduction and depreciation strategies.

A taxpayer can use cost segregation when constructing a new building or buying an existing one. In addition, even if you have owned your building for several years, you may be able to “catch-up” during the current year all of the depreciation you could have taken in prior years.

One of the trickier aspects of cost segregation is the actual categorization of property and distinguishing between tangible personal property and a building’s structural components. Your CPA will play a central role in making these distinctions and guiding you through the cost segregation process.

The cost of the engineering study that forms the basis for cost segregation can appear daunting, but the advantages in tax savings far outweigh the initial investment. In the typical dental practice, for instance, assets that qualify for accelerated depreciation can range from 20 to 35 percent of the total building cost. The tax savings this represents can offset the costs of owning or constructing your building, providing greater leverage when designing your dream practice.

Take Advantage of Section 179 Deduction

The Internal Revenue Service provides a significant tax benefit to small businesses that reinvest through equipment purchases, leases or financing. Under Section 179 of the Internal Revenue Code, you may be able to write off the entire cost of an equipment purchase in the year it is purchased, instead of depreciating it over many years.

- Sole proprietors, partnerships and corporations can deduct the full cost of equipment and furniture — up to the current tax year’s annual maximum.
- Business-related property purchased during the calendar year typically qualifies for the Section 179 deduction, and can include:
 - Tangible personal property such as office furniture, equipment, and computers
 - Property contained in or attached to a building (other than structural components), such as counters and signs
 - Certain off-the-shelf computer software
- It does not matter if you have not yet paid for the purchase. You simply need to put the equipment into service before the end of the calendar year to claim the Section 179 deduction.

The Internal Revenue Service provides a significant tax benefit to small businesses that reinvest through equipment purchases, leases or financing.

Summary

Once you have taken the significant step of starting your financial plan, pat yourself on the back! Financial planning is one of the more complex aspects of any practice construction, expansion or remodel project and requires considerable discipline to paint a thorough portrait of your financial status and needs. Whether you are just starting to work on improving your financial profile or have funding in hand, you have demonstrated determination in moving your project forward and are ready to implement your vision of a new, functional and contemporary dental office design.

Contributor Biography

Wells Fargo Practice Finance is the only practice lender selected especially for ADA® members and endorsed by ADA Business ResourcesSM. With more than 25 years of experience helping dentists transition to ownership and manage growth, they understand the business of growing successful practices and provide customized financing, complimentary planning resources, and personalized support to help dentists acquire, start, expand, and refinance their practices. They can be reached at 1.888.937.2321 or <https://practicefinance.wellsfargo.com/dentists>.

Chapter 3:

Location Selection and Siting Concerns





Chapter 3:

Location Selection and Siting Concerns

By John Adams, A.I.A.

LEARNING OBJECTIVES

- Evaluate potential properties for their suitability for a new dental office
- Identify common pitfalls if selecting a rental space or a property to purchase
- Gain control of unexpected site development costs
- Navigate through the various aspects of a proper due diligence process
- Prepare materials to meet with the city or county for permit pre-application guidance

This chapter aims to help you with due diligence in looking at a property and identifying issues that can be obscure or costly. Proper due diligence can go a long way to averting a big mistake in land acquisition or taking on a lease of property that has hidden deficiencies.

A FEW PROPERTY DEVELOPMENT TERMS

Some jargon is inevitable when talking with real estate professionals or city officials. Here are some key terms:

Site: A property where you propose to develop or build your project. It could be empty land or have an existing building. Think of it as shorthand for “project site.”

Leasehold Improvement or Tenant Improvement: A remodel or improvement of an existing building for the benefit of the tenant. Tenant improvements are largely interior work but adding new entry doors or windows to the exterior is common.

Use: In real estate and permitting jargon, “use” refers to the type of entity or activity the location contains (e.g., dental office, retail store, apartment, etc.). Use is determined by local code officials.

Zoning: The aspect of land use that categorizes land by desired use and other features and then maps these zones within the municipality. Zoning is what (hopefully) keeps factories from being built next to houses. Again, this is determined by the municipality and is almost always predetermined.

Due Diligence – First Steps

You have identified a community in which you wish to practice and have a general notion of what type of property that interests you (storefront, medical office building suite, raw land, etc.). So when you locate a possible property what do you look for? Before getting too far along with a negotiation, start your due diligence early by taking a look at several top level items:

- **Legal use.** Is a dental office allowed on this property? Don't assume that just because there is a dentist next door that the same use is allowed on your site as well. A real estate agent maybe able to tell you, at least generally, if dental offices are allowable on the site. An architect or city official can most likely give you a more definitive answer.
- **Change of use.** Would your dental office be a different use than what occupied the site before? If so, then this may be considered a change of use. Changes of use are sometimes granted outright. But often municipalities cite a change of use as a trigger for bringing a property up to current building code. In other words, previously legal aspects of the property may become illegal. Needing a change of use should not preemptively dissuade you from pursuing a particular property, but it is critical to understand if your project will trigger a change of use.
- **Access.** Can patients and staff get to the location? Is it on a one way street? Where is the front door? Will you have enough visibility? If the site is vacant land, will you need to build a driveway or access road? Front doors are a patient's first impression. Try to visualize the front door experience now.
- **Utilities.** Are all utilities on site? If so, are they connected to your building? Utilities include:
 - Electricity
 - Gas
 - Water
 - Fire connection (not the same as water for day-to-day use)
 - Sewer
 - Storm drain (not always the same as sewer)
 - Telephone
 - Internet
- **Setbacks, buffers and easements.** When buying property, you should consider asking about these types of restrictions early on. Setbacks and buffers are restrictions on portions of properties adjacent to other properties, public land or environmental features. Easements are contractual agreements between the property owner and others that have the net effect of limiting your use of the property. All of these restrictions transfer with changes in ownership so you are generally stuck with them.

Understanding how setbacks and buffers impact a property can often be figured out by researching online at the city website, or with a visit to town hall. Easements are usually revealed in a preliminary title report.
- **Square footage.** Is there enough land available to build your building and parking? Keep in mind that going up an additional story may cost a lot of money. Upper floors typically require elevator service and some duplication of building services like mechanical equipment.

Consult your tax advisor or accountant for a statement of tax and accounting rules applicable to your particular situation and for all other tax and accounting advice.

Rentable area is a metric used to charge tenants for a fair share of common building areas like lobbies, bathrooms, and utility spaces. Unless you are renting the entire building, rentable area is always greater than the actual area you will use. Rentable area can be expressed as increasing the tenant space by a “load factor.” Load factors vary greatly but 15 percent is common for office spaces with lobbies and common bathrooms. Closer to 10 percent is appropriate for simpler buildings without lobbies, etc.

- **Parking.** Parking can kill a project — and not always in the way you may expect. Sometimes a municipality imposes required parking. The financial and square foot burden of constructing parking can swamp the project budget and make the site undevelopable for dental or medical uses. Alternatively, parking can be in short supply and your practice cannot thrive without parking available. This can be especially true for offices in urban areas.

There are a few metrics to quickly evaluate your parking needs. An easy rule of thumb for parking is one space for each doctor and staff member and one and one half spaces for each treatment chair. This can add up quickly with fifteen plus spaces for a six chair practice. Another way to estimate parking is to apply a ratio of one space per 200 square feet for office space.

For more car-oriented locations, parking ratios in the range of one space per 125 square feet are not uncommon. But many cities are dealing with heavy traffic find more people carpooling and taking public transportation. Recent traffic studies in suburban Seattle found an average need of one space per 225 square feet for medical/dental clinics.

Finally, how much square footage do your parking spaces need? For new lots, assume 325 square feet for each space. 325 square feet per space gives you room for drive aisles and accessible spaces. So, building a 2,700 square feet practice with 15 parking spaces (using the 1:200 ratio) would require another 4,875 square feet of land set aside for parking. Your particular parking needs may vary, but this is a good starting point.

FIGURE 3.1

<h2>Back of the Napkin Space Needs</h2>	
GENERAL DENTAL PRACTICE – NEW BUILDING	
Six Operatories	2,700 square feet (6 x 450 square feet)
15 Parking Spaces	4,875 square feet (15 x 325 square feet)
<hr/>	
Total <u>Buildable</u> Land Area Needed	7,575 square feet
 GENERAL DENTAL PRACTICE – LEASE	
<i>In this scenario, 10 parking spaces are provided elsewhere, such as a garage or on the street.</i>	
Six Operatories	2,700 square feet (6 x 450 square feet)
Less Bathrooms Provided in Building	180 square feet
<hr/>	
	2,520 square feet
Building “Load Factor”	15 percent
<hr/>	
Total Lease Space Needed	2,898 square feet (2,520 square feet x 1.15)

Due Diligence – Phase Two

So you have identified a property that has a good location and seems to pass all the tests outlined above without any major hurdles. The next step is a more thorough due diligence process where you revisit all of the previous issue in greater detail and expand the scope of your investigation to some new areas. While it is difficult to put money and effort into a property that you may walk away from, the flip side is you may avoid making a financial mistake for your practice. The time and expense spent in due diligence may be good insurance for your property investment.

Surveys and As-Builts

If you are buying land, a survey is vital. A properly executed survey can reveal easements, encroachments, misrepresentations of lot size, etc. A survey can also give you a reliable background map on which to plan your project. Without a survey, your design efforts may be hamstrung from the beginning. Appendix 1 at the end of this chapter lists items that a surveyor should include in a land survey.

Surveys for leased space are sometime called as-builts or measuring services. Do not assume the square footage offered by the real estate agent is accurate for your purposes. As noted previously, it is an industry standard to increase the actual square footage number to cover to use of building common areas. A building measuring service can laser measure and draft a typical six chair dental office for a less than a thousand dollars. This drafted plan also gives you a good background on which to prepare your own design.

The time and expense spent in due diligence may be good insurance for your property investment.

Title Report

A title report goes hand in hand with the land survey. The preliminary title report will likely identify easements or other legal encumbrances (like an extra height restriction) that are often not readily visible on site. Sometimes the surveyor can order a preliminary title report, or the realtor representing the property can get one. Make sure you read and understand the report. Ask questions. Most loans bank require title reports and this step is usually easy and often free. Don't pass on this opportunity.

Feasibility Study

At a minimum, a feasibility study should identify setbacks, buffers, height restrictions, legal uses, building size limits, use size limits, parking requirements, environmental impact limits, signage restrictions, design requirements, and permitting requirements. Typically, this calls for an architect or other professional, especially if you don't feel comfortable wading through the code or if the code is particularly complex which is the case in many larger cities.

If you have a good head for reading municipal code and consulting various public maps, you may be able to determine the zoning and use limitations that apply to the property in question. At minimum, you should understand the two fundamental aspects of the code that affect the legal "use" of a dental office.

"Land use" along with zoning is regulated by the land use or zoning code while "building use" is governed by the building code. You need to carefully study both code sets to make sure a dental office is legal at your chosen location. Be aware that the two codes will often classify dental offices differently. For example, it is common for the land use code to categorize dental offices as "medical - dental" or something similar while the building code will group dental offices into "business" use (IBC Group B).

Even if you are leasing a space, validating that your practice can move into the space is often best done with a simplified feasibility study. This is where the issue of “change of use” becomes critical. For example, consider the following. You are interested in a storefront along Main Street that was a former retail store that closed after thirty years in business. Dental offices are allowed outright along Main Street. However, the retail store never had sprinklers. The change of use from a retail store to a dental office triggers the requirement that commercial buildings need sprinklers. Before you know it, you are footing the cost to connect to the city water main in the middle of Main Street (often tens of thousands of dollars), repairing the trench you dug across the street and sidewalk (another \$20,000 easy), and restoring any street trees or plantings. Only then can you install the sprinkler system itself. You can easily spend \$100,000.00 on new sprinklers.

So do your research. Verify if a dental practice is allowed on the site and then verify if change of use is required for any existing buildings in question.

All of the above questions may quickly lead you to conclude that you need to meet with the municipality. Appendix 2 at the end of this chapter offers a list of questions to ask at pre-application conferences.

A Quick Note About Nitrous Oxide and Other Sedatives

In the 2012 revisions of the National Fire Protection Association 99 Code (NFPA 99) and the International Building Code (IBC), the language was changed regarding sedation and the level of care needed to support sedated patients. The result is that some municipalities have been moving toward considering dental practice that use sedatives like nitrous oxide as “Ambulatory Care Facilities.” This sets the bar higher for many aspects of the construction of your office. Be sure you explain the needs of your particular office and sedation use with the building official.

Site Plan – Buying Property

With a survey, title report and feasibility study in hand, you are ready to do a site plan. For new construction, a site plan is not the same as a survey as site plan shows what you intend to build. A lot of good information can be conveyed quickly on a site plan and at the very least should include:

- Setbacks, buffers and easements
- Building size
- Parking lot size
- Driveway location and connection to street
- Utility locations
- Front door location
- Building orientation to sun and views

There is an art to clearly overlaying these various types of information. Ideally, you would provide an architect with a survey and title report. The architect would then overlay this information, the feasibility info and even a potential design scheme. The architect can also take into consideration issues like driveway location which must be located in such a way that it does not cause safety issues on the neighboring street. All of this information should be drafted clearly and neatly so you can identify any opportunities or challenges.

Here is an example of a common issue that comes up in the site planning process. Cities often require that all parking is located in the back of the building, but they also may require that the front door and signage face the street. This common conflict in the code reveals itself in the site plan most clearly. With a driveway to the back parking lot, it is hard to expect patients to park in back and then walk around to the front of the building. On the other hand, having patients walk in through the back door is unwelcoming. A second patient entrance in the back means that your staff has to monitor two front doors, one of which may only open when unwanted solicitors show up. This type of fundamental design problem can be solvable (see the case study in Appendix 3 at the end of this chapter) or may be cause to move on. A site plan can reveal this conflict early.

Space Plan – Leased Spaces

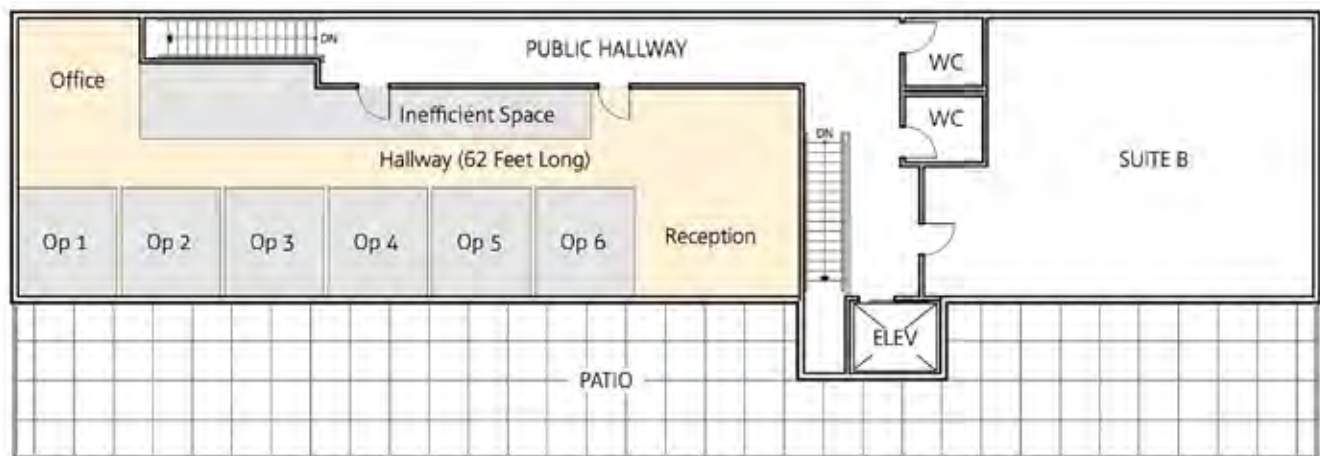
When leasing space, a space plan is used to validate that your practice will fit into space and that features like window and plumbing locations are not problems. An architect or dental office designer can quickly do a schematic space plan for you. Equipment suppliers sometimes offer this service free as a way of introducing you to their equipment. These free plans can be useful but are not holistic in approach and it is wise to confirm with a qualified design professional

In particular, watch out for oddly-shaped spaces. Simple rectangles, closer to being square than long and skinny, are the easiest spaces to work with. Here's an example of a problem that became apparent after doing a space plan: the treatment areas could only fit one after the next along the bank of windows. Once we placed the access hallway along the back of the chairs, we were left with a narrow six-foot strip of space that was a largely unusable space. It also meant the staff was constantly walking up and down the long hall to serve all the operatories lined up in a row.

Here are some things to look for:

- Is the patient experience getting to and entering your space welcoming?
- Can staff enter without walking through front lobby?
- Are there enough windows for all the rooms that need windows?
- Are the hallways wide enough to pass comfortably?
- Can tiresome long hallways be minimized?
- Can the treatment areas and sterilization be grouped together to promote efficient movement?

FIGURE 3.2: ODDLY-SHAPED SPACES



Oddly-shaped spaces may not be the best choices for dental offices.

Utilities

In your first pass, you should have identified if the utilities you need are on site or not. If they are not, then you need to talk with the city or utility provider about the cost to bring the utilities to your site. For utilities already present, it becomes a question of capacity and configuration. Have the building inspector or a trusted contractor evaluate the following:

- **Water.** Is the connection large enough (usually determined by the plumbing code) and does it have good pressure? On undeveloped land, is water even available to the site? Check this with the utility company.
- **Sewer and drainage.** Are the sewer lines clear and in good repair? Hire a company to scope both the sanitary sewer and storm sewer if you would be responsible for their maintenance.

If you are renting a space, can the drain of your most distant sink get to the sewer connection? A lack of sufficient “fall” in drain lines to the sewer may render a large portion of your office unusable for treatment or staff areas.

- **Heat and cooling (HVAC).** A large percentage of energy use is tied to your HVAC system. Updated heating and cooling systems often drive the need to upgrade the electrical or gas service. HVAC systems are often measured in terms of their cooling capacity alone. For dental offices, one ton of cooling per 250 square feet is a rule of thumb estimate. But this can vary considerably depending on your location and the configuration of the building. Any mechanical system should be reviewed by a qualified mechanical contractor or engineer on site.

- **Electrical.** Once you have a good idea about your HVAC needs, then ask if the electrical service at your location is sufficient for your needs. The answer is often no. Understand the costs for a properly sized service by contacting a reliable electrical contractor. Be sure to accommodate your HVAC system. An electrical service needs to be dedicated to your office alone. A 400 amp service is a good starting place for a medium sized six chair office.
- **Natural gas.** Is the service available or adequate? The gas utility company can often work with you to determine your needs at little or no charge.
- **Phone/Internet.** Evaluate the cost to provide connections you need for your practice. Is the available service (broadband, T1, fiber optic, etc.) and capacity suitable for your needs?

Geotechnical Study

If you are buying raw land or even a property with an existing building, it is wise to invest in a soil study. A soil study will identify poor soil for structures, drainage problems, or geologic hazards like earthquake susceptibility. The more you plan on digging, the more you need a soil study.

A soil study will identify poor soil for structures, drainage problems, or geologic hazards like earthquake susceptibility. The more you plan on digging, the more you need a soil study.

Hazardous Materials

For land purchases, a “phase one” environmental study may provide you peace of mind that the property was not home to a chemical supply house or gas station in the past. Finding out that your soil is contaminated makes for a bad day to be sure. Phase one studies are largely a background study to determine the likelihood for site contamination. These studies don’t involve extensive on-site investigations. If the phase one study raises some concerns, a phase two study is next, but you may have moved on at that point.

For existing buildings (lease or own), have a hazardous materials surveyor check for asbestos, lead, or other hazards. Asbestos and lead were commonly used construction materials for decades and so the risk of finding these materials is very real. Removal and disposal of these materials can be expensive and many contractors will refuse to work in an existing building that has not been tested and cleared of hazardous materials.

Sellers of property have to disclose that they are aware of the presence of hazardous materials, but this does not completely protect you as many people simply state they have not commissioned any reports and are unaware of any hazards. If they have reports, they may be limited to a particular area or feature of the building (like asbestos floor tiles). Validate any reports for completeness and applicability to your site with a third party.

Building Inspection

If you are buying a building, just like buying a home, a building inspection is good idea. A thorough building inspection may cover several of the items noted above. Building inspectors are licensed professionals in many states and national certification programs exist, such as the International Code Council Commercial Building Inspector certification.

They Did It. Why Can't I?

It happens all the time that you notice a project that has some aspect that you want to pursue, but you have been told that your proposal is not legal. Two things can be at play here.

There may be some aspect of site that gives the project relief from the code. These aspects are not always visible. If possible, find the property owner and ask how they got relief from the regulations.

Another reason may be that the code has changed. Building codes are typically updated on a three-year schedule. Land use and zoning codes are updated less predictably, but can change significantly at any time the local legislative body sees fit. Often a past project has been “grandfathered” under a previous code but is no longer code compliant. It is good to seek information and ask the building official questions. **The key idea here is to not make the mistake of assuming it is OK just because it has been done before.**

Case Study: Anacortes Pediatric Dental

Anacortes Pediatric Dental is a six-chair pediatric practice in Anacortes, Washington. While conducting our due diligence, we discovered a few issues that were documented and solved on the site plan.

The first issue was one that could be encountered on many dental practice sites: city code did not allow a new driveway because the site was next to an alley. The existing driveway necessitated cutting across the width of the site to access the parking, as shown in Figure 3.3.

FIGURE 3.3



An early site diagram shows the access drive at top of image reducing buildable area.

Case Study: Anacortes Pediatric Dental (Continued)

In meeting with the city, we were able to trade the existing driveway for a new drive located along the more visible street directly servicing the parking lot, shown in Figure 3.4. This allowed us more room on the site to orient the treatment areas toward a new garden and provided an easy- to-find entry for patients.

FIGURE 3.4



Developed site plan shows new vehicle drive along the major street at bottom of image. A new garden was added where the previous drive was located. The treatment chairs face this new garden.

The site plan also showed us there was need for two sides of the building to appear welcoming. While patients would drive up to the parking lot side of the building, the street-facing side had to create the first impression. By placing a patio with large windows we created an inviting façade on the street, like in Figure 3.5.

On the parking lot side, we highlighted the entry with a large central courtyard filled with landscaping, as shown in Figure 3.6.

A centrally located reception desk is able to monitor access from both doors, as demonstrated in Figure 3.7.

FIGURE 3.5



Street-facing side of building is welcoming with large glazing and entry patio. New landscaping will mature to an attractive garden experience.

FIGURE 3.6



The main entry faces the parking lot but provide a clear and welcoming access for patients through a central courtyard.

FIGURE 3.7



A central reception desk controls both entries. The street facing entry is just beyond the check-out desk behind the sculpture.

Summary

You are well on your way to a successful project if you go through all of the items discussed and find a site that passes all of your tests and reviews. You will find that your design process is faster and better for the work you have done this far. You may also find that the municipality has become engaged in your success and may even support your endeavor. You will experience fewer construction delays and costly surprises.

You will have also clarified your vision of your practice well before the first stud wall goes up. It is often said that you can pick two out of the following three: low price, high quality or high speed. By slowing down and taking the time up front to do your due diligence, you are choosing higher quality for a lower price.

Contributor Biography

John H. Adams, A.I.A. and his wife Anne C. Adams, A.I.A. are partners in the Seattle architectural firm of Adams Architecture. John has designed a wide range of dental practices and other commercial buildings throughout the state of Washington. His design philosophy is to seek common ground with a client's desires, the site, and beautiful aesthetics. He believes the best designs happen where these three areas overlap. For more information, visit his website, www.adamsarchitecture.net.

Appendix 1

Property Survey Requirements

1. The surveyor's stamp, signature, contact information and the date signed
2. North arrow and graphic scale
3. Vicinity map
4. Complete legal description
5. Datum information
6. Monuments within the project area and any site benchmarks
7. Rights-of-way with dimensions and source references
8. Easements with type, dimensions, and source references
9. Property lines with bearings and distances
10. Buildings, structures and overhangs — on site or within 10 feet of site
11. Retaining walls, rockeries with spot elevations along tops and toes
12. Fences and similar structures
13. Streets and street improvements
14. Edge of pavements, concrete surfaces, asphalt surfaces, gravel surfaces, curbs, curb cuts, wheelchair ramps, gutter and flow lines, sidewalks, landscape areas, and pedestrian and bike paths
15. Utilities, including buried utilities and source for underground data as required for submission to permitting authority for civil and building permits
16. Fire hydrants, vaults, utility poles, etc.
17. Two-foot contours – extend contours past property lines no less than five feet
18. Steep slope tops and toes
19. Trees taller than six feet and all trees within the R.O.W. Any trees whose drip lines extend over the subject property
20. Water features
21. Protected areas, if required, including wetland boundaries
22. Primary setbacks from the protected areas
23. Underground hazards if known
24. Any other item that may be required for submission to permitting authority for civil and building permits

Appendix 2

Pre-Application Meeting: Questions You Should Ask

Many cities offer a low-cost or free conference service before you submit a formal building application. This can be a huge benefit to you and you do not have to be the property owner to request or attend this meeting. You will probably get the greatest benefit if you are well prepared and have submitted your site plan or space plan to the city beforehand. It is also advisable that you prepare a project narrative and a list of questions. City officials have limited time available and you will most likely get more answers from the meeting when officials have the info ahead of the meeting. Most municipalities will require an advance appointment. Key things to ask about in the meeting are:

- Is my dental office legal in this location?
.....
- Is a change of use required and, if so, will it trigger expensive improvements like fire sprinklers, elevators or structural upgrades?
.....
- Where are my closest utility connections (if not on site already)?
.....
- What are the utility connect fees?
.....
- Are street or sidewalk (right-of-way) improvements required for the proposed project?
.....
- Are property dedications or easements required as a condition of development?
.....
- Are there any development assessments, like transit improvement or traffic mitigation, required?
.....
- Does the proposed driveway(s) conflict with code requirements or utility locations?
.....
- Will use of medical gas (e.g., nitrous oxide) trigger additional requirements over and above a typical professional office project?
.....
- What permits are required for the project and what are the fees?

Chapter 4:

Dental Office Equipment and Technology





Chapter 4:

Dental Office Equipment and Technology

By Don Hobbs

with clinical recommendations by Mark Tholen, D.D.S., M.B.A.

LEARNING OBJECTIVES

- Understand the basic equipment needs of a dental office
- Learn about the different varieties of delivery systems
- Describe the equipment essentials of a practice sterilization area
- Determine the imaging needs for your practice
- Discuss the features of your ideal practice management system

One of the best ways to begin planning a new dental office is to browse through photos and articles written by doctors who have already constructed a new practice. Many newly designed offices combine beautiful aesthetics with functional workflows that maximize equipment and technology, and provide a comfortable and positive experience for patients.

A well-planned dental office design, while personalized to meet your short and long-term objectives, should begin with a foundation of proven, effective elements that not only look beautiful, but also aid in delivering superior care to patients, a satisfying work environment for the entire dental team, and efficiencies that contribute to productivity and, ultimately, profit. By building on a strong foundation and using the following recommendations, your office will be both effective and elegant.

Building Site and Office Space

The size of your building site depends on a number of factors. For example, what type of dentistry do you practice? For orthodontic and pediatric practices, a general rule of thumb is seven times the size of the office building. For all other practices, the recommendation is six times the size of the office building.

The rationale behind these rules is simple: adequate parking and all building codes can be accommodated with this guideline, reducing patient frustration and avoiding space-saving compromises during construction.

Now that you can estimate the size of your building site, the next step is to figure out the suggested usable square footage for your office. Usable square footage is an important factor when building or remodeling because adequate space can lead to increased productivity while reducing emotional stress. The following guidelines will assist you with this decision:

Square Footage Guidelines

- 4 to 5 operatories at 500 square feet of office space per operator (4 operatories = a 2000 square foot office)
- 6 to 7 operatories at 450 square feet of office space per operator
- 8 or more operatories at 400 square feet of office space per operator

Number of Operatories

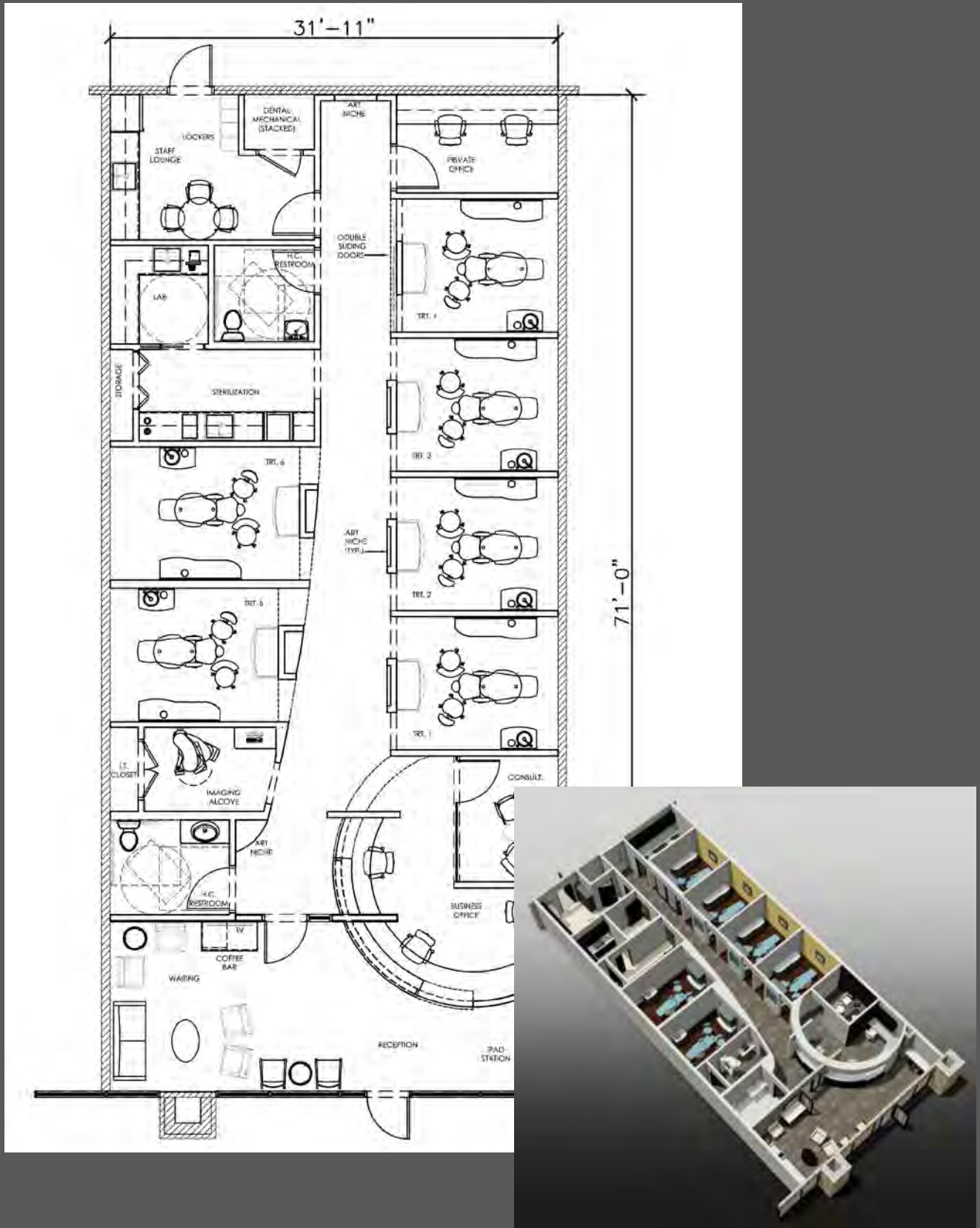
The number of operatories in your practice depends on the number of dentists who will be practicing in your space.

- One full-time dentist and one hygienist: four or five operatories
- One full-time dentist and two hygienists: five or six operatories
- Two full-time dentists and two hygienists: six or seven operatories

One operatory should be vacant about 50 percent of the day.

Following these guidelines may increase your practice's productivity and could dramatically reduce the physical and emotional stress of the day.

FIGURE 4.1: DENTAL OFFICE FLOORPLAN, SIX OPERATORIES



Determining Your Preferred Delivery System

An important aspect of the comfort of both the dentist and the patient is the system by which you deliver care. While a large part of this decision comes down to personal preference, some delivery systems may be less stressful on your body and more comfortable to patients than others.

Figure 4.2 shows an over-the-patient (trans-thoracic) delivery system. Class IV and V movements are necessary with this system, and could be physically taxing over time. Additionally, this delivery system could create a high-fear environment for the patient because all the handpieces are in full view, and it does not support four-handed dentistry.

Figure 4.3 depicts a dual unit/split system. With the dual unit/split system, Class IV movement requirements decrease and Class V movements are eliminated, reducing the risk factors that can contribute to brachial plexus and shoulder muscles disorders for the dental treatment team. While four-handed dentistry can be practiced with this configuration, a disadvantage is that the operatory must be defined as left- or right-handed.

Some delivery systems may be less stressful on your body and more comfortable to patients than others.

Figure 4.4 demonstrates a flexible rear delivery system. For this particular delivery system, all Class IV and V movements can be eliminated, reducing risk factors that can contribute to physical disorders of the brachial plexus and shoulder muscles of the dental treatment team. This configuration is ideal. Single operator (dentist or hygienist) use is possible with some Class IV movement. An advantage of this system is that it is ambidextrous, so there — anyone can use this system. Furthermore, the patient cannot see the handpieces, so the fear environment is low.

Dental Chair and Dental Stool Designs

Dental chairs have been in the operatory since the dawn of dental treatment. New designs now allow the doctor and assistant to move closer to the patient, dramatically enhancing the ergonomics of the operatory. Employing thinner and narrower designs, dental chairs are helping reduce the daily physical stress on the dental team because the doctor and assistant can minimize trunk flexion (bending) and rotation, as well as arm extension. Both movements, when repetitive, are risk factors for stress to the musculoskeletal system.

One of the best pieces of advice regarding dental chairs is to select one with a narrow, thin back. This allows the operator to come close to the patient with his or her legs completely under the chair, and to maintain a posture with the back held upright and the operator's elbows at his or her side. This may help decrease the likelihood of back, neck, and shoulder stress over time.

Most members of the dental team believe they are positioned around the patient, but the science of ergonomics reveals that the patient and assistant are positioned relative to the doctor's placement, and the dental stool is integral to that placement.

When choosing a dental stool, pick one where the seat cants forward to allow the hips to tilt, thereby straightening the back. The piston or stem of the seat should be tall enough to allow the operator or assistant's thighs to be positioned at approximately a 10 degree angle in relation to the floor. This significantly contributes to a sustained, effortless straight back posture without actively using the muscles of the back. The assistant's stool should place the eye level six to eight inches above the doctor's eye level. This position affords a clear view of the operating field.

FIGURE 4.2: OVER-THE-PATIENT
(TRANS-THORACIC) DELIVERY SYSTEM

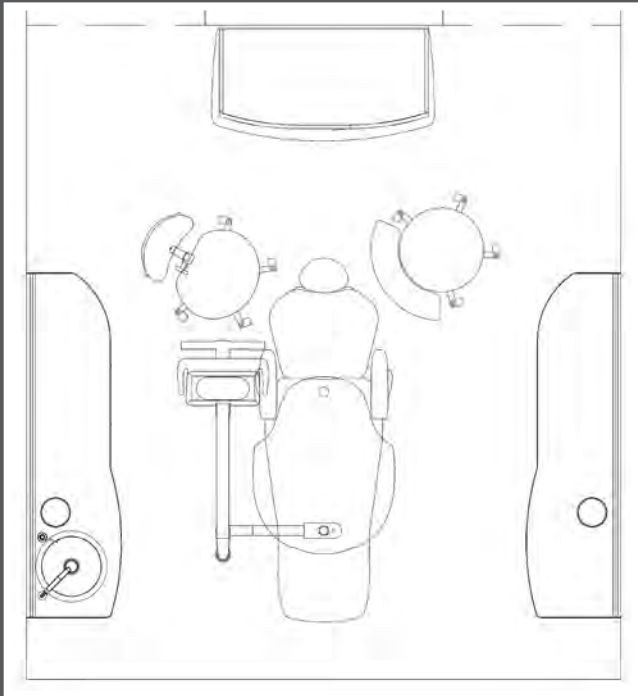


FIGURE 4.3: DUAL UNIT/SPLIT DELIVERY SYSTEM

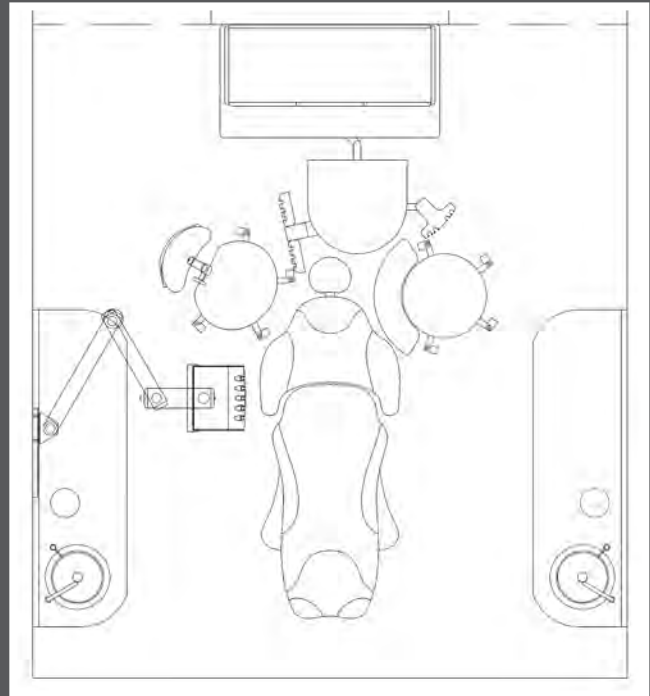


FIGURE 4.4: FLEXIBLE REAR DELIVERY SYSTEM

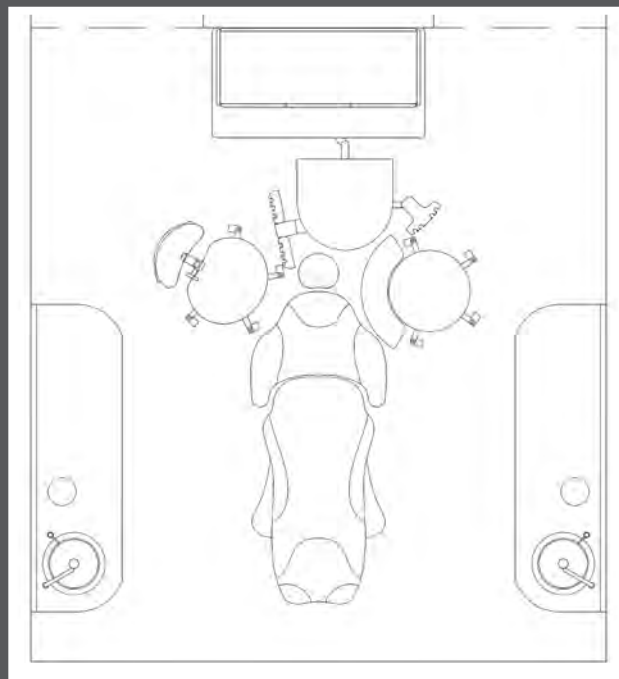


FIGURE 4.5



Good operatory lighting can make the difference between feeling energetic or exhausted at the end of the workday.

FIGURE 4.6



A chair with a narrow, thin back allows the operator to come close to the patient.

Dental chairs have been in the operatory since the dawn of dental treatment. New designs now allow the doctor and assistant to move closer to the patient, dramatically enhancing the ergonomics of the operatory.

The ergonomic objective of these specifications is to minimize Class IV and V movements while employing Class I-III movements of the finger, wrist, and elbow with occasional shoulder rotation, but not elevation. This may help prevent chronic stress and fatigue to the back, neck and shoulder. The seated doctor should have his or her feet flat on the floor with the pelvis and thighs at approximately a 10 degree angle to the plane of the floor. This position will keep the operator's back upright without the active use of back muscles. The operator should then address the reclined patient such that the operator's elbows are at his side and hands "drop" to the patient's head and mouth.

The ergonomic objective of these specifications is to minimize Class IV and V movements while employing Class I-III movements of the finger, wrist, and elbow with occasional shoulder rotation, but not elevation. This may help prevent chronic stress and fatigue to the back, neck and shoulder.

Operatory Cabinetry

Cabinetry design in the operatory should be selected based upon the type of delivery system employed. For example, with flexible rear delivery, a twelve o'clock cabinet and bilateral assistant side cabinets would be most appropriate to maximize the benefits of the delivery system. However, if the operatory width is a concern in a smaller office, free standing cabinet "islands" can be placed between operatories to serve as a pair of opposing side cabinets and wall. To maximize practice efficiencies, it is suggested that operative/crown and bridge tubs be stored in each operatory, but all instrument cassettes or procedure trays should be stored in sterilization; the function of any operatory should be defined by the instrumentation brought into the operatory for a specific procedure.

Operatory Lights

Good operatory lighting can make the difference between feeling energetic or exhausted at the end of the workday. Maintaining the suggested ratio of operating light intensity to ambient light intensity may help prevent eye fatigue and headaches, especially in the afternoon.

Ophthalmologists recommend that the ratio of (foot-candle) intensity of the operating light to the (foot-candle) intensity of the ambient light over the head of the patient should be approximately 10:1. As the ratio becomes greater than 10:1, the risk of eye strain increases. For example, if the operating light has an intensity of 5,000 lumens (2,500 foot-candles), the ambient or ceiling, lighting above the patient's head should yield about 250 foot candles. The maximum intensity of most operating lights is 5,000 lumens, which is very adequate for the eye with normal accommodation.

Use the heads-up display for viewing the operating field with great clarity and magnification. This technological feature promises to be the most significant addition to the operatory since the advent of high-speed handpieces. It positively changes the posture of the doctor to lift the head thereby preventing neck and back strain. It dramatically improves the visual clarity of the operating field without the need for eyewear that distorts the normal field of vision.

In terms of positional flexibility, track light is the most amenable, followed by chair-mounted light, then fixed-ceiling mount.

Use the heads-up display for viewing the operating field with great clarity and magnification. This technological feature promises to be the most significant addition to the operatory since the advent of high-speed handpieces.

Dental Handpieces

The number of choices for dental handpieces may be overwhelming, and the reasons for specific selections are highly personal. When selecting a handpiece, consider whether the design of the handpiece facilitates accessibility to all areas of the dentition. Power is also a major consideration since electric handpieces offer a great deal more cutting effectiveness than their air turbine alternatives. But the small variation in effective cutting technique of the electric handpiece must be addressed to optimize clinical results. The regularity and thoroughness of electric handpiece lubrication and cleaning must be observed with an effective handpiece maintenance system.

Dental Lasers

Laser therapy has been associated with the term “minimally invasive dentistry.” Lasers are comfortable for patients and are considered to be safe and effective. There are many advantages to using a dental laser. Some traditional procedures usually performed under anesthesia do not require anesthesia with the use of a laser, and may not require sutures since there is little bleeding. Bacterial infections may minimize since the high-energy beam sterilizes any area being worked on. Because lasers are very precise medical devices, they could actually minimize the amount of damage caused by the tissue surrounding a procedure’s area of focus. Wounds may heal faster and tissues regenerate quicker.

Because lasers are very precise medical devices, they could actually minimize the amount of damage caused by the tissue surrounding a procedure’s area of focus. Wounds may heal faster and tissues regenerate quicker.

Sterilization Area

Like determining the size of your building, the guideline for the size of your sterilization area is influenced by the type of dentistry you practice, specifically your operator turnover rate. The higher the turnover rate, the larger the space for the sterilization area. The turnover rates for various specialties differ. The following specialties tend to have low operator turnover:

- Cosmetic
- Prosthodontic

Specialties that tend to have higher operator turnover include:

- Family
- Orthodontic
- Pediatric
- Preventive

Adequate counter space is critical to the efficient flow of instruments through sterilization and the reduction in repetitive motions (and labor) by dental assistants. With greater instrument throughput, fewer instrument setups are needed to meet the demands of the practice.

four to six operatories using trays: 16 linear feet of counter space; using cassettes:	11 feet
seven to eight operatories using trays:	22 linear feet of counter space
Maximum for any size office using cassettes:	13 to 14 feet

FIGURE 4.7



Consider using translucent glass or plastic in all upper cabinets so that all supplies can be seen by assistants.

FIGURE 4.8



Adequate counter space is critical to the efficient flow of instruments through sterilization.

The efficiencies of instrument management gained daily in the operatory and sterilization area will save the average practice over an hour each day when a coordinated cassette system is employed for all instrument set ups.

Use an instrument washer to wash and dry instrumentation because the cost savings in office space (construction) and personnel (labor) costs is greater than the cost of the washer. A standard cycle autoclave with a large diameter chamber and a “flash” cycle sterilizer will add flexibility and speed in instrument processing. Stainless steel cassettes decrease the size requirement and cost of the sterilization area by one third. Instrument throughput increases and labor costs decrease with stainless steel cassettes because individual instruments are not handled, only groups of instruments.

Sterilization Cabinetry

When using these guidelines, central sterilization will not be undersized and therefore, instrument and weekly supply storage can be centrally arranged for quick distribution to any operatory. All operatories should be identically equipped so that any operatory can serve any purpose. This reduces stress during the day as procedure time requirements change in any operatory.

Consider using translucent glass or plastic in all upper cabinets so that all supplies can be seen by assistants. Sticky labels on expensive wooden doors cheapen the look of sterilization cabinets and decrease efficiencies.

Sterilizers/Autoclaves

When considering a sterilizer for the sterilization area, it is important to match the throughput of the instrument cleaning and drying workstations with that of the sterilizers. If an instrument washer is used, then a sterilizer with a higher throughput should be considered. Faster cycles and greater instrument/cassette capacity are desirable. Many practices are well-served with two sterilizers — one with a large chamber for larger cassettes or instrument loads, and one with more rapid cycles.

Instrument Cassettes

There are few clinical operational changes available in a practice that offer such a big bang for the buck as switching to stainless steel cassettes. The efficiencies of instrument management gained daily in the operatory and sterilization area will save the average practice over an hour each day when a coordinated cassette system is employed for all instrument set ups. And, instrument management systems utilizing cassettes will require much less space in sterilization. About one-third less counter space is required to process instruments in cassettes compared to tray-based management.

Handpiece Care/Maintenance Systems

Here is another labor-saving device in sterilization that contributes to fewer required assistant hours. This translates into decreasing the practice’s labor costs. Handpiece repair costs, for the life of the handpiece, are typically double to triple the cost of the handpiece when the handpieces are manually maintained by staff. The decision to employ a maintenance system in sterilization has no downside.

Mechanical

Although there are a number of vacuum systems and air compressors from which to choose, many offices make the mistake of creating a room too small to adequately house the equipment. The space should be a minimum of 5'5" x 5'5", should not be next to any patient area such as a reception area, and should be equipped with adequate sound board and ventilation.

Imaging

Digital Panoramic X-rays

Many offices find the image quality to be so diagnostic that they often take many more panoramic (pan) X-rays and, in some cases, have replaced their standard full-mouth series with a digital pan and bitewings, augmenting the PAs as required. These systems quickly produce excellent diagnostic images, showing the entire mouth, which allows patients to better understand the process.

The price of digital pans has decreased dramatically over the last five years. Digital pans also offer the benefit of saved chair time since a digital pan takes about one minute compared to 10 to 15 minutes for a film pan. The average hygienist saves the equivalent of one appointment per day. That alone will pay for your digital pan while improving your treatment plan presentations. Moreover, digital pans require far fewer sensors and use the sensors they have far less. There is also less concern about damaging expensive intraoral sensors.

Patient comments are very positive regarding the comfort and efficiency of the new technology compared with traditional intraoral X-rays. Patients also report that they understand their diagnosis better than ever due to the full image of the entire jaw and dentition. Higher level treatment plans and full-mouth reconstruction case acceptance greatly increase as patients see the full-mouth x-ray and better understand the cause and effect of their conditions.

Digital Intraoral Sensors

The benefits and ROI of digital intraoral sensors have been well known for years. Many offices spend a significant amount of money on film, chemicals, processor cleaning supplies, repairs, mounts and duplicating film. Another cost that is often forgotten is labor, such as the time needed to clean the processor and mount the films. There are many reasons to consider getting digital intraoral sensors.

Some of the main advantages digital intraoral sensors include:

- **Speed.** Images are on the screen in one to three seconds, a huge benefit for offices that need immediate images, such as endodontic procedures and implant placement.
- **Ease of use.** Eliminate the hassle and costs of film, chemicals, chemical disposal silver traps, and the maintenance and staff training of related SDS sheets.
- **Improved diagnosis.** Diagnosis is assisted with software tools for image enhancements.
- **Practice marketing.** Your practice will be seen as high end and cutting edge.
- **Increased case acceptance.** When patients are involved (co-diagnosis) and they see what the dentist sees, they are more accepting of treatment plans.

Patient comments are very positive regarding the comfort and efficiency of the new technology compared with traditional intraoral X-rays. Patients also report that they understand their diagnosis better than ever due to the full image of the entire jaw and dentition.

FIGURE 4.9



Digital radiography eliminates the hassle and costs of film and chemicals, and reduces staff time.

FIGURE 4.10



These systems quickly produce excellent diagnostic images showing the entire mouth.

Intraoral Cameras

Over 50 percent of offices have an intraoral camera. Intraoral cameras are lightweight and easy to move from room to room. They can easily maneuver into tight spaces such as the distal of the second molars. They can interface using multiple methods to the computer, including USB, Firewire, S-video or RCA. They can also interface directly with an existing TV. Intraoral cameras can lead to improved communication with insurance companies and is a technology that patients really appreciate.

Cone Beam CT

Cone beam computed tomography (CT), or 3-D imaging, is the new frontier for digital radiography. As with other digital radiography systems, the system is significantly more accurate than film-based systems and can reduce radiation. There are plenty of applications for this technology. Implant dentists are some of the early adopters as the technology can greatly aid them in presurgical treatment planning to determine the width of the ridge, the quality of the bone, and the location of the mandibular nerve.

Cone beam CT can also be helpful to oral surgeons or any dentist who extracts teeth in preparation for removing impacted third molars. An additional benefit of cone beam CT is the ability to view both arches simultaneously.

X-ray Digital Processors

Digital processors offer an excellent solution for offices looking for quality digital radiographs and are easy for the staff to learn. It's a simple transition from film. Image quality tends to be on par with film and most processors allow for scanning at different resolutions.

Digital processors offer an excellent solution for offices looking for quality digital radiographs and are easy for the staff to learn.

Diagnostic Software

Diagnostic software can shift the gray scale range of the entire image and also stretch the gray scale of the image on the monitor so that the pathology "enters" the gray scale range of the human eye. Hair-line fractures, quantitative determination of a structure's density, distance measurement, and many other diagnostic functions can be employed. Digital imaging transforms radiography from a diagnostic aid to a pathopneumonic diagnostic tool.

Computer Network and Practice Management Software

The computer network is the backbone where you plug in all of your computer-based software and hardware technologies. It is important to make sure the computer, servers, software, networking and cabling are correctly sized for your office's needs today and its vision for tomorrow. It is also key to ensure that your network's configuration is fine-tuned to be compatible and efficient with your software and hardware.

Practice management software should provide the following:

- Intuitive patient scheduling
- A comprehensive fee schedule
- Insurance management
- Up-to-date and easy-to-document charting
- Proposed treatment notes

Look for systems that integrate with patient education for an easy explanation of treatment options. Electronic services attached to practice management software can automate online scheduling, help to complete health history information, and ease communication with your dental benefit plan providers. Your ideal system should be tightly integrated with your digital solutions, allowing one patient record and easy-to-access digital radiographs and documents for your team.

CAD/CAM Technology/Digital Impressioning

Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) uses 3-D imaging and computer-aided technology to design and manufacture different types of dental restorations. This digital technology is utilized to produce accurate crowns, veneers, inlays and onlays, as well as dental implant restorations and orthodontic appliances with the use of a chairside intraoral scanner and an in-office milling system. By creating a 3-D image of the patient's teeth, the process becomes more efficient, precise and comfortable for the patient by eliminating the mess and discomfort associated with taking physical impressions. The process has proven to be much more convenient for patients, eliminating the temporary crown and second appointment.

A major benefit to utilizing CAD/CAM in your dental office is that it encourages your practice to review their clinical processes and efficiency. All-ceramic restorations have proven their efficacy over time in terms of durability and long term aesthetics. Material waste is reduced using digital impressions due to elimination of impression material and trays. Practices who use full (scan and mill) CAD/CAM systems experience a reduction in lab and fabrication fees, increased return on investment, as well as enhanced office productivity, improved workflow, and higher patient referral rates.

Some practices choose to utilize a digital impression system solely, prior to adding a mill. This increases the office efficiency by saving time and money previously spent on manual impressions, and allows more patients to be seen. The files are sent digitally to the laboratories who find increased accuracy from the 3-D scans. Upon mastering the digital impression process, many dentists choose to add a mill to their practice and offer same-day dentistry to their patients.

It is important to make sure the computer, servers, software, networking and cabling are correctly sized for your office's needs today and its vision for tomorrow.

FIGURE 4.11



A residential look provides a comfortable atmosphere for patients.

FIGURE 4.12



The integration of natural materials in this dental practice creates a calming effect.

FIGURE 4.13



Large windows allow natural light to filter into communal spaces from outdoors.

By combining these best practices with your signature style, you can be sure your new office will be both successful and satisfying.

FIGURE 4.14: NEW OFFICE CHECKLIST

New Office Checklist

<h3>Treatment Room Set Up</h3> <ul style="list-style-type: none"><input type="checkbox"/> Chairs<input type="checkbox"/> Delivery Systems<input type="checkbox"/> Handpieces<input type="checkbox"/> Lights<input type="checkbox"/> Dental Furniture/Cabinets<input type="checkbox"/> Stools<input type="checkbox"/> Nitrous Oxide System <h3>Miscellaneous Equipment</h3> <ul style="list-style-type: none"><input type="checkbox"/> Hard/Soft Tissue Laser<input type="checkbox"/> Caries Detection Device<input type="checkbox"/> Oral Cancer Screening Device<input type="checkbox"/> Intraoral Camera<input type="checkbox"/> Microscopes <h3>Sterilization Room</h3> <ul style="list-style-type: none"><input type="checkbox"/> Sterilization Center<input type="checkbox"/> Instrument Washer<input type="checkbox"/> Ultrasonic Cleaner<input type="checkbox"/> Autoclave<input type="checkbox"/> Handpiece Maintenance System<input type="checkbox"/> Cassette System<input type="checkbox"/> Water Filtration System <h3>Mechanical Room</h3> <ul style="list-style-type: none"><input type="checkbox"/> Air Compressor<input type="checkbox"/> Dental Vacuum<input type="checkbox"/> Amalgam Separator<input type="checkbox"/> Remote Water Filter System	<h3>Imaging Technology</h3> <ul style="list-style-type: none"><input type="checkbox"/> Panoramic X-ray System<input type="checkbox"/> 3-D Cone Beam CT Radiography<input type="checkbox"/> Fixed Intraoral X-ray System<input type="checkbox"/> Handheld Intraoral X-ray System<input type="checkbox"/> Digital Scanning/Phosphor Plate System<input type="checkbox"/> Digital Sensors <h3>Computer Network</h3> <ul style="list-style-type: none"><input type="checkbox"/> Network Server<input type="checkbox"/> Cloud-based Server<input type="checkbox"/> Computer Workstations<input type="checkbox"/> Practice Management Software<input type="checkbox"/> Patient TV/Viewing Monitor<input type="checkbox"/> Imaging Software <h3>CAD/CAM Technology</h3> <ul style="list-style-type: none"><input type="checkbox"/> Digital Impression System (Intraoral Scanner and Design Laptop)<input type="checkbox"/> In-Office Mill <h3>Lab Setup</h3> <ul style="list-style-type: none"><input type="checkbox"/> Plaster Trap<input type="checkbox"/> Model Trimmer<input type="checkbox"/> Lathe<input type="checkbox"/> Miscellaneous Lab Equipment <h3>Front Office & Waiting Area</h3> <ul style="list-style-type: none"><input type="checkbox"/> Phone System<input type="checkbox"/> Document Scanner<input type="checkbox"/> Office Furniture<input type="checkbox"/> Patient Entertainment
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Summary

The prospect of building or remodeling a dental practice is exciting, and it opens the door to new opportunities including state-of-the-art equipment and technology, and the creation of a work atmosphere that is exactly what you want. By combining these best practices with your signature style, you can be sure your new office will be both successful and satisfying.

Contributor Biography

Don Hobbs is Vice President of Equipment and Technology Sales for Henry Schein Dental. He is responsible for Henry Schein Dental sales, marketing, and operational strategies along with professional sales training as it relates to the dental equipment and technology categories. In addition, Don oversees the Special Markets Equipment sales group, and acts as a company leader with respect to supplier relations for all equipment and technology suppliers.

Henry Schein Dental's Equipment & Technology Specialists, along with the Integrated Design Studio, have collectively worked with thousands of doctors, including specialists, to create practices that exemplify both form and function. As part of that process, they've integrated many of the best practices advocated by Dr. Mark Tholen, a renowned leader in the dental industry who has developed design specifics that help practices become even more successful. Dr. Tholen is the former CEO of the nation's leading dental/medical office design firm and the author of the book, *A Guide to Designing the Elegant Dental or Medical Office: The Largest Marketing Tool of Your Career*.

For more information, feel free to contact your local Henry Schein Consultant or call 1.800.645.6594, prompt #1, or visit www.henryscheindental.com.

Chapter 5:
Office Layout





Chapter 5:

Office Layout

By Michael Unthank, D.D.S., Architect

LEARNING OBJECTIVES

- Understand how your facility communicates the quality of your services
- Appreciate the importance of developing your Design Program prior to commencing your actual design
- Determine the size of the facility you need
- Identify what to look for when choosing a location for your office
- Recognize the zones of your office based on the varying need for privacy
- Learn how to save money by “building right” from the start

Creating a new environment for your practice is likely the largest single investment you will make in your business. A well-planned dental office can have an immediate and positive impact on virtually all facets of your practice. It can improve your productivity while decreasing your stress. It can allow you to create an image consistent with the type of practice you currently have or wish to develop. It can communicate the quality of your services, inspire your patients’ confidence, and promote patients’ comfort.

Your physical facility is a testament to the care you provide. Patients assess the quality of your services on numerous factors, including the physical image that the practice projects. If the space is worn, tattered, cluttered, and poorly organized, patients may transfer that perception to the quality of the services. Your office should communicate that your patients will receive the finest of care in an attractive, state-of-the-art facility.

Planning Your Space

Dental offices must satisfy a range of diverse needs. They must be welcoming, yet function clinically. They must exude professionalism, yet not appear ostentatious, all on a budget that makes sound financial sense. Allow adequate time to make the right decisions that will have a positive impact on your practice for the rest of your practice life. From the onset of planning, be sure everything will work the way you desire. If it does, you may never have to build, expand or remodel again. If it doesn't, your costly errors will haunt you continuously, affecting the efficiency of your practice and the morale of your entire office team. It costs more to build it wrong than to build it right.

Successful dental office design is directly affected by the choices you make concerning:

- Space relationships
- Equipment
- Technology
- Lighting
- Ceiling heights
- Color selections
- Finish materials

All of these details and others can communicate quality, encourage patients to tell their friends about you, and keep you and your staff enthusiastic, efficient, and productive.

The first step, and the single most important step in the entire planning process for your new practice facility, is the development of your design program. In architectural jargon, your design program is a written document detailing how you intend to practice, which may vary from how you have practiced in the past. It is the critical information upon which all planning and design decisions will be based. It defines such factors as the functions that will be performed in your office, the breadth and relationships of these functions, and the level of privacy required for each. The process of developing your program requires a bit of projection

on the part of the practitioner. You must determine in writing, not necessarily what the practice is today, but what the practice can become or “how you intend to practice.” The configuration of the office is actually the three-dimensional translation of the written program. Your design program will be unique to your practice.

If space for a specific function, such as a consultation room, is included in your program, position it conveniently to the areas in which other related activities will occur, and provide appropriate access for patients, staff members, and the dentist. Other functional spaces should be arranged to reflect the necessary square footage, access, and desired adjacencies. Should you develop your plan without an adequate understanding of all the activities within your office walls, it will be compromised from the start. If a function was overlooked, it must be added after the fact and a domino effect occurs, creating the need for an entirely new (and often expensive) redesign. Time spent in program development will save substantial time and cost in potential modifications.

The “programming” phase is an ideal time to begin collecting photographs and images of buildings, dental offices, and other spaces that appeal to your aesthetic preferences. It is important to also consider how the “look” and “feel” of your office will be perceived by your patients (as well as those you hope to attract to your practice). Will it help patients to feel relaxed, comfortable, and confident in your quality of care, without making them question your fees?

Once your design program is established, actual planning can begin with the goal of locating the walls to create the most efficient floor plan. All functions should be of the appropriate size and in the appropriate relation. The goal is to allow you to end your day having been more productive while experiencing less stress, and with you and your team looking forward to returning the next morning!

Laying the optimal groundwork for your construction or renovation project depends on three key factors:

1. Effective **program development**
2. Guidance through the **planning** process by the appropriate professionals
3. Complete project **design and documentation**

Incorporating these critical elements will help to assure the smoothest possible construction process and maximize the return on your investment in your office.

Top 10 Things to Consider When Planning Your Dental Office

1. Hire design professionals who possess an empathetic understanding of the practice of dentistry
2. Determine and define how you “intend to practice,” which may differ from how you have been practicing. In architectural terms, this is your Design Program
3. Plan for what your practice may ultimately become (number and type of providers, etc.).
4. Rely upon a seasoned design professional to determine the appropriate size of your facility to accommodate your needs. Wasted square footage translates to wasted dollars.
5. “Squareish” rectangular spaces allow a more space-efficient dental office design as opposed to odd geometric shapes.
6. Layer your office functions from public to private.
7. Consider the glare and solar gain created by the sun when selecting the treatment side of your office — north is best.
8. Be certain your office is designed to be adaptable for future changes in technology and equipment.
9. To help ensure your office is appropriate to your needs and to avoid change orders during construction, “comprehensively build your office on paper first,” paying attention to every detail.
10. Communicate to your patients that you are improving your office for their benefit, not as a shrine dedicated to your practice.

Determining the Size of Your Practice

“How much space do I need?” is a common question when contemplating the construction of a new dental office, or the expansion of an existing one. Based on our experience in the planning of only dental and specialty offices over the past 36 years, I have (along with my colleagues at Unthank Design Group) developed some rules of thumb.

To determine the approximate size of your new office, multiply the number of treatment chairs desired (as developed through your design programming process) by a factor of 500 square feet. For instance, if you desire a five chair office:

$$5 \times 500 \text{ square feet} = 2,500 \text{ net square feet}$$

This is the approximate total net area required for your office, whether you are improving a space or constructing a new building. It will vary based upon your program.

Some dental specialties may require less area because they have fewer functional requirements, such as the decreased need for a case presentation room and laboratory in an endodontic practice (unless placing implants). Although the space-efficient bay concept of orthodontics and pediatric dentistry would seem to require less area, space needed for other functions typically required for these specialties (such as brushing teeth before treatment, records areas, etc.) may offset this savings.

The support functions in a practice do not increase at the same ratio as the number of treatment chairs, therefore, as the number of treatment chairs increase, the square feet per chair factor decreases. Conversely, as the number of treatment chairs decrease, the square feet per chair factor increases.

To determine the approximate square footage of land necessary to accommodate your building, related parking, landscaping, water retention areas, and so forth, multiply the net square footage of your office (determined with the previous formula) by a factor of seven. To continue with the previous example:

$$7 \times 2,500 \text{ square feet} = 17,500 \text{ net square feet}$$

Therefore, 17,500 square feet of land is the approximate area appropriate for a 2,500 square foot office supported with adequate parking and landscape buffers.

Once you have located a suitably zoned parcel of land, the buildable area of that parcel will vary based on (typically) four limiting factors:

- The terrain (lay of the land)
- Building setbacks that limit how closely you can build to the property line
- Utility easements that define the area necessary for maintenance of a utility that may border or cross your property
- Any restrictive covenants if the parcel is a part of a larger development or association

You should determine the feasibility for your intended use before purchasing the property.

From a planning standpoint, the most efficient shape for your office (and property) is a “squareish” rectangle. Avoid long and narrow shapes, triangular, truncated or L shapes, or any odd geometric form. Look for a suite with no or minimal interior columns. Odd shapes and columns may prove to be complete roadblocks to successful planning, or at the least increase the amount of area required for your purposes.

The single most important variable in construction costs is how busy the contractors are in your area at the time you bid your project. Given the current state of the economy, some parts of the United States are enjoying a more competitive bidding climate than in the past decade. With this in mind, it is not unusual to spend approximately \$130 to \$140 per square foot for leasehold improvements (including all custom cabinetry, but excluding dental equipment), and a total of \$230 to \$250 per square foot for a new one-story dental office building, built on a concrete slab (without a basement or crawl space), excluding land and equipment costs. These cost averages are based upon space-efficient, attractive, but not opulent, professional offices. Through efficient planning and complete project documentation (architectural and engineering drawings and specifications and a comprehensive Interior Finish Materials Schedule), your project can reap the financial benefits of constructing the right amount of square footage for the most competitive price.

Often a dentist feels the need for space below their floor for the utilities serving the dental equipment. In reality, the only items that must be placed below the floor are:

1. Plumbing waste (not supply)
2. Dental vacuum, so as not to pull against gravity
3. An electrical conduit to the dental chair
4. A PVC raceway from the head or side wall to the dental chair base for foot controls and technology.

Although not necessary, should a space below the floor be desired, an unfinished basement will add about \$25 per square foot and, if greater than 1,000 square feet, will require space for two exit stairs (and potentially an elevator, depending on accessibility requirements). If the property for the office slopes with a vertical drop of 11’ over the dimension of the building, a walk out lower level may be possible.

Building a new office is one of the most exciting endeavors you may experience in your practice life. Given the level of financial and emotional investment in such a project, it is important to understand a number of factors you may not yet have considered.

Building a new office is one of the most exciting endeavors you may experience in your practice life. Given the level of financial and emotional investment in such a project, it is important to understand a number of factors you may not yet have considered.

Choosing a Location

As a first step in determining where to develop your new office, you should find a location that will allow for windows in every treatment room. These windows should not place your patients on public display, but should allow a view into a private landscaped area close by (if on ground level), or a vista from an upper level.

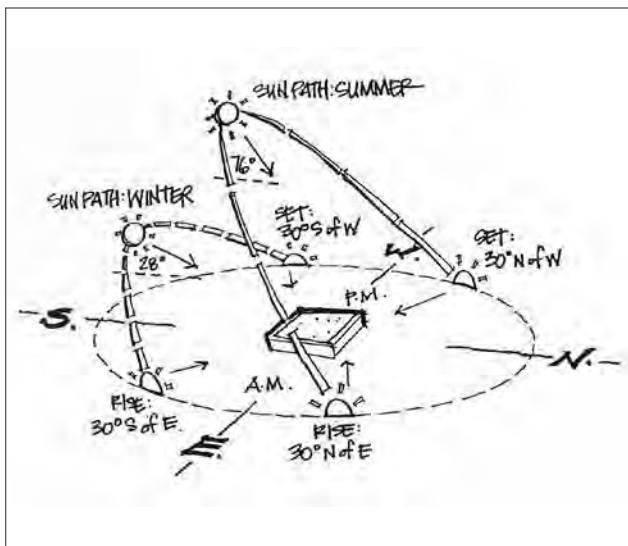
When looking for a suite or property, consider the orientation of the sun. Taking into account the hundreds of BTUs being produced by three bodies (two of whom are wearing barrier garments, gloves, and masks), the copious amounts of lighting, and the heat-generating computer terminals and dental equipment, the dental treatment room does not need sunshine for warmth! Too many dental professionals are working in sunny treatment rooms where they can suffer from heat prostration while their patients freeze in the reception area.

During normal office hours in North America, the sun does not shine on the north side of a building. Whenever the sun passes through glass and strikes an object, a portion of the light is absorbed and

reradiated as infrared energy, which does not pass through glass. The accumulation of infrared energy is what causes a car to be hotter than the outside temperature when parked in the sun with the windows closed. For this reason (and to prevent glare), orienting treatment rooms to the north should be your first choice. East is the second choice, because the sun shines through the east windows during the coolest time of the day and is not a problem the remainder of the day. A western orientation is often unbearable, regardless of the type of glazing (window glass) used. By the time the sun starts to shine through the west windows, the day is approaching its hottest. When solar gain is added to the hot exterior ambient temperature, it requires excessive amounts of cooled air to make the space comfortable.

To successfully separate your office space based on levels of privacy (with the entry side of the office considered public and the treatment side private), keep in mind that the entry is best located on the side opposite from treatment. In an ideal scenario, entry would be on the south and treatment windows on the north.

FIGURE 5.1



When looking for a suite or property, consider the orientation of the sun.

FIGURE 5.2



Arrange your greeting and business areas based on the desired levels of privacy with ample space available for patients making a payment or reappointing.

FIGURE 5.3



Your office must communicate the quality of your services. Photo provided by New Town Dental Arts, Williamsburg, Virginia.

FIGURE 5.4



One method of ensuring your patients are not on public display when in the treatment rooms is to provide a private landscaped court.

FIGURE 5.5



When your office is above ground level, a vista from the treatment rooms may be possible, such as this view from the 18th floor treatment rooms facing Millennium Park and Lake Michigan.

Think of your plan as a series of zones based upon varying needs for privacy. When entering your office, the most public part is obviously the reception area. The reception, greeting, payment and business areas should be divided into distinct zones, depending on the degree of privacy required. Ideally, the office entry is located between the “waiting” and “greeting” areas. This configuration allows for patients to be immediately greeted upon entering the office without passing through the reception space. The result is a more relaxed seating “alcove” that is undisturbed by patients entering and leaving the practice. Additionally, the width of the entry location physically and acoustically separates the payment area from the reception area.

The reception, greeting, payment and business areas should be divided into distinct zones, depending on the degree of privacy required.

Condense and Integrate

Even though technology has transferred a portion of traditional front desk responsibilities to the treatment area through use of the clinical computer work stations, the patient greeting area and centralized payment area remain. Your receptionist’s attention should be focused toward the patients returning from the treatment area. If your receptionist is oriented facing the waiting area, two problems occur:

1. Once a patient is greeted, the conversation tends to be prolonged simply due to the face-to-face relationship of the two parties.
2. When facing the waiting area, the voice of your “greeter,” whether on the phone or visiting with a patient in person, is directed into the waiting area with no control over the privacy of the conversation.

A more appropriate relationship is to have your receptionist rotate 90 degrees from the payment area, greet the patient, and rotate back 90 degrees to the payment area, bringing the greeting to a

comfortable close while allowing your front desk personnel to return to the tasks at hand: taking care of patients following treatment. Given this arrangement, the conversations between the receptionist and a patient in the payment area are less likely to be overheard in the reception area.

The payment area should provide a sense of separation, physically and acoustically, from the patients in the reception area, and should not become the cause of a bottleneck. The circulation space by the payment area should be large enough to allow staff and patients to flow to and from the reception area without developing the traffic congestion many of us have experienced at the front desk. Additional privacy may be provided when two patients are making payment simultaneously by locating a “fin wall” separating the payment stations.

Should a patient have concerns regarding payment options or have a question requiring greater separation from other patients, a “financial arrangement” area is available directly adjacent to the payment area. When separated from the receptionist’s space by a pocket door, this area provides total privacy for any conversation necessary.

The back business area (the most private zone for business staff) should be visually and acoustically isolated from any patient activity. This area is to be used for confidential calls to patients as well as a location for business equipment not intended to be on display to patients.

If a consultation or case presentation room is desired, it should be under the control and supervision of the business staff. This facilitates the coordination of financial arrangements following the case presentation. The consultation room should be located so that the doctor’s access does not have to pass through a public part of the office. This prevents the doctor from being interrupted by a patient or passing salesperson in the payment area or across the front desk. Conversely, the patient and staff member should be able to access the case presentation room without having to pass through the treatment area.

FIGURE 5.6



A "fin wall" provides a greater sense of separation and privacy between patients when at the check out portion of the business area.

FIGURE 5.7



The assistant's eye level must be 6 to 7 inches above the dentist's to see the operating field over the cheek-retraction or indirect-vision hand of the dentist while maintaining proper posture.

FIGURE 5.8



Flexible rear delivery serves both the doctor and assistant using a dental cart. To allow freedom of movement around the head of the patient chair, regardless of delivery type, the utility "umbilical" device tubing and foot control tubing/wiring must not be on or touch the surface of the floor.

FIGURE 5.9



Doctor's side delivery from beneath the counter in a side cabinet

FIGURE 5.10



Doctor's side delivery from the patient chair

FIGURE 5.11



Doctor's over-the-patient or transthoracic delivery

FIGURE 5.12



The clinical work station monitor is in the direct view of the assistant for the input of clinical information and allows the doctor to refer to images up close. Information displayed on this monitor is also available on the patient's viewing monitor when desired.

The location of the patient restroom should also be under the supervision of the receptionist. It should be located in an area between waiting and treatment, allowing patients in either segment to gain access without going through the other.

The need for privacy continues to increase as you move from the office entry toward treatment, resulting in a treatment area that is not directly visible from any public area, such as the reception or greeting areas. Treatment support functions near the treatment area (such as central sterilization and the laboratory) can be located in the area between the public and private zones. Dentist and staff areas are removed further, to a zone of even more acoustical and visual privacy.

Treatment Area

The architectural axiom “form follows function” has no better application than in developing the ideal dental treatment room. Regrettably, many of us have been limited in our experience to the dental student’s perspective of needing our “stuff” around us. Our educational example of dental practice places the assistant-less student dentist in the center of the operatory universe. We therefore gather all dental instruments, materials, and related gizmos within reach, creating a mindset that frequently follows us into practice. Equipment purchase decisions, too, often are based on the “our-stuff-around-us” mentality, rather than the practice of four-handed (and occasionally six-handed) dentistry with skilled auxiliaries.

Ideally, the instruments and materials necessary for treatment should be delivered and retrieved by an assistant without the dentist having to shift focal length or leave the finger rest. To have an

unobstructed view of the oral cavity, the assistant should be seated approximately six inches higher than the dentist with his or her thigh parallel to the adjacent upper arm of the patient. This allows the assistant to see over the indirect vision or cheek-retracting hand of the dentist while maintaining proper posture.

The dental instruments are most conveniently delivered from a primary work area directly in front of the assistant. In this location, a single dual-function dental unit can serve as the primary work surface for instrument delivery, as well as serving both the dentist and assistant with handpieces, three-way syringes, and high- and low-volume evacuators, thereby maximizing efficiency regardless of whether the practitioner is right- or left-handed. This single, dual-function dental unit can be either a cart or an arm-type, with all utilities necessary delivered from a wall or cabinet located behind the patient.

By using dual-function, flexible rear delivery as outlined, secondary delivery to the dentist from the dental chair or side wall/cabinet can be eliminated. This saves the cost of an additional delivery unit and related utilities, while maintaining the flexibility to accommodate either a right-handed or left-handed operator. Such an arrangement also keeps the circulation lanes on either side of the patient chair unencumbered and available for mobile items of technology that may be too expensive to place in each room.

Regardless of the location of the doctor’s delivery unit (rear, side or trans-thoracic), the assistant’s needs remain the same and are best served with a flexible delivery unit from behind the patient as described above.

The area behind the patient is also the prime position for the clinical computer workstation. A monitor in this location allows the dentist to refer to a digital radiograph easily during treatment without raising

Ideally, the instruments and materials necessary for treatment should be delivered and retrieved by an assistant without the dentist having to shift focal length or leave the finger rest.

concerns in the patient's mind. With the assistant normally facing this direction, this monitor is in the prime viewing area for the assistant, as well.

The area behind the patient is also the prime position for the clinical computer workstation. A monitor in this location allows the dentist to refer to a digital radiograph easily during treatment without raising concerns in the patient's mind.

The "utility wall or utility cabinet" located behind the patient can also accommodate treatment technologies such as headlights, portable lasers, curing systems, cavitrons, micro etchers, intraoral video systems/printers, etc. Just as the dental delivery unit provides handpieces, three-way syringes and suction, it should also provide the other technologies selected for patient care.

Careful attention to ergonomics, the integration of technology in the treatment setting, and the use of skilled auxiliaries will have a significant impact on the planning aspects of your operatories. Building a new dental office or remodeling an existing facility provides an ideal opportunity to design around how you actually practice, with the equipment you truly need, in a manner that will support your physical well-being. When designing a dental office (whether it is new construction or remodeled space), one of the key considerations is circulation. A primary goal in planning the treatment area is to provide unencumbered flow of treatment personnel.

Too often, treatment rooms are planned with only one entrance/exit, thus "trapping" the assistant or the dentist once the patient chair is reclined. This decreases efficiency and increases stress. In the ideal design, access to and from the operatory is available on either side of the head wall/cabinet, allowing the dentist and assistant unimpeded passage regardless of the patient chair's position. For instance, when it is time to examine a patient who is being seen by the

hygienist, the dentist is able to leave and return to the treatment room without disturbing the patient and without having to reposition the patient chair.

By orienting the patient chair away from the treatment corridor, patients do not have to worry about facing other patients while their smile is compromised. As an added benefit, this arrangement conceals the majority of the dental equipment from the patient's view when he or she is in the treatment corridor, entering the treatment room, and seated in the treatment room.

The patient's attention is directed outward through windows located at the foot of the chair to a controlled view that prevents people from looking into the treatment room from outside. By providing a video monitor flexibly mounted to the ceiling, the patient can view an intraoral video, a patient education video, a television program, or selected images from the practice management monitor, such as digital radiography, both when seated upright and when fully reclined during treatment.

Secondary work surfaces with sinks and trash drops for soiled towels and gloves are located symmetrically along the side walls of the treatment room, resulting in a plan that again accommodates both right- and left-handed operators with ease. By using a preset concept organized by procedure type for instrument delivery from a central sterilization area, the design keeps the operatory cabinetry to a minimum.

Drawers are needed only for limited supplies, such as individually packaged back-up instruments (in case one is dropped), additional consumables beyond those delivered with the preset concept, patient education diagrams and brochures, and headphones. The operatory sinks are located at the far end of the side counters so as to allow the operators and the patient to exchange greetings face to face, while the operators are washing their hands and donning gloves. This sink location also allows a secondary work surface to be located within easy reach of the assistant. The use of alcohol gels does not eliminate the need for sink access in each treatment room, as there may be a need to fill a plaster bowl with hot water, or give the patient a drink.

FIGURE 5.13



A video monitor flexibly mounted to the ceiling allows patient viewing in any patient position, for entertainment as well as patient education.

FIGURE 5.14



The sterilization area accommodates the sterile instrument pre-set concept organized by procedure type ready to deliver to the treatment rooms.

FIGURE 5.15



For orthodontics and pediatric dentistry the degree of privacy is a function of the doctor's preference for monitoring the treatment area activity.

When all treatment rooms are designed and equipped identically, the full spectrum of oral health care can be provided in each and every room. No longer will the dentist rely on a “favorite room” for those long, involved procedures. Every treatment room becomes a favorite room, allowing your receptionist greater scheduling flexibility.

The degree of visual and acoustic separation between patient chairs varies with the individual practitioner’s philosophy. An open bay, which may be appropriate for a pediatric or an orthodontic practice, may be totally inappropriate in other practice situations. The degree of privacy, therefore, is variable, depending on the extent of the walls between patient chairs and the use of a background sound system. In any case, the basic floor plan remains unchanged.

Summary

Dental offices are expensive facilities to build. They require a high level of interior finish materials and extensive utilities. With proper planning, including attention to size, orientation, spatial relationships, adjacencies, and zoning, your new office will be an excellent investment in your future. It is one investment that will pay significant dividends for the rest of your professional life.

Contributor Biography

Dr. Unthank is a registered professional architect, as well as a dentist, and the owner of Unthank Design Group, an award-winning planning, architecture and interior design firm providing services exclusively to the dental professions. He received his Bachelor of Architecture in 1974 and his Doctor of Dental Surgery in 1984 and has designed thousands of dental offices throughout the United States, Canada and New Zealand. He has written articles for and been featured in numerous dental publications including The Journal of the American Dental Association and is an invited lecturer for major international dental meetings.

Dr. Unthank is a member of the National Council of Architectural Registration Boards, the American Dental Association, the Academy of General Dentistry and the American Institute of Architects.

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Additional Resources

The following worksheet is a sample design program. This program is a planning tool that details how you intend to practice, and defines the functions that will be performed in your office, the breadth and relationships of these functions, and the level of privacy required for each. It also determines the types and quantities of equipment you may need.

This sample design program is a list of questions to help you determine the type of dental office that will best fit your needs. The answers to these questions will give the architect the information to begin planning the dental office you desire. This design program form has been adapted with permission from an original form developed by the Unthank Design Group.

Sample Design Program

What are the major goals you wish to achieve with your new office? _____

YOUR DENTAL TEAM

1. Projected number of staff in the new office:

Who	How Many?
Dentists	
Business staff	
Hygienists	
Assistants	
Lab technicians	
Other:	

2. What is the maximum number of dentists in practice at any one time? _____

3. What is the maximum number of hygienists in practice at any one time? _____

4. How many dentists in the dental practice are right-handed? _____ How many are left-handed? _____

Your Space

1. Choose your project type:

- New free-standing building for your practice only
- New free-standing building with additional lease space
- New lease space or condominium in: Existing building Building to be constructed
- Existing building to be remodeled or expanded
- Existing suite to be remodeled or expanded

2. What are the number of floors in the building? _____

3. On which floor will your office be located? _____

4. What is the estimated square footage of your new space? _____

FINANCES

1. If you are...

Building your own building...

- What is your land cost? _____
- How many square feet do you have? _____

Buying a condominium...

- What is the purchase cost? _____
- How much is the "finish out" allowance, if one is included in the price? _____

Leasing a new space...

- What is the rental rate? _____
- What is the common area maintenance fee, if there is one? _____
- How much is the "finish out" allowance, if one is included in the price? _____
- Are utilities included in the rent? Yes No If so, what is the estimated cost? _____
- What is your budget range for construction only, exclusive of land, equipment, furnishings, design, and other incidental costs? _____
- How much cash will you put into the project, including design, legal and accounting fees?

2. What terms have you been quoted for the following items:

- Interest rate _____
- Points _____
- Length of amortization _____

Current Practice Financial Information

3. What is your current rent or building debt service, including utilities and taxes? _____
4. What is your current practice overhead (without auto lease, club dues or other personal expenses included in your corporation)? _____
5. What is your average monthly production for the last six months, including hygiene production? _____
6. How many new patients per month are taken into your practice? _____
7. Has production risen or dropped in recent months and by how much? _____
To what do you attribute the change? _____

DESIGN DETAILS

Reception/Waiting Area

Select the amenities you would like in your reception/waiting area:

- | | |
|--|--|
| <input type="checkbox"/> An entry vestibule
(an "airlock" or two sets of entry doors) | <input type="checkbox"/> Door separating the waiting area from the rest
of the office |
| <input type="checkbox"/> Children's area | <input type="checkbox"/> Area to display/dispense recommended products |
| <input type="checkbox"/> Coffee/refreshment bar | <input type="checkbox"/> Patient restroom |
| <input type="checkbox"/> Patient coat area | |

Business Area/Office

Select the desired features of your consultation and financial arrangements area:

- Private area for case presentations
- Chairside area for case presentations
- Semi-private area for financial arrangements near the reappointing area

Business Equipment

1. If you are currently using paper charts, how many folders do you need space for? Include both active and inactive charts. _____

2. How many inactive charts are kept on site and how many are in off-site storage? _____

3. Do you have any file cabinets you are going to re-use? Yes No

If yes, please provide dimensions. _____

4. Do you plan on buying new file cabinets? Yes No

Which kind?

- | | |
|--|--|
| <input type="checkbox"/> Lateral | <input type="checkbox"/> Sliding lateral |
| <input type="checkbox"/> Revolving lateral | <input type="checkbox"/> Built-in lateral |
| <input type="checkbox"/> Slant lateral | <input type="checkbox"/> Other (Please specify): _____ |

5. Do you plan to move toward a paperless office in the future? Yes No

6. Which business machines will you use in your office? Include dimensions of the machines if applicable.

Computers. Be sure to count the number of computers and monitors for both office use and in treatment rooms. If you currently do not have computers in your treatment rooms, indicate the number of new computers you will add to the new office. _____

Servers. Will you need extra space to house servers and other networking equipment? _____

- Printers _____
- Copiers. Indicate whether copiers are floor-standing or countertop models. Provide the dimensions for the copiers and include the height when the top is closed and when it is open. _____

- Fax machines. _____
- Other business machines. _____

Treatment Area

1. How many operatories do you need? _____
2. Will all operatories be equipped identically? If not, what will the differences be? _____

3. Will you have a computer workstation in each treatment room for staff use? _____
4. Will you need monitors in each operatory for patient education, intraoral cameras, entertainment, etc.? _____

5. Which type of delivery system will you use?
 - Flexible rear delivery: cart arm
 - Chair delivery: over the patient dentist's side delivery
6. Will you use any dental equipment manufacturer operatory cabinetry? Yes No
If yes, please provide specifics. _____

7. What type of operatory dental light will be used? Please specify the brand:
 - Ceiling-mounted track _____ Chair mounted _____
 - Ceiling-mounted post _____ Wall mounted _____
8. Which dental technologies will you use in your office? Please indicate the quantity of each piece of equipment.
 - Intra-oral camera _____ Light cure units _____
 - Digital radiography _____ Air abrasion _____
 - Digital photography _____ Lasers _____
 - Cavitrons _____ Handheld x-ray machines _____
 - Cavijets _____ Panoramic x-ray machine _____
 - Patient monitoring equipment for anesthesia procedures. Please indicate the type of equipment.

9. Would you like a recovery room for post-surgery patients? Yes No
10. Would you like a "surgery exit" that doesn't pass through the waiting area? Yes No
11. Would you like a patient restroom in the treatment area? Generally, current interpretations of the Americans with Disabilities Act (a Federal Law) require all to be accessible. Individual states have adopted additional regulations. The more strict regulations govern. Yes No

Technology Alcove

1. Would you like a centrally located "alcove" that could be used for the various technologies related to the treatment area, such as printer(s) (networked intra-oral video printer, inkjet, laser), computer terminal, DVD, etc.? Yes No
2. An area for the storage of cart-delivered technologies to be used in the treatment rooms? Yes No
3. A place to "park" mobile devices, such as Cerec, Biolase, and other equipment, when not in use? Yes No

Sterilization Area

1. What is your estimated daily average of hygiene appointments? _____
2. What is your estimated daily average of treatment appointments? _____
3. What is the estimated percentage of your practice that is orthodontics? _____
4. Please list the sterilizers in your office. _____
- _____

Include the following information:

- Type _____
 - Brand _____
 - Model _____
 - Dimensions (width x height x depth) _____
 - Required voltage _____
5. Will you be using Reversible Hydrocolloid? Yes No
6. What is your pre-set concept?
- Cassettes and tubs (recessed ultrasonic recommended)
 - Wraps and tubs
 - Trays and tubs
 - Other _____
7. Will you be using a dishwasher for drying cassettes or disinfection? Yes No

Lab

1. What type of lab would you like?

- Pour-up
- Full production (If full production, indicate the square footage desired) _____

2. Which of the following would you like in your lab. Please also indicate quantities.

- Model trimmer _____
- Lathe _____
- Vacuum forming machine _____
- Gas outlets _____
- Porcelain glazing oven _____
- Knee spaces _____
- Case pans _____
- Porcelain milling device _____
- Other _____

Radiography

1. Indicate which of the following radiography equipment you would like in your office:

- Panoramic x-ray machine
- Cephalometric attachment
- Central periapical x-ray area and whether it requires cephalometric brackets
- Cone beam CT

Image Processing

1. Will you use digital radiography? Yes No

Will it have sensors and a scanning system? Yes No

If yes, specify the manufacturers. _____

2. Will you have a darkroom? Yes No

Will it have any of the following:

- Large format processor
- Deep sink
- Duplicator
- Developing tank
- Daylight-loaded processor. If yes, please specify the brand and model. _____

Doctor's Office(s)

- 1. How many offices do you require? _____
- 2. What size should the rooms be? _____
- 3. What are your furniture requirements? If applicable, provide dimensions and quantities.
 - Desk. Specify whether the desk is built-in or freestanding. If freestanding, indicate whether you wish to have it against a wall or in the middle of the room. _____
 - Credenza
 - Side return
 - Computer terminal
 - Bookshelves
 - Additional seating. Please specify couches, sofa, chairs, etc. _____
 - Other _____
- 4. Do you require any of the following?
 - Private restroom
 - Private shower
 - Private closet

Staff Lounge

- 1. What is the total number of people who will use this room? _____
- 2. Would you like the space to double as a meeting or conference room? Yes No
- 3. Will the room include a kitchenette (typically a six foot counter and a sink)? Yes No
- 4. What are your furniture and appliance requirements? If applicable, provide dimensions and quantities.
 - Tables _____
 - Chairs _____
 - Couch _____
 - Additional seating. Please specify. _____
 - Microwave _____
 - Dishwasher _____
 - Disposal _____
 - Icemaker _____
 - Oven _____
 - Range _____
 - Refrigerator. Specify full size or under the counter. _____

- Coat closet _____
- Lockers. Specify cubicle or full size _____
- Storage for clinical attire _____
- Washer and dryer. Specify stackable or side by side. _____
- Separate changing area _____
- Shelving units for storage _____

Other Considerations

1. Will the HVAC be above the ceiling as a "horizontal package" or in a separate room? _____

2. Does your space meet the electrical requirements for a dental office? _____

3. Will you have your own compressor and vacuum? Yes No
4. Will you have an amalgam separator? Yes No
5. Does your space meet the plumbing requirements for a dental office? Yes No
6. Will you use a mobile nitrous cart or will nitrous be plumbed to each treatment chair? _____

7. Would you like a supply closet for general cleaning supplies? Yes No
If yes, should this closet be combined in the HVAC or dental equipment room? _____

Chapter 6:
Interior Design





Chapter 6:

Interior Design

By Joe Miller, A.I.A.

LEARNING OBJECTIVES

- Recognize that the interior design of your dental office is an extension of your unique practice brand
- Differentiate between an architect or interior designer and a decorator
- Understand the role of your dental equipment vendor
- Examine different sources of inspiration for your dental office's interior through case studies
- Learn how advanced modeling software allows you to accurately experience the three-dimensional character of your office very early in the design process
- Confirm that all design decisions have been made before proceeding with the construction phase of the project
- Anticipate the challenges and logistics of renovating an existing office to minimize downtime
- Identify the key categories of interior design that have the biggest impact on construction costs
- Discover five existing materials or systems to incorporate in your next dental office

As a boy growing up on Long Island in the 70s, I spent a fair bit of time in dentists' offices. My father was an MD who had his family practice connected to our home (as was popular back in the day). Our family had moved from Flushing, Queens to the town of East Northport, a rapidly growing suburb of Manhattan. At that time, medical and dental marketing consisted of going out in the front yard of your home, setting a post in the ground and hanging a shingle. That was all it took. The patients came in droves.

My memories of my dad's office are that it was clean, well-lit and smelled like antiseptic. I also remember that small rectangular opening in the wall with the frosted glass slider where the receptionist sat (hid). Aside from basic flow and function, nobody considered "office design" or "practice branding" or would ever think to use those terms. It was a simpler time. The golden age of medicine. There was little or no competition. All that mattered was that the office was clean, well-lit and... oh yeah, patients paid in cash! Like I said, it was a simpler time.

Cut to today. Competition from the corporate side is stiff. Sole practitioners need to find every opportunity to separate themselves from the masses. The term "branding" doesn't just apply to Apple and Starbucks. It is just as important to a one or two dentist general dental practice as it is to a corporate giant, if not more so. It is almost guaranteed that your patients will meet your office before they meet you. Just as with your website, the design of your dental office is an extension of your brand. Seize the opportunity to design a dental office that is unique to you and your practice and is consistent with the quality of service provided.

Why an Architect/Interior Designer?

The title “interior designer” is often misunderstood. Many people confuse it with the term “interior decorator.” Architects and interior designers are trained professionals. In order to practice they are required to receive a degree from an accredited program and participate in a lengthy internship (residency) under the guidance of a licensed professional before they are permitted to sit for their state boards. A licensed architect has the authority to design commercial and residential buildings from the ground up, as well as design their interiors. Licensed interior designers have a narrower focus and typically limit their work to the interior of buildings. Ask the right questions and know what you are getting when you hire a designer. (For simplicity’s sake, the term “architect” will be used interchangeably from here on to describe both architects and interior designers.)

Your architect can coordinate with your dental equipment and IT vendors, as well as the mechanical and electrical engineers, to ensure that all necessary utilities (power, water, drain, compressed air, vacuum, etc.) are provided to accommodate the specified equipment.

Many of the larger dental equipment companies have a drafting department that can provide rudimentary floor plans showing how a prospective office space could lay-out and where equipment might be located. They will often provide this service at no cost in the hope of securing your business over the long term for equipment and supplies. While this can be a helpful resource, a dental equipment vendor vs. architect is not an either/or proposition. Both are required to do the job right. Your architect can coordinate with your dental equipment and IT vendors, as well as the mechanical and electrical engineers, to ensure that

all necessary utilities (power, water, drain, compressed air, vacuum, etc.) are provided to accommodate the specified equipment.

Depending only on your dental equipment vendor for the design and engineering of your dental office may put an enormous burden on your vendor, your general contractor and, subsequently, you. There are literally hundreds of decisions that need to be made before a set of dental office drawings can be completed. These decisions include, but are not limited to, the selection of finishes, fixtures, doors, ceilings, cabinetry, lighting and plumbing fixtures, hardware and accessories. Who is going to take responsibility and see to it that each of these decisions have been made prior to construction? Perhaps not your dental vendor, or your general contractor and, hopefully, not the dentist. Figure 6.1 provides a visual comparison. Imagine each of the white rectangles represents a 24" x 36" sheet of drawing information. In my experience, a set of dental equipment drawings provided by the vendor consists of four to six sheets of equipment plans and boiler plate details. A fully coordinated set of construction drawings for an average size general dental office may include 20 to 25 sheets packed with plans, elevations, sections, details and mechanical, electrical and plumbing engineering. Figure 6.2 is a Sample Prospective Architect Interview Checklist to help you compare apples to apples. Select an architect who can successfully work side-by-side with your vendors.

FIGURE 6.1

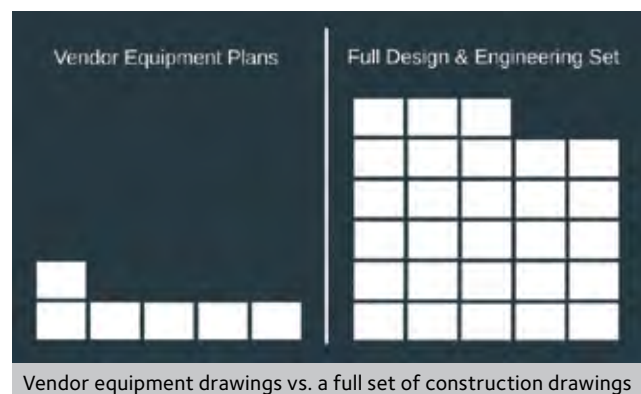


FIGURE 6.2

Sample Prospective Architect Interview Checklist

Qualifications:

- Are you licensed to provide design services in this state?
- Are you familiar with all applicable laws and codes, state and otherwise, including the Americans with Disabilities Act standards?
- Do you have experience designing medical and dental facilities?

Are you able to provide the following services?

- Selection and specification of all interior finishes and fixtures
- Three-dimensional modeling of the office interior
- Mechanical, electrical and plumbing engineering
- Facilitation of the general contractor selection process

Setting Yourself Apart

Being sensitive to the sensibilities of your community when designing your dental office makes common sense. Of course, no one wants to alienate new or existing patients by introducing an office design that is over-the-top and without consideration for your demographic. That being said, Americans are far more sophisticated when it comes to architecture and design than they were even a handful of years ago. Design has become something of a guilty pleasure in this country. I believe that this is due to the proliferation of design-focused programs, website and blogs at our disposal. A TV series like *Mad Men* demonstrates the far-reaching influence a television program can have on popular culture in terms of interior design and fashion. Applications like Instagram and Pinterest have made it so easy for people to share their personal style and passions with others. This evolution of sensibilities has caused a shift in the design industry. Whereas, in the past we would often hear *"I don't want to scare off patients with my office design,"* we are increasingly hearing *"There is nothing like this in our community — I want to be the first!"*

Design that Reinforces the Brand

Branding is a marketing strategy that involves creating a differentiated name and image — often using a logo and/or tag line — in order to establish a presence in the consumer's mind and attract and retain loyal customers. The design of your dental office should be consistent with all other visual manifestations of your brand including your website, logo, signage, etc. A consistency of brand is paramount.

Some dentists can clearly describe in words the look and feel that they envision for their dental office. Most cannot. Most of our clients find it easier to communicate through images. This is where a tool like Pinterest can be extremely helpful. It allows the client to populate a "board" dedicated to their project and share it with their architect. This might include images of other dental offices. More often than not, dentists share images of spaces and places that have nothing to do with dental. If the practice has recently gone through a branding process, this should be your first stop for design inspiration.

The following project case studies each took a different path in drawing design inspiration:

Case Study #1: Holistic Principles and Natural Materials

This established general dentist was quickly outgrowing his small, outdated office. He required an office environment that was consistent with the level of service and that highlighted the importance of the holistic principles on which the practice was founded. The architect's job was to reflect and reinforce these principles through interior design and the use of sustainable (green) materials and practices where possible. Clean, crisp colors were combined with natural materials, such as hickory wood veneer and Mexican beach pebbles, in an attempt to achieve this goal (see Figures 6.3 and 6.4). The dentist wanted the message to be clear, whether you are visiting the website or walking through the front door of the office for the first time: this practice has made every effort to make the patient safe, comfortable and informed.

FIGURE 6.3



Clean, crisp colors were combined with natural materials, such as hickory wood veneer and Mexican beach pebbles.

FIGURE 6.4



Sustainable (green) materials and practices were incorporated wherever possible to reinforce the practice's holistic principles.

Case Study #2: Consistent Branding with Industrial Elements

This new-start orthodontic office is an example of a practice that presents a particularly consistent brand. The website and graphics package draws on the interior design for inspiration. The dentist strived to work with local artisans whenever possible. The reclaimed wood was recovered from a local barn while the pre-cast concrete and rusted steel panels were sourced from local fabricators. The juxtaposition of these rough industrial materials against the more refined finishes creates the visual interest. This juxtaposition is carried through from the interior design to the website design to the printed stationary. Figures 6.5, 6.6 and 6.7 show the completed interior, the website home page, and the brand deck, respectively.

FIGURE 6.5



The juxtaposition of these rough industrial materials against the more refined finishes creates the visual interest.

FIGURE 6.6



The practice's aesthetic carries through to the practice website.

FIGURE 6.7



Branded materials with the same look and feel as the practice's interior design reinforce its look and feel.

Case Study #3: Logo-Inspired Design

Two brothers were establishing a new-start general dental office. Fortunately, the dentists recognized the importance of establishing a brand identity before embarking on the design of their office. The dentists shared the logo shown in Figure 6.8. This simple logo communicated a good deal of information. From the font, we can see that this is intended to be a modern, progressive practice. The colors greens and grey represent the brand palette. As you can see in Figure 6.9, these colors are repeated as part of the interior design palette. The bold green is used strategically as not to overwhelm. The distinctive “b” in the logo is used as a super-sized graphic element to further reinforce the brand.

FIGURE 6.8



FIGURE 6.9



The colors green and grey represent the brand palette and are repeated as part of the interior design.

FIGURE 6.10



The technology bar is a feature that appeals to both kids and adults.

Case Study #4: The Comforts of Home in a Modern Practice

For this established husband and wife general dental practice, it was their first opportunity to design and build an office from scratch that would meet all of their functional and aesthetic goals. The dentists provided the architect with a number of interior design images that they hoped would inspire the design of their office. One thing that all of these images had in common was that they were all residential projects. This fact alone helped guide the design. These images communicated to the architect that the dentists were trying to create a warm, welcoming environment that was more “home” than clinic. To a great degree, the selection of furniture, furnishings and art help give the office a “living room” feel (see Figures 6.11 and 6.12).

The dentists were trying to create a warm, welcoming environment that was more “home” than clinic.

FIGURE 6.11



The selection of furniture, furnishings and art help give the office a “living room” feel.

FIGURE 6.12



This practice was inspired by residential designs.

Case Study #5: Adapting a Non-Traditional Space

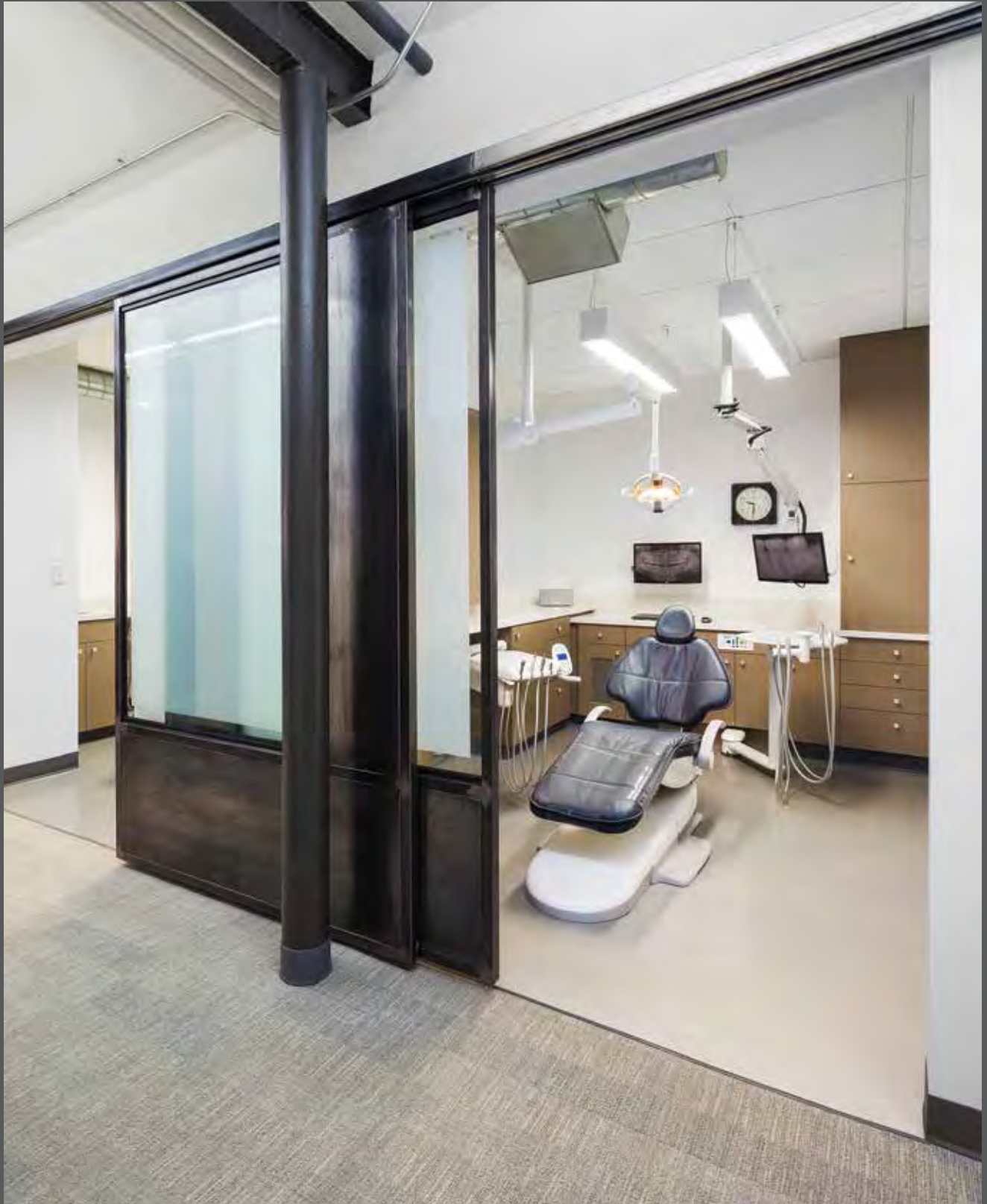
Location was everything to these two new-start general dentists. They leased a 2,200 square foot, 100-year-old building in a vibrant pedestrian-friendly commercial district. The building was originally a print shop. The dentists wanted to retain that vintage industrial vibe in the completed office. Exposed brick was left exposed, beat-up wood floors were refinished to their original luster, and large industrial steel doors were repurposed as sliding walls at the foot of the operatories (see Figure 6.13 and 6.14). In this case study, the building/space they selected helped create the brand.

FIGURE 6.13



These dentists wanted to retain a vintage industrial vibe in their completed office, a former print shop.

FIGURE 6.14



Large industrial steel doors were refurbished and repurposed as sliding walls at the foot of the operatories.

Dental Office Design in the Digital Environment

It has been exciting to watch the dental environment evolve over the last 15 years. Digital technology has freed up space which would have otherwise been used for dark rooms or designated as chart and model storage. Flat screen monitors on ergonomic arms and brackets allow the dentist to present information and entertainment and position it

exactly where they want it. Digital imaging has reduced radiation by up to 90 percent compared to previous x-rays. Sterilization and lab, areas that were previously hidden from patient view, are sometimes displayed as show pieces of the office. Space-wasting kids' play areas are being replaced with media bars that can be used by adolescents and adults alike (see Figures 6.10 and 6.15). Dental practices that employ the latest state-of-the-art technology often look to reflect this in the design of their office.

FIGURE 6.15



Space-wasting kids' play areas are being replaced with media bars that can be used by adolescents and adults alike.

Presentation of Colors, Finishes and Fixtures

In my experience, the presentation and selection of colors and finishes is one of the more pleasurable parts of the design process. At this point in the process, the design team is transitioning from the 2-D floor plan to the 3-D character of the space. A material palette and fixture package can be presented to the dentist that includes all finishes, fixtures, hardware and accessories that will be visible to eye. Figure 6.16 shows an example of a finish palette that would be presented to the dentist at this stage of the process.

On the following page is a Sample Finish and Fixture Checklist. In my opinion, a dental office project should not proceed into the construction phase until all of these items (at the very least) have been presented by the architect, approved by the dentist and specified in the drawings. Please note that this is a general list. Yours may be longer depending on the complexity of the design.

FIGURE 6.16



Here's an example of a finish palette that would be presented to the dentist at this stage of the process.

Three-Dimensional Images

As with imaging technology in the dental industry, technological advances in the design and construction industry have come a long way. In the last 25 years, architectural drafting has given way to 3-D modeling. This has allowed designers to create in hours what would have otherwise taken weeks. Modeling software allows designers to transition from a two-dimensional floor plan to a 3-D model very quickly. In just a few short weeks, the dentist can be presented convincing images of their office from any perspective. Animated fly-throughs can accurately depict what a patient will experience as they move through the office. These images can also be used in marketing material to announce your upcoming renovation or new location.

Figure 6.17 is an example of a 3-D illustration presented to the dentist very early in the design process. Figure 6.18 shows the final completed project. Consider confirming that your architect has the ability to provide these images as part of their services.

Modeling software allows designers to transition from a two-dimensional floor plan to a 3-D model very quickly. In just a few short weeks, the dentist can be presented convincing images of their office from any perspective.

FIGURE 6.17



Here's an example of a 3-D illustration presented to the dentist very early in the design process.

FIGURE 6.18



This is an image of the completed projected presented as a digital rendering in figure 6.17.

Sample Finish and Fixture Checklist

Flooring

- Carpet
- Resilient (Vinyl)
- Tile
- Polished Concrete
- Other _____

Walls

- Painted Drywall
- Wall Coverings
- Tile
- Glass/Translucent Panels
- Other _____

Ceilings

- Suspended Acoustical Grid
- Painted Drywall
- Exposed Structure
- Wood
- Other _____

Cabinetry

- Laminate
- Wood Veneer
- Solid Surface
- Stone
- Hardware
- Other _____

Doors

- Wood Veneer
- Painted Wood
- Glass/Translucent Panels
- Hardware
- Other _____

Light Fixtures

- General Lighting
- Decorative Lighting
- Other _____

Plumbing Fixtures & Faucets

- Clinical/Staff
- Patients

Accessories

- Toilet Accessories
 - Dispensers
 - Disposals
 - Other _____
- Clinical Accessories
 - Dispensers
 - Disposals
 - Other _____

Furniture

- Patient
- Staff

Interior Renovation

A large part of our business includes renovating existing dental and dental specialty offices. Often, these are established dentists looking to improve their built environment. Occasionally, we work with a dentist who has recently purchased an existing practice. In either case, there are some basic reasons why a renovation might be necessary:

- The existing floor plan doesn't function well
 - Poor circulation flow
 - Incorrectly sized rooms
 - Unfortunate room adjacencies
- The practice is growing and the office needs to expand into adjacent space
- The office is outdated or physically worn-out
- The office design is inconsistent with the practice brand

Renovations can range in scale from a simple paint job to a major remodel that includes considerable demolition and construction. Depending on the scope of the project, this work can take anywhere from a few days to several months. Depending on the size and layout of the existing office, construction can sometimes occur in phases. By partitioning off sections of the office, the practice may still be able to conduct business in one part of the office while construction is taking place in another part. For this approach, it helps if the office is on the larger side (3,000 square feet or more) with several entry points into the suite.

If you are expanding your existing office, a common dilemma is deciding where new construction begins and ends. If the existing portion of the office is outdated, it generally makes sense to update finishes throughout the facility at the same time, even if you're only updating paint and flooring.

Before proceeding with a renovation or expansion, ask yourself the following questions:

- What time of year makes the most sense for the office to be temporarily closed?
- How long can I reasonably afford for the office to be closed?
- Can I schedule construction around a vacation holiday or other downtime?
- Am I willing to pay a premium for the construction crew to work overtime (nights and weekends)?
- Am I willing to put up with a certain amount of inconvenience (construction noise and debris)?
- Is it possible to work out of a colleague's office temporarily while construction is taking place?

When embarking on a renovation of any size, for any of the reasons listed above, it is important to consider timing and logistics before moving forward. Your architect and general contractor will work with you to map out a practical construction phasing plan that works for you.

Three Categories of Your Dental Office Interior Design That Will Substantially Affect Cost

While the quality of finishes selected for your interior will certainly affect your overall construction costs, the three categories of construction listed below can often have a greater impact on cost, both from an initial construction standpoint as well as over the life-cycle of the office:

Cabinetry

Cabinetry, clinical or otherwise, is a large part of any dental office project budget. Your dental equipment vendor can guide you through the clinical cabinetry options available to you through the manufacturers they represent. Clinical cabinetry typically includes operatory cabinets such as the twelve o'clock, side and x-ray pass-through cabinets. It can also include your sterilization center. Your architect may work with you to custom design all the non-clinical cabinetry within the suite. That can include the reception, administrative, and other public and private millwork in the office. The general contractor can see to the fabrication of custom cabinetry based on the architect's design.

It may also be possible for the architect to custom design clinical cabinetry based on the dentist's specific needs. While it sounds counterintuitive, custom clinical cabinetry can actually be less expensive than vendor-purchased cabinetry depending on the manufacturer you are considering. Generally, finishes can be selected so that cabinets match or complement each other regardless of how they are sourced. That being said, it is hard to beat the quality of a factory-manufactured unit available through your dental equipment vendor or purchased directly from the manufacturer. Purchasing cabinetry through a vendor may also have tax advantages, which a qualified accountant or other professional can help you understand. We have also

seen a trend towards eliminating one or both of the side cabinets in the operatories. Often this is done to reduce the amount of visual clutter in the ops visible to the patient, but it also can result in considerable savings. Have your architect walk you through your cabinetry options and ask them if they have the ability and know-how to design custom clinical cabinetry should you choose to go in that direction.

It may be possible for the architect to custom design clinical cabinetry based on the dentist's specific needs. Custom clinical cabinetry can actually be less expensive than vendor-purchased cabinetry depending on the manufacturer you are considering.

Lighting

LED (light emitting diode) lamps are rapidly becoming the lighting of choice in dental offices. The price is far more competitive than in recent years. In fact, it has gotten to the point where fluorescent lighting, which, until recently was ubiquitous in the commercial environment, is rapidly being phased out. LEDs are now available in numerous styles, from a simple can light to the most complex decorative pendant. They can be easily dimmed, which is not the case with fluorescent fixtures. Stricter building energy codes are now being adopted on a state-by-state basis across the country, making it more difficult to meet the energy requirements. The inherent efficiency of LED fixtures makes it easier for engineers to meet these codes. LEDs may be best known for their long life expectancy. High-power white LED lamps have an estimated useful life of 50,000 hours. If you were to leave your lights on for 10 hours a day, every day of the week, that works out to close to a 14-year life span. While the initial expense of LED lamps can be greater, the reduced maintenance cost for lamp replacement over the life cycle of the office can be substantial. When properly implemented, LED lighting can be more efficient, durable, versatile and longer lasting than other light sources.

Plumbing

When you consider the plumbing requirements of a typical general dental office, it's pretty clear why plumbing is such a large chunk of the construction cost.

A list of these requirements can include:

- Restrooms (see discussion of code requirements below)
- Clinical hand sinks
- Brushing sinks
- Sterilization and lab sinks and equipment
- Staff break room sink
- Service (mop) sink
- Compressed air and vacuum
- Piped medical gas
- Washer/dryer
- Dishwasher

The number of restrooms that local building codes require in a dental office depends on factors such as the size of the office and the type of building where the office is located. Per many building codes, if the office is under 1,500 square feet, you may only be required to provide one handicapped-accessible, unisex restroom. If the office exceeds 1,500 square feet, you may be required to provide two handicapped-accessible restrooms (one men's and one women's, or two unisex). If the office is located in a commercial office building with common corridors and existing common handicapped accessible restrooms for both men and women, you may not be required to provide any restrooms within the suite. The dentist may elect to provide additional restrooms within the suite for the sake of convenience, but it may not be a requirement. In addition to local building codes, other laws, such as

OSHA standards and the Americans with Disabilities Act, may impact the number and design of restrooms required. A qualified attorney or other professional can provide information about the laws that will apply to your project and what those laws require.

If existing common restrooms are not accessible, you may be required to provide one or more accessible restrooms within the suite. Retail buildings typically do not have common corridors and restrooms. Therefore, you may be required to provide one or more restrooms within the suite, depending on factors such as the office and staff size and restroom design. These restroom requirements are important to keep in mind since a fully equipped handicapped restroom can run \$8,000 to \$10,000. Use the checklist below to help find opportunities for potential plumbing cost savings, keeping in mind that dental office plumbing fixtures must comply with applicable laws, such as OSHA and the Americans with Disabilities Act, as well as local building codes.

Plumbing Fixture Reduction Checklist

- Eliminate unnecessary restrooms
- Eliminate unnecessary clinical hand sinks
- Eliminate service/mop sink if not required (e.g., may meet code if already provided in common area)
- Eliminate brushing sinks (brushing to take place in restrooms)
- Eliminate washer/dryer and instead contract out laundering of personal protective equipment (PPE) or use of disposable PPE (OSHA does not permit employees to take their PPE home to launder)
- Reduce quantity of chairs to which medical gas is piped
- Eliminate piped medical gas if not used regularly

Dental Office Design in the Retail Environment: Interior Design as Signage

Currently, we are seeing over one-third of our dental clients choosing to locate their office in a first floor commercial storefront setting. Their practice is on display 24/7 via illuminated building signage and is visible through large storefront windows for all the world to see. While the public nature of a retail environment is certainly not for everyone, it does provide a level of exposure that is hard to beat when compared to a traditional office building.

There was a time when a medical professional would never consider locating their practice in a retail shopping center. The thought of mingling with the pizza parlors

and delicatessens of the world was unheard of. Today, a shrewd dental practitioner recognizes the sheer numbers that drive by or pass through these centers on any given day.

Figure 6.19 is an example of a new-start general dentist who took full advantage of his location. The office sits on a major vehicular thoroughfare that also enjoys a significant amount of pedestrian traffic. While it is a multi-story building, it was specifically designed to accommodate retail on street level. The dentist took advantage of the 16-foot high arched windows to showcase his practice. In the evening, as local professionals head home, they cannot miss the glowing interior. The dentist recognized that the interior design of his office is signage and took the opportunity to reinforce his brand through its distinctive modern design. This design aesthetic extends clearly through all the expressions of the practice brand.

FIGURE 6.19



This dentist took advantage of the 16-foot high arched windows to showcase his practice in the evening.

Five Exciting Materials or Systems to Incorporate into Your Office Design

Here are five examples of hot materials and finishes being used in commercial interiors. While trends are constantly changing, it's hard to predict which design elements will stand the aesthetic test of time. What unique materials can you and your architect discover for your next office?

Reclaimed Wood and Bark Veneer Laminates

Reclaimed wood is wood that has been salvaged from old buildings and structures. It can have any number of uses in a commercial interior including flooring, cabinetry, and wall and ceiling treatments. The imperfections of reclaimed wood is part of its charm. Markings caused by the milling process, multiple peeling paint layers, and wear and tear over a long period of time can all add to the visual interest of this product. In Figure 6.20 it is used as a wall screen and ceiling element that helps define a reception desk.

Bark veneer laminates are harvested from living trees using an unrolling process. The resulting veneer can be used as a unique wall covering, as seen behind the reception desk in Figure 6.20. Both reclaimed wood and bark veneer laminates are inherently sustainable (green) building products since they do not require the downing of any live trees.

Wool Felt Panels

Felt has become increasingly popular as a construction material. It can be manufactured in a multitude of forms, as wall panels, ceiling panels, window coverings, etc. It is available in a variety of colors and thicknesses depending on its use. It has excellent sound absorbing properties, which can be extremely valuable in the dental environment where surfaces are inherently hard. Figure 6.21 shows a bold blue felt wall panel that is used to accentuate the initial consult room and soften the space both visually and audibly.

Barn Door Hardware

Barn door hardware is similar to a pocket door in that it does not swing into a space and take-up precious floor area. However, where a pocket door will disappear into the wall cavity, a barn door will slide on rails along the face of the wall. They can be particularly effective at operatories where floor space is at a premium. Part of the barn door's appeal is the exposed hardware. The door and its hardware can be sleek and modern as seen in Figure 6.22, or eclectic as with the salvaged doors and black-iron rail hardware seen in Figure 6.23. A more industrial approach was taken at the operatories displayed in Figure 6.14.

While trends are constantly changing, it's hard to predict which design elements will stand the aesthetic test of time. What unique materials can you and your architect discover for your next office?

FIGURE 6.20



Bark veneer laminates are harvested from living trees using an unrolling process. The resulting veneer can be used as a unique wall covering, as seen behind the reception desk.

FIGURE 6.21



A bold blue felt wall panel accentuates the initial consult room and softens the space both visually and audibly.

FIGURE 6.22



This is an example of a sleek and modern barn door.

FIGURE 6.23



This sliding barn door uses salvaged doors and black-iron rail hardware for an eclectic feel.

Warm Metals

Silver metals, such as polished and brushed chrome or stainless steel, have been a mainstay in commercial interiors for a good long time. More recently we have seen a trend toward warmer metals such as copper, bronze, rose gold and oxidized metals. Copper can sometimes be sealed to maintain a high-polish appearance or left to oxidize to a matte black or green patina depending on the humidity where you are located. Weathering steel, best-known under the trademark COR-TEN Steel, is a group of steel alloys that forms a rust like appearance if exposed to weather or moisture. It can also be pre-weathered for interior applications (see Figure 6.24).

Digital Art

Art no longer needs to be static. As tastes change, so too can your art. Digital art screens, individually and ganged together, can display constantly changing content including art, education information and entertainment. The digital screens to the left of the reception desk in Figure 6.25 display a slideshow rotation of patient “after” shots, which can be easily edited as the practice grows and the patient population changes. Make sure patients have signed any necessary HIPAA authorization and photo release forms before displaying their photos.

Summary

Good dental office interior design does not occur in a vacuum. It requires the close cooperation of all members of the design and construction team. By understanding what separates your practice from the masses, your architect can provide you with office design that is efficient, functional and unique to you and your practice brand.

Contributor Biography

Joe Miller is a principal with the architecture and interior design firm JoeArchitect located in Denver, Colorado. They specialize in the design of dental and dental specialty offices across North America. He is originally from East Northport, NY and received his Masters in Architecture from Tulane University in 1985. JoeArchitect has designed upwards of 400 dental offices in the past 16 years. As Director of Business Development with JoeArchitect, Joe’s primary focus is to educate dental professionals and students so that they can make sound decisions when the opportunity to design and build their dental office presents itself.

To learn more about JoeArchitect and their work, visit their website at www.joearchitect.com or contact Joe Miller directly at joe@joearchitect.com.

FIGURE 6.24



Steel can be pre-weathered for a more industrial look.

FIGURE 6.25



Don't forget about digital art, used here to show a rotating slide show of patient "after" photos.

Chapter 7:

Cost-Effective Design





Chapter 7:

Cost-Effective Design

By David Ahearn, D.D.S.

LEARNING OBJECTIVES

- Become familiar with several standard measurement criteria used to assess design value
- Recognize the importance of patient perception in operatory design and how to enhance it
- Understand how office design can capitalize on changing the work-flow of a practice to add value and reduce cost

There are many aspects to successfully completing a dental office design and construction project. However, for both the young dentist launching his or her first practice and the seasoned veteran seeking increased capacity, none are more important than doing so cost effectively. While the renovation and outfitting of a small office in an existing commercial shell can often be accomplished inexpensively, the typical construction costs on a new free standing dental office can easily approach one million dollars, with larger multi-doctor practices reaching two, three or even four times that amount. For most doctors, this is the single largest investment you will ever make — so you need to be very conscious of spending and how it will benefit you in the long run. “Cost effective” doesn’t necessarily mean inexpensive, but rather, not wasteful. Ultimately, the actual objective is not simply reducing cost in and of itself, but instead increasing value — maximizing the return on your investment both financially and through improved quality of practice life.

For our purposes, “cost effective” will mean one (or both) of the following statements:

1. The item or design decision minimizes cost through effective use of space or materials.
2. The item or design decision maximizes value by enhancing productivity and system flow within the practice.

Reducing cost is usually fairly straight forward; a physically smaller building costs less. Less square feet requires less land, fewer building materials, less labor, etc. Cutting cost on materials and finishes is also straight forward: formica costs less than stone, sheet vinyl costs less than carpet, etc. However, to understand value in terms of office design, we first need to think about the whole system on a macro scale and then analyze individual components in terms of the productivity and quality enhancements they provide.

Room Yield

One of the first and largest cost considerations in a design project is the physical size of the office itself, expressed for our purposes as “room yield.” This is the ratio of office size to operatory count, and is determined by dividing the total square footage of the office by the total number of treatment rooms.

In the post-Americans with Disabilities Act era, dental office designs have become markedly less space efficient, commonly producing room yields in the 400 to 500 square foot per treatment room range. A typical five-operatory dental practice occupies 2,000 to 2,500 square feet of space. Assuming construction costs of \$250 per square foot for a ground-up build, the office itself could run \$625,000. But by reducing the office-to-room ratio to 350 square feet per room, the practice would occupy only 1750 square feet. At a build-cost of \$437,500, the savings would be \$187,500 — over 20 percent. However, these savings should only be considered effective if it does not negatively impact your production capabilities or result in an untenable work environment. Size reduction is the most predictable method of office cost reduction; raising room yield is critical to its success.

Utilizing the design methods discussed in this chapter, room yields of 350 square feet (or even less than 300 square feet) become possible — and they do so without sacrificing functionality or amenities. When properly applied, these systems dramatically improve production, increase efficiency, and reduce stress on both staff and patients, and reduce costs while adding value.

Office Layout and Systems: Room-centric vs. Office-centric

A practice’s system for delivering dentistry has a significant effect upon operatory design and function, which in turn affect the office layout as a whole. This is the primary macro-scale decision a practice owner faces, and establishes how we create value in all other aspects. There are two basic concepts for the setup and deployment of supplies and equipment in any office: room-centric and office-centric design.

Room-centric deployment is what is most commonly used in a two or three room start-up practice. In this system, the majority of all supplies are stored in the operatories themselves — in various drawers, shelves and cabinetry — ideally making each room autonomous. To be effective, doctor rooms must be fully and identically stocked at all times, posing a significant inventory-maintenance challenge. Lacking a significant storage area, the central core of the office can be somewhat smaller, though this comes at the expense of increased treatment room volume. While it may be effective with a very limited number of rooms, this system has significant flaws at even moderately higher room counts: inventories become unreliable;

One of the first and largest cost considerations in a design project is the physical size of the office itself, expressed for our purposes as “room yield.”

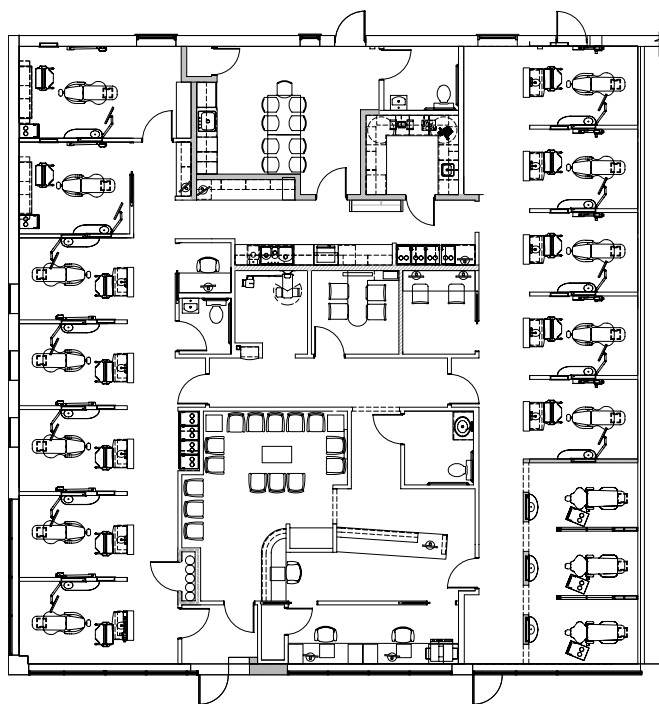
expensive equipment requires duplication within each operatory (or is difficult to deploy, such as with endo, orthodontic or surgical supplies); cabinetry required in each room adds significant cost; and the disinfection of extensive surface areas slows room turnaround. All practices with three or more doctor operatories should be very aware of — and realistically assess — the drawbacks of a room-centric approach at this scale.

In contrast, office-centric layouts handle supply deployment differently; rather than employing independent islands of production, an office-centric layout treats operatories and their support functions as part of an integrated system. Lab, sterilization, restocking and redeployment become a cohesive

central core within the practice, while in-room storage is both reduced and focused at the point of use (Figures 7.1 and 7.2). Centralizing the support functions maximizes their organization efficiency and eliminates waste (both in time and materials.). The operatories gain value through increased responsiveness, standardized supply delivery and increased speed of overall office flow, while the reduction in room size significantly increases room yield in the design.

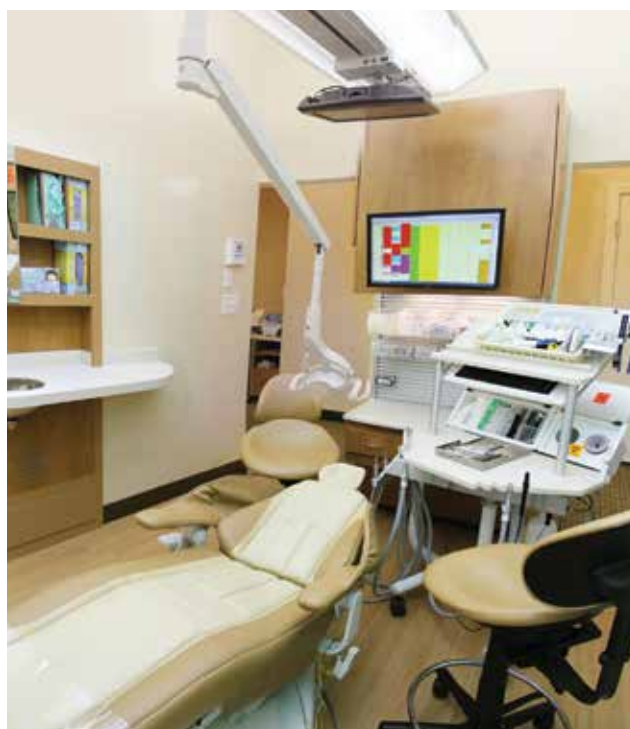
The office-centric layout below permits 14 treatment rooms to comfortably fit in only 4000 square feet through efficient use of central sterilization/resupply/restocking and the use of consolidated supply delivery.

FIGURE 7.1



Lab, sterilization, restocking and redeployment become a cohesive central core within the practice.

FIGURE 7.2



In-room storage is both reduced and focused at the point of use.

The Psychology of Spaciousness

Before investigating the cost effectiveness of individual design areas, it is important to understand that these spaces don't exist in a vacuum — people use them. Therefore, any value considerations must include — and in some cases, be compromised by — the subjective element of human experience, expressed here as comfort. While overall comfort is determined by many factors, this section will focus on a critical first impression a patient experiences when placed in the treatment room: the perception of spaciousness.

Psychologist John Flynn — considered by many to be the founder of spaciousness research — discovered that western cultures read a room in a cross-shaped manner as shown in Figure 7.3 (Flynn, Hedrick, Spencer & Martyniuk, 1979). We do this instantly, processing massive amounts of data in order to form a perception about the room. Is it large or small? Friendly or threatening? For our purposes, patients create immediate sensory impressions about whether or not this is an okay place to be, a decision which will have a significant impact on our ability to treat them. The three steps of this process are as follows.

Patients create immediate sensory impressions about whether or not this is an okay place to be, a decision which will have a significant impact on our ability to treat them.

First Impression – Visual Cues

In this initial size assessment, the patient's opinion is simply an emotional response based on fairly gross visual cues. They are affected by atmospheric elements, such as the increasing blur of details and textures in the distance. Additionally, surfaces farther from the viewer exhibit muted colors, shadows and contrasts, and are generally dimmer.

Second Impression – Visual Measuring

The viewer then develops a more refined opinion, based on more considered size estimates as they relate to enclosure. They gauge ceiling height, the distance to the outside wall, and the rate at which the side walls appear to converge. They assess the size of the floor, but more importantly, they formulate impressions of spaciousness based on the number, size and prominence of the impediments to movement throughout the floor space. Dental operatories are often littered with intimidating impediments, which should be either removed or located outside the patient's immediate view upon entry.

Third Impression – Atmosphere

The last step in spatial perception includes non-geometric cues: spatial complexity, sound and light. Of these three cues, spatial complexity is the most contradictory. In a larger space, increased complexity appears to add to the size of a composition, while the opposite is true for confined spaces. Thus, minimizing clutter will increase the sense of spaciousness.

The impact of sound is fairly straight forward: we interpret a room with more noise as a smaller space. This fact is often overlooked when operatories are designed with cabinet room dividers, which typically have poor sound attenuation. This increases noise levels and allows sound to bleed to adjacent rooms.

Lighting — the frosting on the operatory cake — can complete the illusion of greater spaciousness. Lighting techniques can be used to make existing small rooms look bigger and impersonal spaces feel cozier. A well thought out reflected lighting scheme is the key element to success here — and is worth considerable attention. Direct down-lighting should be absolutely avoided for general illumination.

We often discuss the importance of patient comfort in terms of our ability to minimize pain. While this is absolutely critical, patient comfort is more than just pain management; "comfort" also includes patients' emotional response. Actively pursuing all aspects of comfort is our duty as health-care providers — it is also in our own best interests, as a relaxed patient is significantly more receptive than one fraught with anxiety.

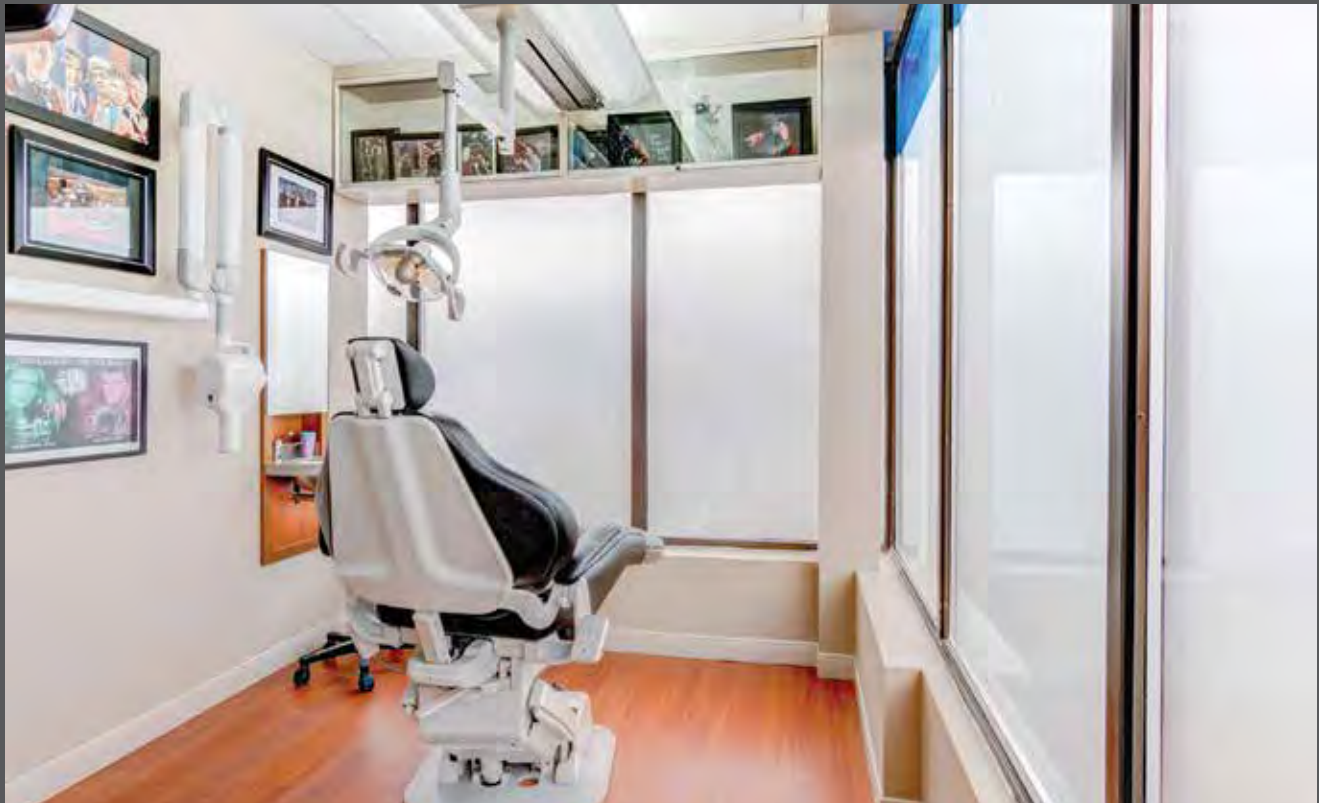
FIGURE 7.3



Improve patient perception of the treatment environment by removing threatening objects from the field of recognition.

Actively pursuing all aspects of comfort is our duty as health-care providers — it is also in our own best interests, as a relaxed patient is significantly more receptive than one fraught with anxiety.

FIGURE 7.4



Despite being only 8'4" x 11', this room feels much larger. Note the open floor space and natural light.

The Evolution of Treatment Room Design

Treatment room size has been steadily expanding for decades with typical dimensions now approaching 11' x 12' (Carter & Carter, 2010). Yet the current model, incorporating side cabinetry, is merely an artifact from the days before modern aseptic technique. Now that all instruments, burs and utilities require autoclave processing, it is more efficient to store them where they are processed en masse rather than within the operatory.

Similarly, customizable resin containers offer additional alternatives to operatory drawer and cabinet storage. These modular units are prepared in central resupply, where inventories are clearly visible and easily maintained, and deployed to treatment as needed. Mobile delivery carts complete the system, allowing for the immediate deployment of advanced technologies.

Staging expensive or infrequently used technologies on mobile carts avoids unnecessary duplication, reducing costs. This also improves the responsiveness and flexibility of individual operatories, while allowing them to remain smaller.

The cost effectiveness of eliminating side cabinetry reaches beyond the saved expense of the cabinets themselves; treatment room designs can be dimensionally smaller — eight to nine feet in width — reducing overall construction costs.

There are non-monetary benefits as well. A smaller, consolidated room places materials and instruments at your fingertips, which carries significant production and ergonomic value. Finally, though these rooms have a smaller footprint, they actually feel larger due to the increased floor space and other accommodations. Positioning instruments and supplies at the headwall places them out of view as the patient first enters the operatory. What remains is a simpler, less intimidating environment.

Overall Office Layout in a Lean Environment

Next, we will take a look at individual areas within the office and examine the effects of these intelligent design principles.

Sterilization Area

Sterilization is best looked at as part of a “one-piece flow” Lean Manufacturing cell (Ohno, 1988), whose value is not a single clean instrument, but rather the process of intake, sterilization, storage and re-deployment. Proper design of sterilization, resupply and restocking can reduce labor in a typical 10-chair practice by the equivalent of one full employee.

To accomplish this, the space must be designed to accommodate the sequential nature of the process. To maximize efficiency, a typical general practice dental office’s sterilization sequence will occur as shown in Figure 7.6. This linear process reduces wasted motion (cost) and improves workflow and production.

Sterilization should be tightly linked to resupply and redeployment rather than treated as a process in isolation.

Note that storage, resupply and redeployment are included in the sequence, and designed within the space. This is the core of an office-centric practice and is key to improved organization, inventory and more responsive deployment.

FIGURE 7.5: ROUGH CONSTRUCTION COSTS OF ROOM-CENTRIC VS. OFFICE-CENTRIC PRACTICES

Description	ROUGH CONSTRUCTION COSTS	
	Room-centric Practice with Side Cabinetry	Office-centric Practice without Side Cabinetry
Number of Operatories	7	7
Room Yield	450	330
Total construction sq. ft.	3,150	2,310
Cost at \$250 / sq. ft.	\$787,500	\$577,500
Cabinetry @ \$15K / room	\$105,000	0
Total Rough Cost	\$892,500	\$577,500

FIGURE 7.6

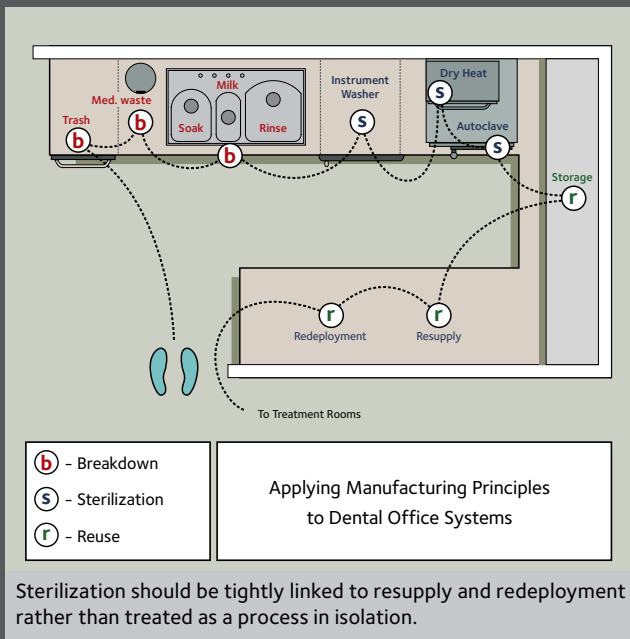


FIGURE 7.7



FIGURE 7.8



This photo shows the method for performing chairside consultation with minimal disruption to the sequence of events.

Where complete privacy isn't essential, it is more advantageous to bring the consultation room to the patient, by adding full presentation capabilities to every room. This enhancement significantly improves overall office workflow.

FIGURE 7.9



A well-designed front desk presenting one position to the waiting area (left) and three positions toward the back of the office (right).

Patient Consultation Area

Some patients or situations demand the privacy afforded by a dedicated consultation space, whether for sensitive financial discussions or detailed case presentation; patient consultation areas will always be required in medium to large offices. However, as practices achieve higher new patient counts, it becomes necessary to reduce the steps required in greeting, examination, education, consultation, financing, and scheduling. The best way to simplify this process is to stop moving the patient when it isn't necessary. Where complete privacy isn't essential, it is more advantageous to bring the consultation room to the patient, by adding full presentation capabilities to every room. This enhancement significantly improves overall office workflow.

Figure 7.8 represents the method for performing chairside consultation with minimal disruption to the sequence of events. Flat-screen, articulating monitors allow immediate (and more effective) case presentation. By integrating credit card readers and digital printers within the operatories, a great many procedures can be diagnosed, presented, accepted, paid for and scheduled (or even treated) without the patient ever leaving the dental chair. This greatly reduces the number of times a patient is shuffled throughout the practice, improving the patient's experience and reducing potential errors that can occur with "hand-offs." With a few additional amenities, such as entertainment televisions, headphones, and heated/massaging patient chairs, patients often prefer to stay right where they are.

Judicious use of cabinetry in the operatory provides high treatment efficiency, while creating compact and economical room with multi-functional use.

Front Desk and Administrative Spaces

When considering cost effective design issues regarding the front desk, we need to address a practice system issue. Except for the smallest practices (two to three chairs), the primary incoming phone lines should not be located on the front desk or check-out area. There should be no barriers to fielding incoming calls, arrivals need to be greeted immediately, and departing patients should not be distracted or delayed with interrupting calls. These tasks do not mix well.

At approximately 50 new patients per month, a typical front desk staff implementation includes one greeter/check-in position and one or two check-out positions — incoming call reception should be located elsewhere. However, as a practice grows, check-out will bottleneck much sooner than check-in. Therefore, allocating space for an eventual third check-out position is strongly recommended. The general physical ratio of check-in to check-out space should be 1:3, in terms of linear feet and work stations, and the front desk should be designed accordingly (see Figure 7.9). Delineating these areas of separate function — clearly and prominently presenting check-in — increases patient comfort on entry and improves outgoing process flow.

Returning to incoming calls, our experience working with some of the most successful practices in the country has shown us that at least one dedicated phone receptionist will be required when new patient counts reach 50 per month. Each additional milestone of 50 new patients per month typically requires another dedicated phone-receptionist. As mentioned, these staff members should not be expected to interact with patients in person. Therefore, the position should not be physically located at the front desk. For practices seeing 200 patients or more per month — and especially for multi-location practices — a dedicated call center becomes an essential design requirement to maximize the value of new patient acquisition efforts. For larger practices, the call center can be consolidated with other management functions. This significant change in office structure enables more efficient communication, administration and planning.

Staff Lounge and Meeting Space

Many practices are tempted to lower building costs by reducing the size of the staff lounge. While this may provide a short term savings, it comes at the expense of substantial long term value. Much more than a place to eat, a well-designed staff lounge will be a communications focal point, the location for full staff meetings and the daily huddle. To accomplish this, the space must be large enough to accommodate

the entire staff, and have the technology required to handle these functions. The technology and equipment needed for this space includes a large wide-screen monitor and dedicated computer. Additional points to consider in designing an effective lounge include adequate storage space for personal belongings, a private restroom, a kitchenette and laundry services. These accommodations will improve morale and help separate personal activities from the rest of the practice systems, allowing those systems to operate more efficiently.

Summary

A cost-effective office is not synonymous with a budget office. A budget office cuts features, amenities and quality to build an office as inexpensively as possible. This is very much a short-term approach because in three to five years, upgrades will be necessary for a growing practice — often at the expense of production, time, energy and cost.

A cost-effective office, on the other hand, focuses on maximizing the long-term value of a dental practice: creating both a highly functional and patient-friendly environment that is also scalable and accommodating to growth.

Contributor Biography

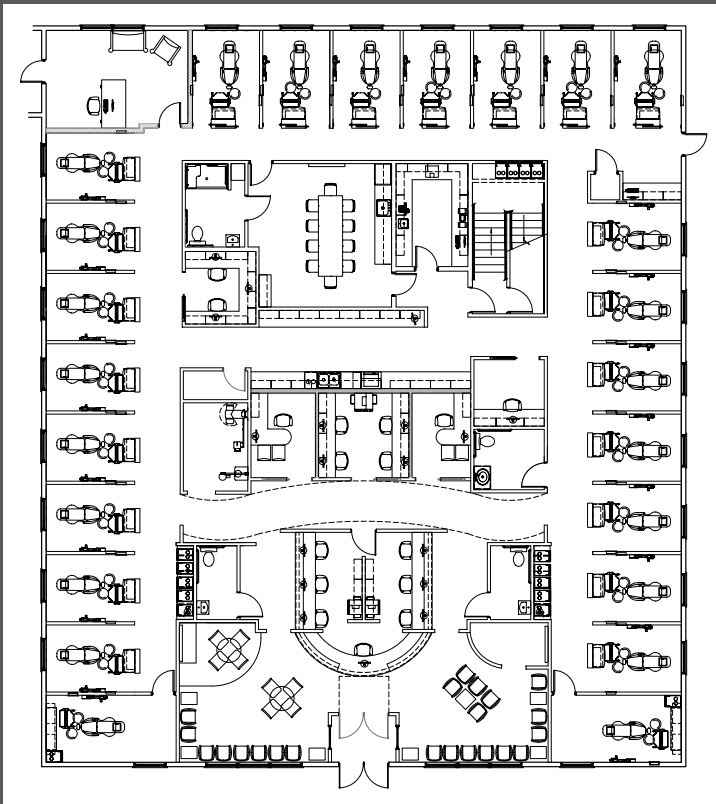
David J. Ahearn, D.D.S. is a practicing general dentist. He is the president of the office design firm Design/Ergonomics which specializes in creating high productivity practices throughout North America. He was a founding member of the ADA's Ergonomics and Disability Subcommittee and is a nationwide lecturer and contributor to numerous dental publications. He can be reached at www.desergo.com.

FIGURE 7.10



A cost-effective office is not synonymous with a budget office.

FIGURE 7.11



A cost-effective office creates both a highly functional and patient-friendly environment that is also scalable and accommodating to growth.

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Chapter 8:

An Experiential Approach to Dental Office Design and Branding





Chapter 8:

An Experiential Approach to Dental Office Design and Branding

By Nikki Skomal, Associate I.I.D.A.

LEARNING OBJECTIVES

- Recognize the power of your practice brand
- Provide an understanding of the steps necessary in creating a brand personality that patients will remember
- Better grasp how to provide a positive sensory experience for patients through the branding and design process
- Understand how advancements in the digital world have influenced marketing
- Learn how to effectively communicate your brand through marketing tools and design

Past studies on interior design have looked at the field through the lenses of aesthetics and functionality. Only recently have scholars begun to see the influence of marketing on the design process. The incorporation of branding can provide a link between interior design and marketing that allows for designed interiors to target specific lifestyle groups and ultimately provide an experience.

The Power of Your Practice Brand

In the dental field, branding is a tangible way of telling the story of your practice to patients. By manipulating type, color, imagery, and space, in both marketing materials and interior finishes, your practice brand has the ability to engage patients long before they arrive at your facility. Such engagement establishes a dialogue that builds comprehension, commitment, participation, loyalty, and trust, all of which are important to keep patients coming back. Through storytelling, branding has the ability to make dental environments relevant by targeting a lifestyle and providing an experience for patients.

Fundamentally, your practice brand has three primary functions. The first is to act as a form of navigation. Brands help patients choose from an overwhelming selection of services, including dentistry. Secondly, your practice brand provides reassurance. It communicates the quality and value of the services you provide while reassuring patients that they have made the right choice. And finally, your practice brand has the ability to provide a level of engagement.

By utilizing lifestyle driven imagery, language and associations, you can design your dental environment to have a personality all its own. In a dental practice, it is about seizing every opportunity to express why patients should choose you over another and that “personality” will aid in establishing and maintaining a better connection with them. Ultimately, your practice brand should resonate in the mind of your patients and instantly remind them of you, while bringing to mind your values. The following checklist outlines key concepts to consider in establishing your practice brand.

FIGURE 8.1

The Practice Brand Checklist

Vision Statement

- What dental products and services do you provide?
- What is unique about how your practice does business?
- How would your patients describe your brand?
- Where do you want your practice to be in five years?

Mission Statement

- What are the specific patient needs that your practice addresses?
- What actions do you take to address those needs?
- What guiding principles define your practice’s approach?
- Why should patients select you over your competition?

Personality

- What emotions do you intend to seek from patients based on their experience of your practice?
- If your brand was a person, how would you describe their personality?
- Are you fun, exciting and playful?
- Are you technologically advanced?
- Are you sophisticated?

Position

- Who is your target market (demographic and persona)?
- Which market segment does your practice serve?
- What is your brand promise?
- How is your practice different from the competition?

Providing a Sensory Experience for Your Patients as Part of Your Brand

Brands in general have transformed into two complex interactions among consumers: lifestyle and the experience. While lifestyle marketing has been around for a few decades, the concept of experiential marketing is relatively new. As free time for consumers has decreased, the demand for experiences has dramatically increased. This section will discuss those aspects of the dental office environment that are most important in supporting a “brand personality” that provides an experience for your patients.

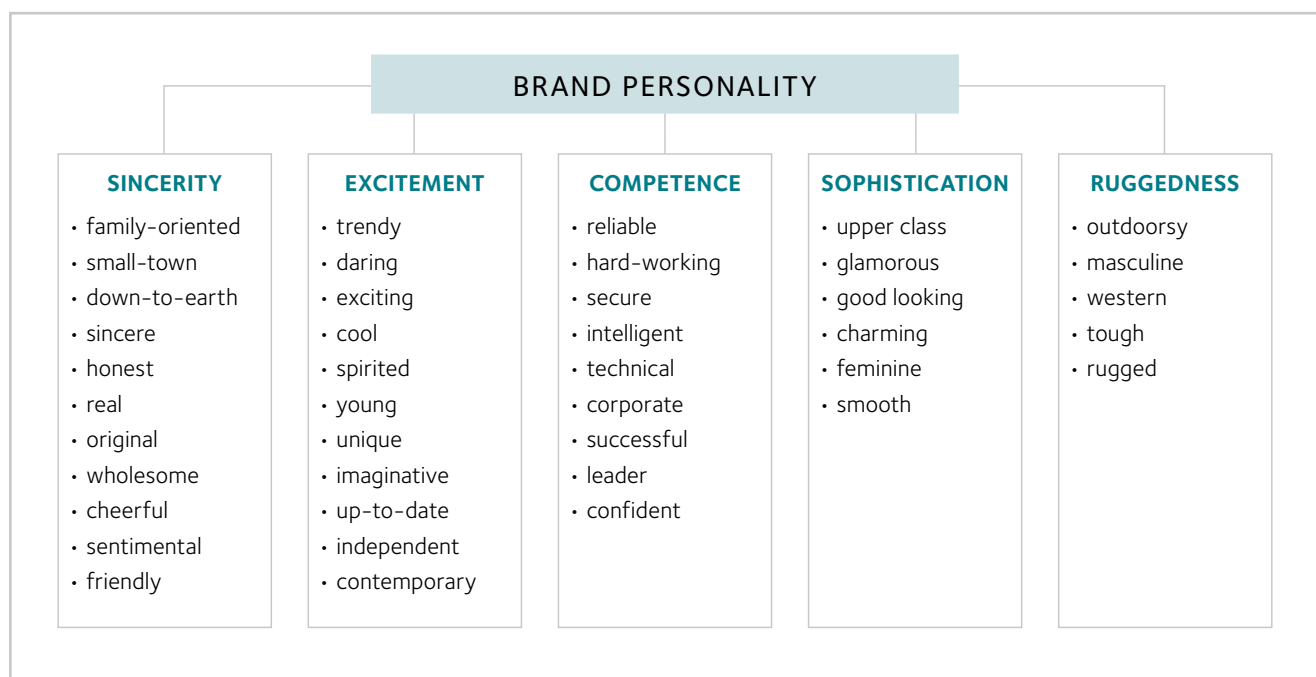
“Brand personality” focuses on human characteristics as a way of identifying with your patients on an emotional level. What is your practice brand’s personality? Is it fun and exciting? Is it technologically advanced? Is it sophisticated? Marketing practitioners view “brand personality” as a key component in differentiating a brand in a service category, as a central driver of consumer

preference and usage, and as a common denominator that can be used to market a brand across cultures.

Experiential marketing then employs that brand personality to establish a sensory connection with consumers in the form of an experience that is interactive, emotional, personal and ultimately memorable. Sensory features in the interior built environment have become one of the most significant ways of influencing user experiences. What they search for in products, communications, and marketing campaigns is something that excites their senses, connects with them emotionally, and stimulates their minds — something they can relate to. With both design and branding being extremely subjective processes, experiences are all interpreted differently by different users. Each user takes the elements provided by the designer and interprets them based on their own identities, values and lifestyles.

Anything that your patients see, hear, touch, smell or taste can contribute to the overall experience they have at your facility. A combination of these will provide a purely sensory experience.

FIGURE 8.2



What’s your brand personality? Source: Aaker, J. (1997), Dimensions of Brand Personality (p.352). *Journal of Marketing Research*, 34(3), 347–356.

Sight

The sense of sight can be captured by the visual design elements within your dental environment. These are represented by the conscious selection of materials, furnishings, artwork, and lighting along with the incorporation of unique design elements, brand elements and the use of technology.

Your brand personality should be visible immediately upon approaching your facility and should continue throughout the entire space. Restrooms act as an extension of the experience and their design should be considered as important as other spaces within your dental environment. The restroom in particular can have the biggest impression on a patient's perception of your facility. Cleanliness or a lack thereof is immediately associated with the level of care you provide.

There should also be a level of compatibility between your building shell and the interior environment, especially when the architecture is set in a particular style. Interior materials are the leading contributor to the personality of your dental office. For healing environments in particular, natural materials have been proven to ease anxieties and may help speed up the healing process.

Marketing materials and communications are another way to visually reinforce your practice brand in the minds of patients. Similar to telling a good story, a successful practice brand projects emphasis, repetition, variety, transition, pacing, and proportion. This can be accomplished through the use of a well-designed logo, color scheme, and possibly even a theme that connects marketing materials with the interior décor of your dental environment.

FIGURE 8.3



The interior materials and decor of your dental environment should function as an extension of your brand, creating a cohesive brand identity that fuels recognition. Dr. Steven Pilipovich, owner of Dentistry Just for Kids in Terre Haute, Indiana, designed his office with the goal of providing a space that was fun and stimulating for young patients.

FIGURE 8.4



Bright colors, unique materials, ambient lighting that changes colors, a video game room, a playroom for younger children and a separate lounge for parents all contribute to the experience at Dentistry Just for Kids.

FIGURE 8.5



Patient restrooms are an extension of your brand. A strategic use of color can be one way of connecting brand elements. Cobalt blue provides that connection at Dentistry Just for Kids.

FIGURE 8.6



Your “brand personality” should be considered during every stage of the design process, including the design of the building shell. The Dentistry Just for Kids building is an excellent example.

With the world being so technology dependent, your website or social media platforms are usually the first things patients see when researching dental practices. By including a tour of your office online, either interactively or through the use of high resolution photos, you can use your interior décor as a marketing tool to attract new patients. Likewise, there is an innate value in “marketing by leaving the lights on” as a way of attracting potential patients that happen to pass by after regular business hours. The style of the décor in your dental office may interest potential patients on a personal or social level. This is usually the initial reason for a patient’s selection of your office; however, impressions of the interior environment are usually the most superficial in that the interior only acts as a backdrop for the experience about to take place.

Sound

The sense of sound can be captured by the auditory elements incorporated into your dental environment. These are represented by any ambient noise, including but not limited to the type of music played, sound effects, design elements that make noise, etc. Sound machines are growing increasingly popular as a way of incorporating nature into the built environment. Natural elements, such as the sounds of ocean waves or a tranquil forest, have been proven to relinquish patient anxieties.

The inclusion of background sound in your dental environment is a primary way of controlling patient perceptions. It is particularly important to minimize any undesirable sounds made by staff or equipment that could lead to poor perceptions. For example, the model trimmer in the lab may be perceived by patients as the dentist drilling teeth, which may heighten their anxiety. Background sound has the ability drown out undesirable noise, but it can also provide privacy for conversations between patients and staff. Pandora and other satellite radio companies have become extremely popular as a way of matching the music played in your office to the lifestyles of your patients.

Touch

The sense of touch can be captured by the tactile qualities of all interior surfaces in your office. A touch point can be described as any point of contact between your practice brand and the patients you treat, either before, during, or after their first visit. Based on this definition, touch also provides the physical connection between your patients and marketing materials.

Touch points also include the physical qualities of the selected materials and furnishings or touch-responsive technology such as lighting. Textiles are one of the most noticeable features in dental environments. The feel of a textile has the ability to create a sense of comfort away from home. Soft or textural fabrics make your patients feel comfortable and more at ease. Likewise, in healthcare settings, patients prefer the warmth of wood over the coldness of metal.

With the world being so technology dependent, your website or social media platforms are usually the first things patients see when researching dental practices. By including a tour of your office online, either interactively or through the use of high resolution photos, you can use your interior décor as a marketing tool to attract new patients.

FIGURE 8.7



Your website and social networking platforms are extensions of your “brand personality” and may have the most impact on patient perceptions. What better way to project a fun space for kids than with a website designed around images of children smiling and laughing, fun shapes and bright colors.

FIGURE 8.8



There is an innate value in “marketing by leaving the lights on.” By offering glimpses into the office after hours, your dental environment can function as a marketing tool for potential patients that pass. This photo of Dr. James McCreary’s new dental office located in Pensacola, Florida is an excellent example.

Smell

The sense of smell can be captured by the aroma of your dental environment or individual spaces within it. One trend that has become increasingly popular is the use of essential oil diffusers. These are used primarily in the waiting area in an attempt to provide a positive association for patients upon entry. Different scents can evoke different feelings in patients based on their memories of that scent. For example, citrus evokes the feeling of energy, summer time and sun. Orange and lemon in particular are also often associated with cleanliness. Lavender and pine, on the other hand, can evoke a sense of relaxation and alleviate stress. Meanwhile, vanilla and fresh cut grass have been found to elevate mood.

More recently, refreshment bars with fresh coffee have also contributed to the overall scent of the dental environment. Surprisingly, coffee is one of the most widely accepted smells because for most people it brings to mind the memories of childhood and connections with family. Unlike taste, the positive and negative reactions to smell are learned over time, making it difficult to find one scent to please everyone.

FIGURE 8.9



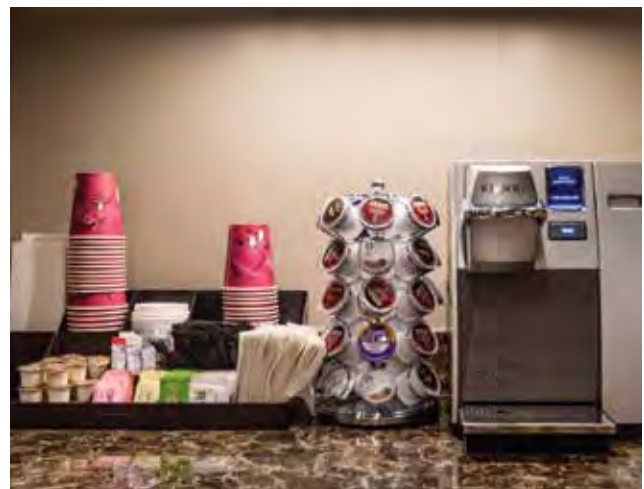
Refreshment bars are becoming an integral part of the dental environment in an attempt to add to the sensory experience for patients as shown in the office of Dr. Rodney Baier in Atlanta, Georgia.

Taste

The sense of taste can be evoked by anything you provide for your patients to put in their mouths. This can be anything from the food and drink provided in the reception area to the polishing paste and fluoride used in treatment. As mentioned previously, refreshment bars have become a primary provider of taste in the dental environment. With more emphasis on beverages, refreshments have become a way of diverting patients' attention away from the anxiety of waiting for the dentist. Natural drink offerings, such as pitchers of water with fresh fruit or cucumber slices are a great way of supporting health and relaxation.

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FIGURE 8.10



The greater the selection in beverages, the more this will cater to the personalized needs of younger generations.

Four Ways to Create a Brand that Your Patients Will Remember

Establish a color scheme.

Select colors that are meaningful to you and your patients. Neutrals will increase the longevity of your design, while pops of color give it “personality”. Sometimes it can be difficult to select a color scheme that will resonate with patients. A good place to start is to by drawing inspiration from something local that your patients can identify with. Color theory suggests that color alone can have lasting effects on patient experiences.

Create a unique and easily recognizable logo.

It is best to work with a professional graphic designer or branding consultant in establishing a logo that caters to you and your practice values while incorporating your selected color scheme.

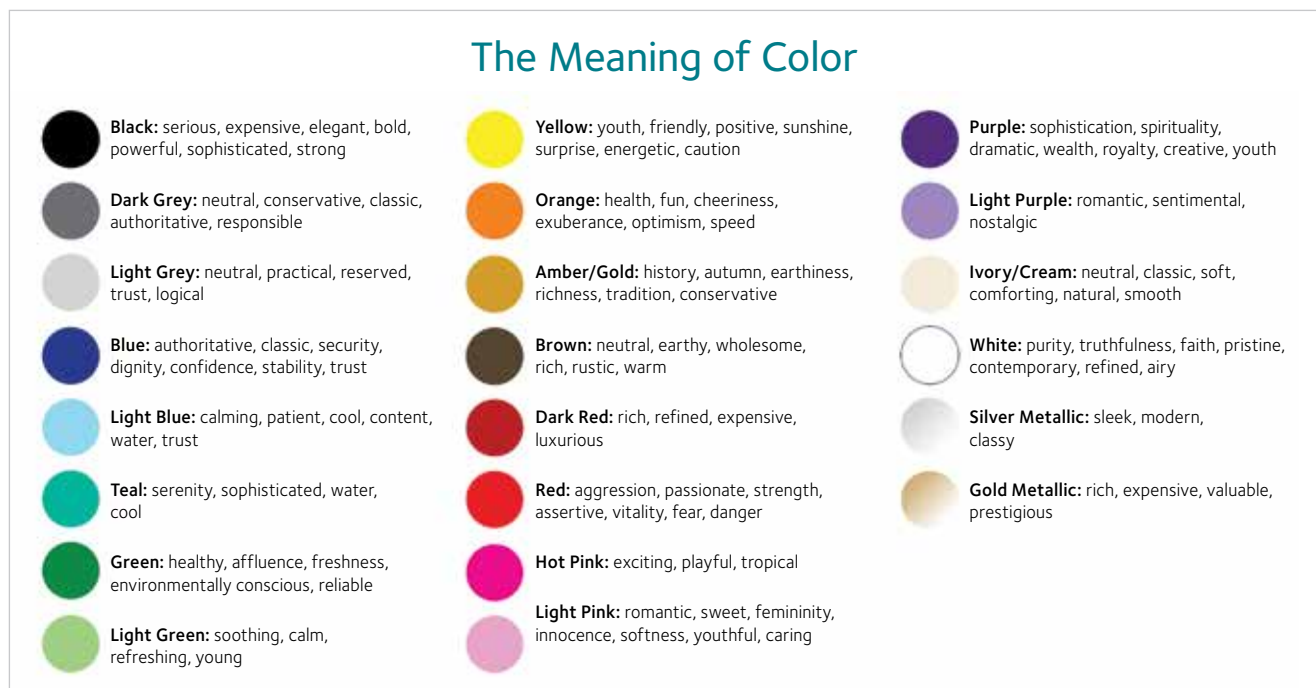
Commit to your brand.

This means reproducing your logo over and over until it becomes engrained in the mind of your patients. Every choice in regards to the practice should reflect your brand personality, from marketing materials and networking sites to the interior design. A change as small as fresh paint can make all of the difference in connecting your brand with your interior.

Jumpstart your new brand with a unique promotion.

This will help to familiarize existing patients as well as new ones with your new brand. Interactive giveaways are becoming increasingly popular as they allow doctors to connect with their patients on a more personal level. Also, by giving away something exciting, whether everyone gets something or only a single individual, patients are more likely to be involved with your marketing efforts in the future because it gets them excited!

FIGURE 8.11



Creating “The Experience”

The combination of sensory design, branding and the qualitative variables of your dental environment create “the experience” that is most important to recruiting new patients and maintaining your existing base. When making interior design and branding decisions, consider these implications:

Design Implications

- Contemporary, luxurious décor is imperative and should contribute to your practice brand story. A neutral foundation with design features that can be easily changed will allow you to keep your dental office current and relevant. Paint is the easiest and most cost-effective update. Others include changing the fabrics on guest chairs, using inexpensive, nicely framed poster art that can be changed out and updated accessories.
 - Technology should be considered as part of the ambient environment. Technology can completely change the ambience of a space while providing different opportunities for patient participation depending on its application.
- The design of your dental environment should tell your practice brand story in more than one way, with your logo in the form of signage clearly displayed within the space. Material, lighting, furnishing, and accessory selections should all contribute to the experience your practice brand provides.
 - Design elements should be incorporated into the dental environment in an attempt to captivate more than one of the five senses. Only through a combination of senses will a user truly experience a space.
 - Restrooms should be considered an integral part of the experience.
 - A space for entertainment or participation should be provided in adding to the experience. Anything you can provide to your patients as a way to ease their anxieties will result in a positive perception of your dental environment.

FIGURE 8.12



For a complete brand experience, your logo in the form of unique signage should be clearly displayed immediately upon entry. The addition of lighting can make it even more prominent as seen in Hohl Orthodontics of Lincoln, Nebraska.

FIGURE 8.13



With a strategic selection of interior materials, lighting, furniture and accessories, you have the ability to project your brand personality three-dimensionally throughout the entire dental office.

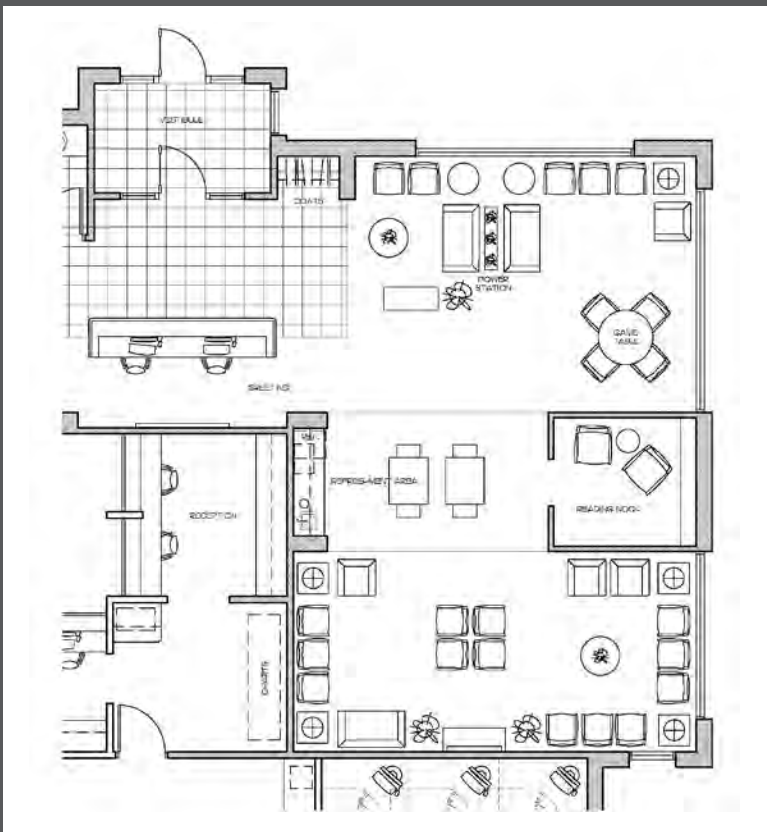


FIGURE 8.14

This periodontal office to be built in Wichita, Kansas for Dr. Jason Wagle offers multiple opportunities for entertainment and participation. Patients can charge their devices at the power station, indulge in coffee and treats in the refreshment area, relish a moment of solitude in the semi-private reading nook, or take a moment to catch up on some work at the game table.

Branding Implications

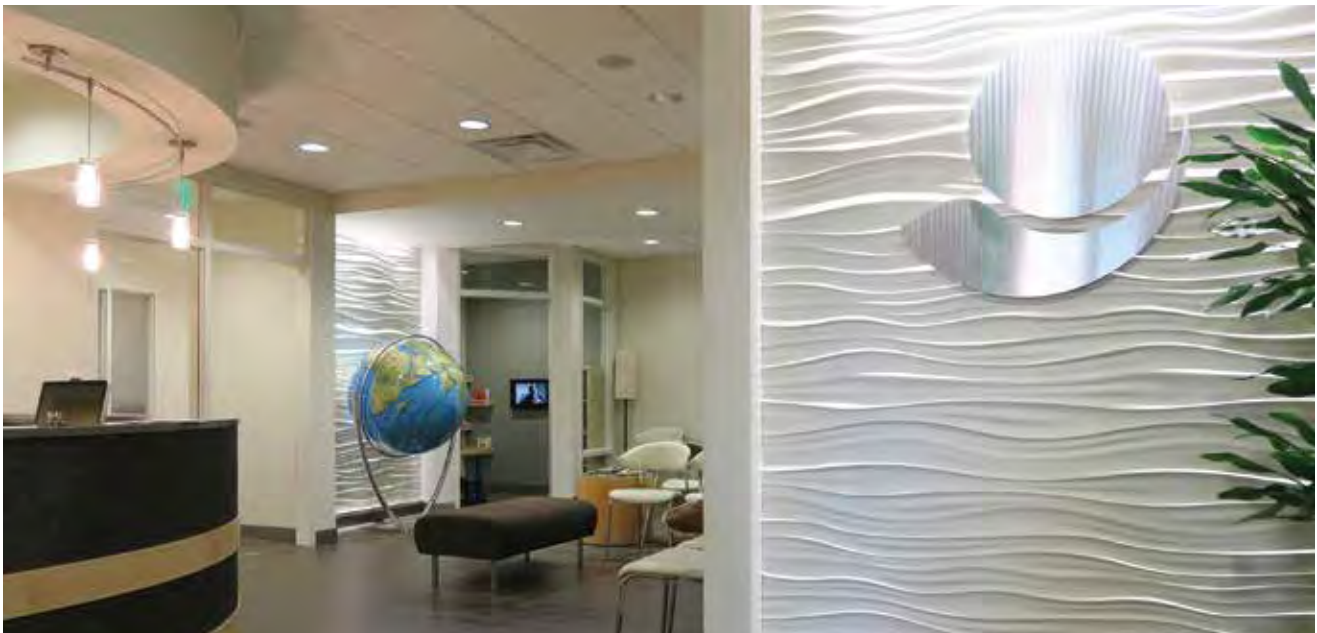
- Design your practice brand in a way that focuses on the lifestyle values of your patients. Since they define themselves by the services they consume, your brand story should project quality, affluence, luxury and exclusivity. The addition of culture can also contribute to a positive experience.
- Your brand story must begin outside of your dental office, be visible upon approach, and continue through the entire facility, providing multiple opportunities for your patients to experience your brand.
- Your practice brand should be considered in every decision you make about your dental office. From the preliminary programming phase of the project to the overall design and flow, the music played, the beverages offered, the marketing materials provided, the forms of communication utilized, and, most importantly, the service you and your team provide.

- The brand experience should include some form of entertainment that contributes to the brand story.
- Restrooms provide another opportunity for brand projection. They can either tell the entire brand story, or act as a small vignette of the larger picture.

Qualitative Variables

- There should be quality in the design and brand concept, utilizing materials, finishes, lighting and furnishings in a trendy way. Quality in the design of your office is what will bring them in.
- With the expectation of charging a premium price for your services, your patients will expect quality in the service they are given. Quality in the service is what brings them back.
- Quality in the experience is also important in attracting patients to your office. The incorporation of technology along with consideration in captivating the five senses will create a unique, valuable experience.

FIGURE 8.15



Your brand story should begin as soon as patients approach your facility. At Genesis Orthodontics in Lincoln, Nebraska, this unique textural logo wall can be seen through a clear glass entry door, making it immediately identifiable to new patients. In an attempt to be attractive toward their younger client base, this office followed the design implications of an Apple Store, where stark white materials act as a backdrop for well-integrated technology.

FIGURE 8.16



This 42" internally-lit globe functions as an extension of the Genesis Orthodontics brand's emphasis on technology, while incorporating a level of entertainment for patients in waiting.



FIGURE 8.17

A connection of your logo to your office interior is necessary in creating a brand that will resonate with patients. The marketing materials used by Genesis Orthodontics are yet another extension of their successful practice brand.

Case Study – Carnes Crossroads Dental

Dr. Douglas Walker, owner of Carnes Crossroads Dental, developed a very unique concept for his new 10-chair general dental office to be built in Summerville, South Carolina. Ultimately, he wanted a space that revolved around the notion of connecting with patients on a more personal level. This is made even more apparent in his tag line, “Experience Personalized Dentistry.” However, Dr. Walker describes it as more than just a tagline because it reflects his team’s passion to really know and understand those who trust them with their care.

Dr. Walker drew inspiration for his color scheme and logo from his town’s historic entertainment venue, The Green Barn. Originally standing at a main intersection in town, the barn was recently relocated to be an integral part of the developing master-planned community of Carnes Crossroads. Dr. Walker chose this iconic structure as his inspiration because of its historical value and the focus on its restoration into the new community. The interior material selections then came with ease, since he had already found his inspiration.

FIGURE 8.18



Dr. Walker drew inspiration for his color scheme from their town’s iconic entertainment venue, The Green Barn.

FIGURE 8.19



A primarily neutral color scheme with the inclusion of “pops” of green was the selected color palette for Carnes Crossroads Dental in Summerville, South Carolina.

Dr. Douglas Walker, owner of Carnes Crossroads Dental, developed a very unique concept for his new 10-chair general dental office to be built in Summerville, South Carolina. Ultimately, he wanted a space that revolved around the notion of connecting with patients on a more personal level.

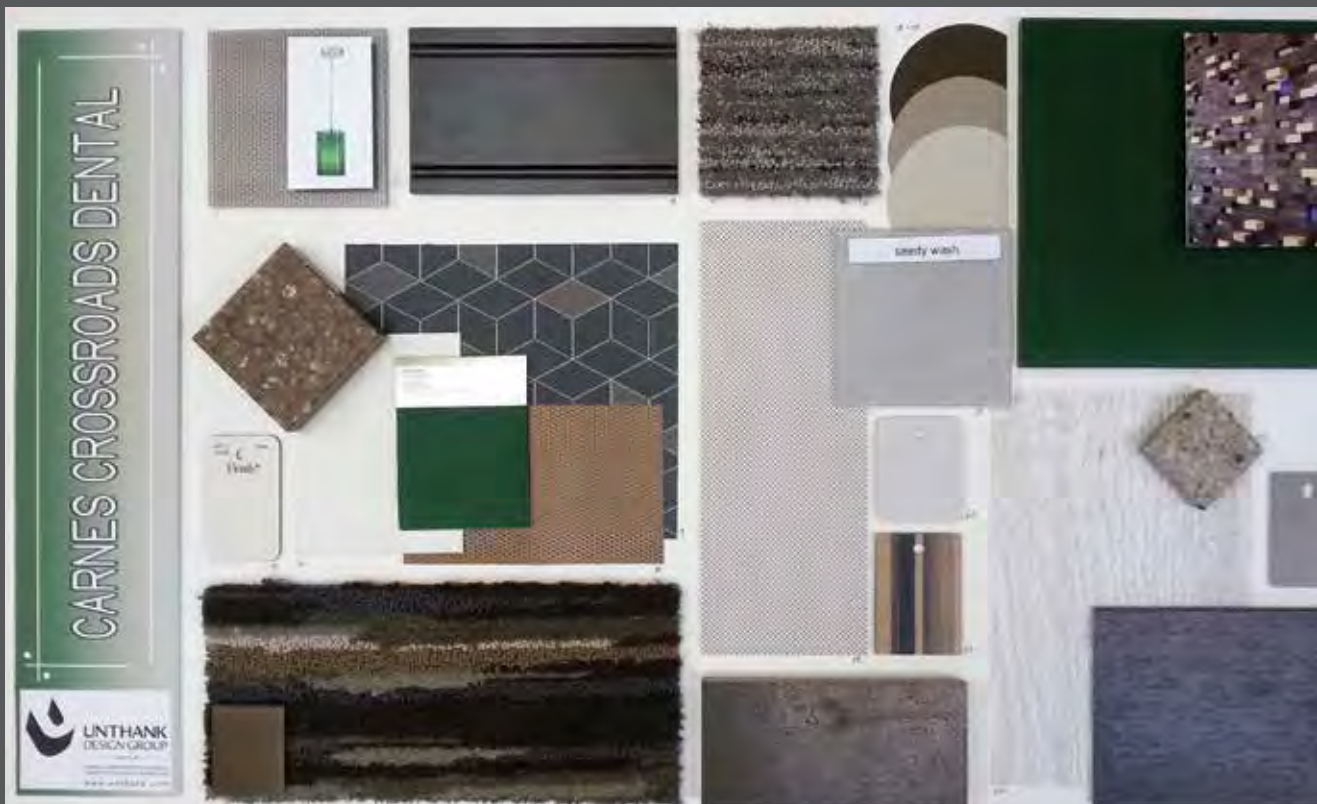
FIGURE 8.20



The logo and corresponding marketing materials for Carnes Crossroads Dental use color and local imagery in an attempt to connect with patients on a more emotional level. This is a wonderful example of how all materials should be connected.

The incorporation of a natural wood wall with two-by-fours that undulate in and out is reminiscent of the rustic wood that makes up The Green Barn. That will then act as a backdrop for the unique logo of Carnes Crossroads Dental and when backlit, will be a primary focal point upon entry. Green accents in the furniture and lighting add pops of color but do not overwhelm the senses. One request that Dr. Walker had regarding interiors was the incorporation of beautiful finishes, particularly in the waiting area, that would make a lasting impression. A plush carpet with a large scale pattern that mimics an area rug was used in combination with a stunning quartz transaction top and unique 3Form details. Sliding barn-style doors that open into treatment along with abstract but natural artwork will also add to the Carnes Crossroads brand experience. Carnes Crossroads Dental is scheduled for completion in 2017.

FIGURE 8.21



The interior décor of your office should function as a visual extension of your practice brand, further engraining it in the minds of your patients. A successful brand projects emphasis, repetition, variety, transition, pacing, and proportion, all of which can be seen in the finish selections for Carnes Crossroads Dental.

Summary

Ultimately, your patients expect quality, not only in the services you provide, but also the experience they receive. This is usually the deciding factor as to whether a patient comes back to your office in the future. If they are willing to pay for the finest in care, then they expect an experience in the service itself. The most successful dental environments are those that provide the best service.

Contributor Biography

Nikki Skomal, Associate I.I.D.A., is the Director of Interior Design for Unthank Design Group located in Lincoln, Nebraska. With intensive research on branded environments during her graduate coursework and over seven years of experience as a design professional, she has had the opportunity to work on multiple branded environments in both hospitality and healthcare settings.

Ms. Skomal is a nationally recognized, award-winning designer who has been actively involved with the American Society of Interior Designers (A.S.I.D.) and more recently the International Interior Design Association (I.I.D.A.) with an emphasis on commercial design. She is also an active participant in Nebraska Women in Architecture, which focuses on women networking in the design community.

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Chapter 9:

Exterior Considerations





Chapter 9:

Exterior Considerations

By Bruce Morrison, Jacque Russo, D.D.S., R.N., and Stephanie Morgan, R.I.D., L.E.E.D.

LEARNING OBJECTIVES

- Know the key components to consider when designing your office on a new site or in an existing building
- Understand critical building design concepts and construction material selection
- Learn key concepts about facility security
- Understand the role of a landscape architect

Building a new dental facility may be one of the most expensive financial commitments you will ever make. It will require countless hours of planning and execution. It is essential to get it right from the start by beginning with the end in mind. Specifically, you will need to determine your vision and long term design goals. Once you secure the proper site to support those goals, you can focus on creating a safe and comfortable space for patients and staff. Part of this is planning the external details of your practice, such as parking, landscaping and lighting. While more and more patients are developing their initial impressions of your practice based on information they find online, the external appearance of your practice is the first thing they see when they pull into the parking lot or walk up to the building. It shapes their opinions and is an opportunity to draw them in and welcome them.

Placing Your Building

Orientation

For a dental office, building placement should be relative to sun exposure. Generally speaking, you want to limit direct sunlight coming into your most occupied spaces, which are your operatories. Having operatories face north is preferred as you will not encounter glare or heat gain. It is also a good idea to not have your waiting area exposed to the south or west, if possible. If you don't have the luxury of choosing the perfect orientation for your building, then shading devices such as awnings or trellises or planting shade trees should be considered.

The parking lot should be arranged to allow for two entry/exit points to the building. This will help to separate staff from patient parking. See Figure 9.2.

Door Locations

Having two separate doors, preferably one at the front and one at the rear, is most desirable. This allows an entrance for you and your staff other than the patient waiting area. It also gives sedated patients an exit without having to go through the waiting room. Even though two exits are often not required until an office reaches a certain size, depending on the depth of the space, another exit might be required by fire code. This is important in lease spaces and condos especially, but in a remodel or new building it is usually possible to place doors where needed.

You may not be able to move the existing doors in lease and condo spaces, and most of the time they won't be in the ideal location. The difference between moving the entry door even three feet one way or the other can have a significant impact of the flow of the whole space, as the waiting area and front desk configuration will be constrained by that door. When assessing any existing space verify early on with the landlord if the doors can shift at all.

Structure

An underlying element to always consider when evaluating a space or building is the structure. It is easy to miss a column buried in an existing wall, and it is difficult to know whether a wall is load-bearing or not. Either of these items could potentially make a seemingly perfect space unusable or too expensive if those elements have to be relocated.

For any project in an existing building it is imperative that you have accurately documented plans. Sometimes you will need a contractor's or an architect's help do this. In a new building you have the opportunity to have the form of building follow the function of the layout, so your options will not be as limited.

Utilities

When looking for potential sites, keep in mind that if the utilities such as water supply, electrical service and waste water systems are not close to the new building, you may incur additional costs to bring them to the site or building location.

A dental office has more specialized plumbing needs than most other building types. Extra sinks, as well as waste water systems, add to the loads required to size plumbing. Any increase in septic field area translates to less buildable area on a new site.

Increased electrical demands for dental offices necessitate larger electrical services than typical office buildings. This item will cost a significant amount of money to increase if it's undersized or not available. Smaller offices ranging from 1,500 to 1,800 square feet can get by with 200 amp service. Offices between 1,800 to 5,000 square feet will need a 400 amp service.

Air conditioning tonnage and the capacity for multiple zones is imperative. Many existing facilities will not have enough correctly sized units to work as efficiently for you and your patients' comfort. Dental offices need approximately one ton per 250 square feet.

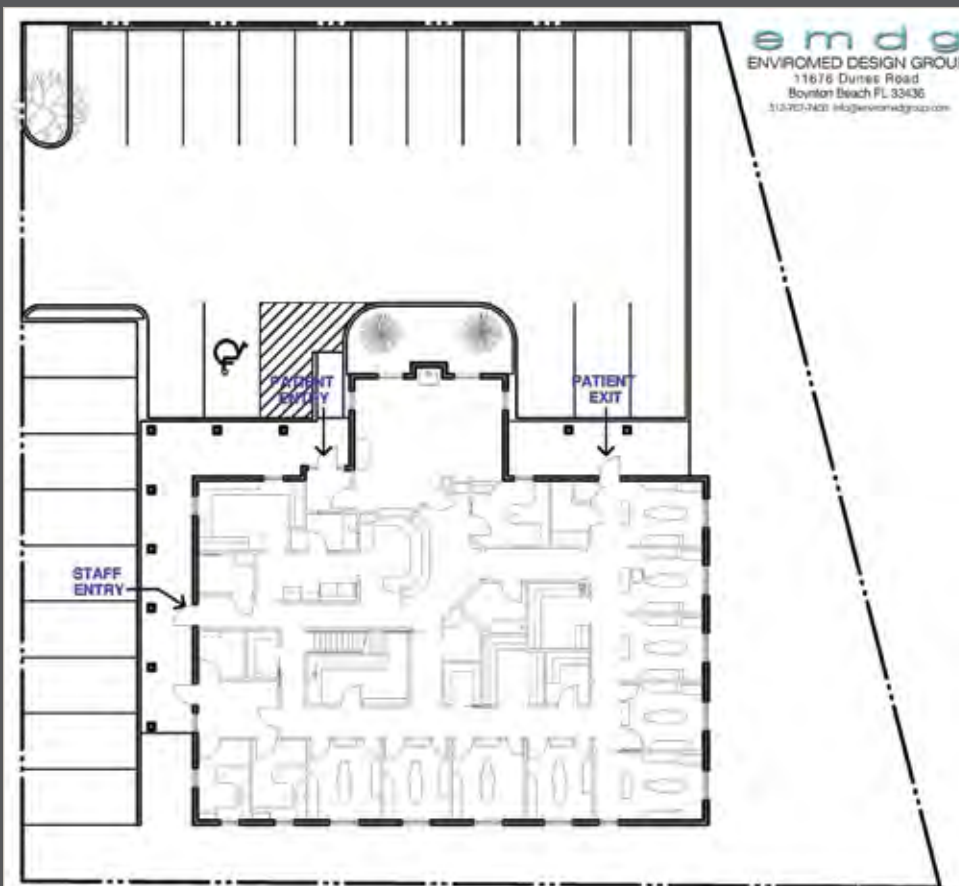
Newer buildings may have or may be required to have a sprinkler system. This will be a large investment for a new building, and may add additional cost in an existing building if the lines need to be relocated.

FIGURE 9.1



The south-facing front of this dental office in Loveland, Colorado demonstrates how awnings can be used to provide exterior shade. It also shows how the orientation of a building can lend itself to creative sustainable solutions, as seen in the solar panel awning.

FIGURE 9.2



The parking lot should be arranged to allow for two entry/exit points to/from the building.

Visibility, Access and Security

In today's world of Internet searches, Yelp reviews, and Facebook, you don't need to place your office on the most expensive prime retail corner. However, in order to maintain your current patient base and attract new ones, the visibility and location of your office is still fundamental. You need to study the demographics of your prime areas as well as become aware of the potential direction the neighborhood is going. You do not want to heavily invest in an area that is not thriving, but neither should you tie yourself to something that is overvalued. The only way to avoid these predicaments is to plan far enough ahead so that you have everything in place to take advantage of the right opportunity.

Signage

If you are looking in a strip center or in a condo development, usually the only visible representation of your presence is a sign. Typically everyone shares a portion of a monument sign at the street, but most of the time your description will be limited to just "Dentist." Unfortunately, this can be easily missed by drivers traveling down a busy road, so pay attention to buildings that may have upper portions of the building that allow signage, especially those that may have the rear facing a busy road.

When remodeling or building your own space, you may have more of an opportunity to do a custom sign with your logo. However, do not assume that you have carte blanche to do whatever you want; most jurisdictions have specific sign restrictions that you have to follow. Your sign should be in line with the style of your neighborhood, office design and office materials. An animated LED sign, although expensive, gives a great opportunity to constantly change your marketing message. Control the brightness of the sign at night and the frequency of the changing messages so that they are not off-putting to passersby or contradict the message of quality that you are trying to express. You will also want to be sure that your sign is clean and in immaculate condition if you have control over this.

Access

This is a factor that is often underestimated when making your decision on location. It might be great that you face a busy highway. But if the only way someone can find your office after they speed by your sign is to make a U-turn and go under a highway, then you will have difficulty getting your patients to your building. The same is true for a strip center or condo complex. If you are stuck in the back of an office complex and the path to your practice's entrance is not clear, then potential patients may get confused or frustrated. Being close to a major intersection is obviously most desirable, but these locations come at a premium price.

It might be great that you face a busy highway. But if the only way someone can find your office after they speed by your sign is to make a u-turn and go under a highway, then you will have difficulty getting your patients to your building.

Security

Being visible from a busy street will keep your building from being easily vandalized, as well as provide a sense of security for your patients. Sufficient parking lot and building lighting are just as important, especially if the building is set back from the road. Motion-activated floodlights will help discourage break-ins in darker areas. Security systems, including motion sensors and video feeds, are pretty typical accessories for the modern dental office. However, the complexity and cost of these systems should be researched in comparison with the true levels of crime in your area. Keeping walkways well lit will help patients and staff entering and exiting the building.

FIGURE 9.3



Exterior signage on a building containing a lease space or condo is preferred for optimal visibility.

In order to maintain your current patient base and attract new ones, the visibility and location of your office is fundamental. You need to study the demographics of your prime areas as well as become aware of the potential direction the neighborhood is going.

FIGURE 9.4



This traditional exterior is a great example of a more residential style.

FIGURE 9.5



Modern commercial spaces use a more clean-lined construction with storefront windows and smoother surfaces.

Building Design and Construction

A well-executed building is your best advertisement. However, if you are looking at a lease space or condo, then you won't have input into the building design. Beware of a facility that looks run-down or is very out of date architecturally, as this will negatively impact your patient's perception of your practice.

An existing building, if it has historical context, might be best left as-is, but its age may warrant having updated exterior materials. Do your research before remodeling as there may be special requirements for what can and cannot be changed. Older existing buildings may need significant upgrades in order to achieve current building codes, and meeting the requirements of the Americans with Disabilities Act (ADA) might be a challenge if the building site has significant grading changes or if stairs are involved.

A new building will give you the benefit of the most flexibility in style. On the other hand, remember that architecture is subjective, and something that is too different from adjacent buildings may be looked on by the public as weird or unattractive. Oftentimes it may be best to stick with the local style, and you will need to verify if there are any particular style or materials covenants to which you must adhere. Avoid the pitfall of creating a building that is too expensive in order to make a statement. Focus on making sure that the flow and function are perfect, and the exterior will compliment this.

Construction Types and Materials

Dental offices are unique building types that can manifest themselves in different ways, depending on stylistic elements, local construction methods and desired architectural appearance. Single or even double practitioner offices generally tend to be in the 3,000–4,000 square foot range. Typically this size lends itself to be designed in a more residential style (pitched roof, siding, brick, divided-lite windows). Some clients actually prefer to present more of a “home-like” environment in order to make their patients feel welcome and comfortable. If your location is in a mercantile area, then a residential structure might seem out of place.

Buildings this size (and especially larger ones) can also be done in a more commercial style, which generally have flat roofs, smoother exterior materials and more storefront type windows. The approach to designing the exterior appearance will be based on these as well as the other factors mentioned before. Whether remodeling or building new, it is important to utilize materials and types of construction that will give you long-term return on investment. Inexpensive components and shoddy construction will continually give you difficulty in maintenance, so you need balance spending more up front to alleviate the headaches of repair down the road.

Dental offices are unique building types that can manifest themselves in different ways, depending on stylistic elements, local construction methods and desired architectural appearance.

Landscape Architecture and Design

If you have the opportunity to landscape your dental office, do not take this task lightly. First impressions can invite patients to your practice walk or encourage them to walk away.

Take a few moments to walk outside your office. Get a feel for the surroundings, as a new patient would see it. Do your trees or shrubs need to be trimmed? Are there berries on the shrubbery that might end up in the path of patients, creating a possible slipping hazard? Look for things that might expose an attention to detail for new or prospective patients. In a healthcare environment, it is critical to instill trust in your patients. Dead or neglected plants inside or outside the office send a subliminal message: if you can't keep plants alive, how will patients fare under your care? Beautifying the walkways, green spaces and entrance to your office can not only increase the patient's comfort level by representing your attention to detail, but it also will share your appreciation for esthetics with them.

If your floor plan requires your operatory windows to face a parking lot or other unattractive view, consider creating an interesting outdoor naturalscape or garden. Examples can include a unique piece of outdoor art or a fountain. Bringing the beauty of the outdoors into the operatory will encourage patients to relax.

If you are looking at an existing development, pay attention to how well the grounds are maintained. If the landlord does not take care of the property's plants and trees, then he or she may have the same attitude toward building maintenance, which might be an issue for you in the long term. Condos will generally have a landscaping master plan, but don't forget to budget for association fees, of which a large portion goes towards property maintenance.

When remodeling an older property, you may have the benefit of having well-established landscaping (large trees, grassy areas, multiple types of shrubbery). This can greatly enhance your building and often provide needed shade to operatory windows. Allow a sufficient amount in your maintenance budget to protect and nurture these elements. If you are increasing the size of an existing building, realize that there may be items like large trees and pervious cover that cannot be disturbed.

Work with a landscape designer to help create a fresh and well maintained look. A landscape architect is well equipped to design outdoor spaces that will not only add color and esthetics, but also give your building a living facelift. The expertise of a landscape architect will also add value to your property and can add curb appeal, which will help in marketing your practice.

For those who are looking for low-maintenance gardens, landscape architects can design these featuring beautiful native plants. Native plants may require less water and fewer chemical applications, and insects like bumblebees and butterflies flourish

If your floor plan requires your operatory windows to face a parking lot or other unattractive view, consider creating an interesting outdoor naturalscape or garden. Examples can include a unique piece of outdoor art or a fountain.

in them. One trend that relies on native plants is called xeriscaping, which is a landscaping technique that reduces the need for supplemental watering or irrigation.

A big advantage of hiring landscape architects is that they're trained to think about landscapes as systems. They will assess your property to help you select the perfect materials, styles, textures, and colors for your landscape project. The proper placement of trees and large shrubs can actually lower energy bills by reducing heating and cooling costs, and a

knowledgeable landscape architect knows exactly where they should be placed. The landscape architect can also advise you where to place "site furnishings," such as trash receptacles and optimum locations for sidewalks, parking lots and signage. They are aware of local code regulations and will handle all the details, saving you time and stress. In the end, landscape architects will design a landscape you will love. It will be a special place for you and your patients to enjoy for years to come.

Summary

We have covered many of the key components to think about when considering the exterior of your practice. As with any endeavor of this size and importance, you must do your research. Develop a vision of what you desire and surround yourself with a professional support system. This support system will help you navigate through the process in order to avoid as many costly pitfalls as possible. The better prepared you are, the better the outcome will be for a successful project and ultimately a successful practice.

Contributor Biographies

Bruce Morrison, Jacque Russo, D.D.S., R.N., and **Stephanie Morgan, R.I.D., L.E.E.D.** are principals at EnviroMed Design Group, a full-service firm specializing in beautiful, ergonomic and functional dental office design. Bruce has 30 years' experience as an architect, 10 of which have been focused on dental office design. Jacque Russo has spent the last 16 years consulting dentists after many years with her own practice. Stephanie, an award-winning interior designer, has been designing dental offices for 18 years. They have extensive experience in this field and know the key components that every dental office needs to facilitate a successful practice. Their clients truly love where they work!

Contact them for a complimentary consultation by email at infor@enviromedgroup.com, by phone at 512.707.7400 or by visiting www.enviromed.com.

Chapter 10:

Ergonomics in the Operator





Chapter 10:

Ergonomics in the Operator

By David Ahearn, D.D.S.

LEARNING OBJECTIVES

- Differentiate and prioritize the two ergonomic facets as they relate to design decisions: organizational and biomechanical
- Understand the organizational ergonomic conditions required to achieve biomechanical ergonomic improvements
- Understand the three essential elements of ergonomic biomechanics in dentistry — visibility, proximity and posture — as they relate to office design

This chapter is an introduction to methods that will safeguard your most critical asset: your health. Ergonomics is the interface between man and machine, and the glue that binds the office that you will build to the treatment that you will deliver. Ergonomics in dentistry is an extremely broad field encompassing everything from the principles of lean manufacturing, which seek to reduce the work involved in any manufacturing process, to neuromuscular goniometry, by which we study stress on our bodies.

Most ergonomic considerations can be categorized as either “organizational,” relating to workflow principles and process simplification, or “biomechanical” which deal with the reduction of fatigue, stress and injury to our bodies which we will address here through the appropriate orientation of the operative environment. Both ergonomic aspects are of equal importance. In this chapter we will explore designing intelligent organizational environmental factors into the operator as a pre-requisite to achieving optimal biomechanical ergonomic function, and then we will touch upon the biomechanical essentials themselves.

You Can't Use What You Can't Reach

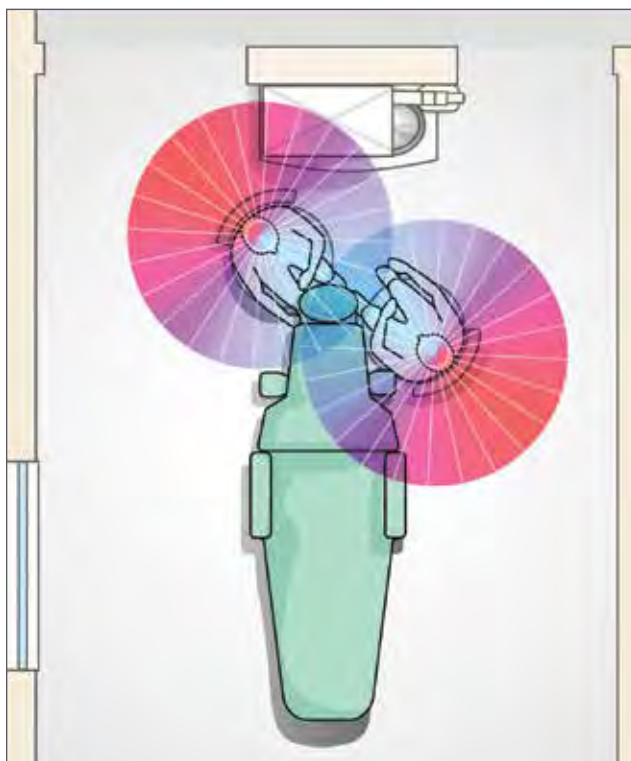
There are many opinions regarding proper operatory layout. However, one irrefutable fact impacts all arguments: dental equipment and supplies positioned outside the primary range of motion for both operator and assistant create an inherent disadvantage — from both a performance and an ergonomic standpoint (Figure 10.1). An operatory layout that does not adhere to this central principle can subject practitioners to compromises that can have long range effects on the practice. Stated simply, “You can't use what you can't reach.”

In addition, patient size and health variations require practitioners to respond with a range of postures to deliver care successfully. Therefore, one of the goals of your operatory design should be to increase the flexibility and variety of available treatment

positions, rather than to create an environment that locks doctors and staff members into a narrow range of delivery options. While a single uniform approach would be ideal from an efficiency standpoint, it is simply unobtainable in an environment of diverse practitioners, staff, patients and procedures.

Unfortunately, dentists often confuse their priorities on two significant operatory equipment issues: 1. handpiece location (the position relative to the doctor) and 2. supply placement. As trained professionals, we tend to focus on instrumentation to the exclusion of all else. However, studies have shown that handpiece use comprises less than 10 percent of a typical procedure time (Kilpatrick, 1974). Proper ergonomics, then, indicate that supply location and postural aspects are the substantially more important concerns. When we understand this fact, we begin to see the design impact supply placement should have on operatory layout, and how inefficiently this has been handled historically.

FIGURE 10.1



The ergonomically acceptable treatment zone — shown in blue in the Range of Motion arcs above — is actually quite limited in area.

Dentists often confuse their priorities on two significant operatory equipment issues: 1. handpiece location (the position relative to the doctor) and 2. supply placement.

In addition, supply complexity and volume have increased significantly over the past decades due to the evolving diversity of procedures and materials that we use on a daily basis. Because few of us realized the impact that this increase in complexity would have on the delivery of care, treatment rooms have inadvertently become increasingly cluttered by storage of excess materials, rendering the operatory more of a warehouse than a location for providing health care. This clutter can raise patient anxiety, obstruct the introduction of advanced technology and increase room construction costs. Its greatest ergonomic impact, however, is that it requires practitioners to extend beyond an acceptable range of motion — reaching, twisting and turning to access supplies. In most

practices, far more procedure time is spent obtaining supplies than is spent actually working in the mouth!

The ergonomic solution to this chaotic arrangement is a two-step process. First, reduce overly-diverse supplies and materials into a standard array that satisfies the most common procedures a practice executes. We refer to this as the “90 Percent Procedure Profile.” A practice’s profile varies depending on the diversity and frequency of the procedures you provide. While the profile for a general practitioner will be considerably broader than that of a pediatric dentist or endodontist, even a cursory review of procedures will provide a clear indication of the core treatments provided by any practice. Second, consolidate these core procedures materials into a modular unit that can be placed within the zone of production, and easily removed for restocking.

Reducing the variety of materials in use is easier than you might expect. Simply lay out all supplies required for your 90 Percent Profile on a large table and group them by usage type. Then, consulting all relevant staff, agree on one item per group and eliminate the rest from the core supply set. Often, this reduction is as much as 80 percent of current volume. The end result is a group of core supplies whose volume can be measured in cubic inches as opposed to cubic feet.

The second step — positioning materials within the zone of production — is most commonly accomplished with modular supply units, typically bins and tubs. A properly designed modular supply setup can easily handle 10 days’ worth of the materials required to accommodate your 90 Percent Profile. These units are restocked weekly in a central supply area. Materials for procedures outside of your profile are also handled by pre-staged tubs or mobile carts. However, their deployment is quite different; they are stored centrally adjacent to the operatory space and retrieved on an as-needed basis. Multiple delivery methods will accommodate ergonomic placement of the tubs, though over-the-head and over-the-patient delivery layouts position materials closest to the production zone and within the most efficient range of motion.

These organizational ergonomic functions — consolidating materials into a comprehensive setup, and placing them within the zone of production — are absolutely essential in setting the stage for biomechanical ergonomic improvement. If the body is constantly forced to turn, twist and reach it becomes impossible to focus on healthy, sustainable ergonomic positioning. Equally important, this inefficiency prevents the timely completion of procedures, causing both financial and emotional stress.

If the body is constantly forced to turn, twist and reach it becomes impossible to focus on healthy, sustainable ergonomic positioning. Equally important, this inefficiency prevents the timely completion of procedures, causing both financial and emotional stress.

Operatory Layout and Biomechanical Ergonomics: Visibility, Positioning and Posture

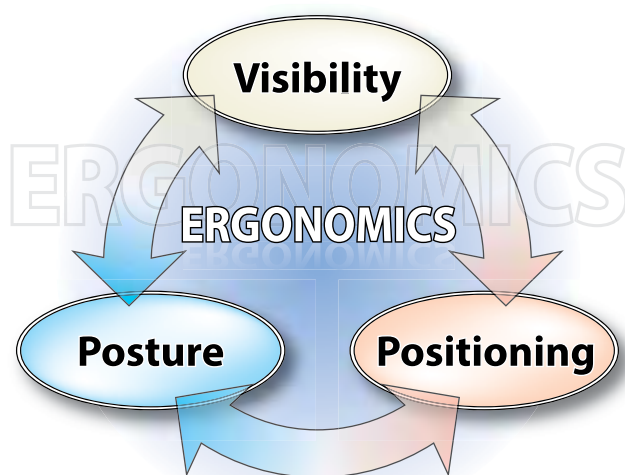
In dental school, we are often told that dentistry is a service business. While this is true — we do serve — what is too often left unsaid is that dental practitioners are also part of a *manufacturing* enterprise; there are very few patients willing to pay for our services unless oral structures are physically transformed. It may be that our most important job is diagnosis and treatment planning, but the fact remains that patients actually pay us to improve oral structures physically. We are therefore manufacturers, actively engaged in the pursuit of a tangible, constructive product. Once we clearly affirm that our service is one of manufacturing, it becomes much more understandable why the three principles of biomechanical ergonomics — visibility, positioning and posture — are of the utmost importance for the health of the entire dental team.

For most people, the term “ergonomics” recalls images of how we hold our bodies when doing particular tasks. The importance of this principle is clearly recognized and easily understood. However, posture is actually the end game in the world of ergonomics. We’ve established that it is necessary to design a positive organizational environment before biomechanical issues can be addressed. Similarly, optimal posture requires proper positioning; support staff and patients must be oriented to allow complete access for all operators — and your operatory design must accommodate this. Further, both of these objectives are subordinate to visibility which makes dentistry possible in the first place.

Visibility

Vision enhancement has become the standard of care in modern dentistry, with two primary methods for enhanced vision: loupes and microscopes. The fundamental distinction between these two methods is not actually the level of magnification (which is variable in both), but rather whether the enhancement is retained with the user or if it is retained with the patient. This chapter is not intended to be a

FIGURE 10.2



Proper posture is only one element of the ergonomic environment. Posture, visibility and positioning are entirely intertwined. To maximize the benefits of one, all must be addressed.

comprehensive discussion on the ergonomic and procedural advantages of these different approaches, but rather a primer to help the reader make the office design decision that's right for them.

Loupes

Few practitioners today practice without loupes. However, while loupes improve visual acuity, the fact is that they do so at the expense of posture, movement flexibility and reduced depth of field, all of which must be specifically accommodated in any office design.

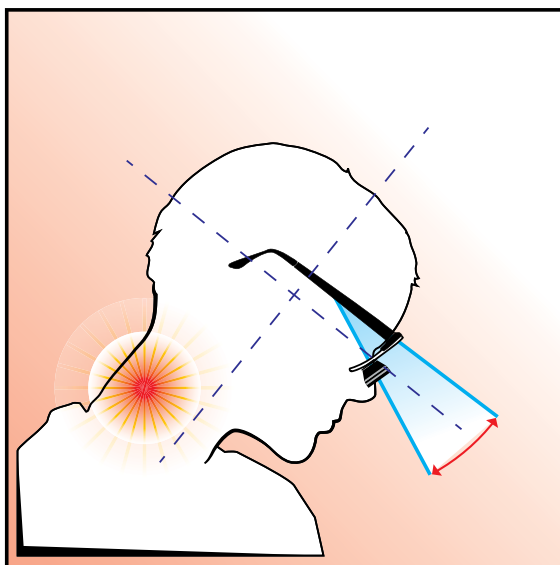
Flip-down loupes, having some limitations in level of magnification and image sharpness, are seen by many as the most primitive form of enhanced viewing. They also may require more repairs due to their complexity. On the other hand, flip-downs do have a number of significant advantages, including full use of natural vision, a simpler transition when communicating with patients, greater adjustability, and the largest declination angle, which has a critical ergonomic impact on neck and upper back health. From a design standpoint, the limited impact flip-down loupes have on natural vision provides a greater flexibility in the placement of supplies, support cabinetry and even handpieces within rooms. Inefficient, spread

out room designs can often be somewhat remedied by the use of flip-down loupes.

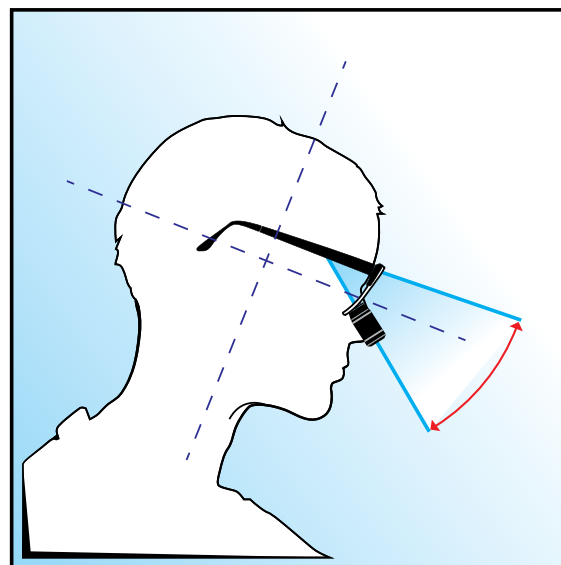
In contrast, through-the-lens loupes have been considered the gold standard for dental care for quite some time, providing increased ease of maintenance, higher visual acuity, and reduced bulk. That said, visibility around the loupe itself severely challenges visual access to all of the other elements of a dental operatory. This can have a significant design impact, as it greatly heightens the need for a reduced range of motion for the user. From an ergonomic standpoint, declination angles on through-the-lens loupes have been much more limited than flip-downs. However, recent advancements by certain manufacturers have allowed the development of through-the-lens loupes with an extremely high declination angle that will allow the head be held in a more upright position during practice (Figure 10.3). This will be of significant benefit to the profession.

Limited declination angles on previous through-the-lens loupes force the head forward. Current advancements in technology allow for much higher declination angles that result in more ergonomic postures while practicing.

FIGURE 10.3: LIMITED AND HIGH DECLINATION ANGLES



Limited Declination Angle



High Declination Angle

Microscopy

Fully upright operator positioning is only possible with the use of microscopy. However, microscopes have two significant ergonomic disadvantages: 1. they lock the operator into a single position for extended time periods, and 2. larger units may impede the dental assistants' access and create difficulties in visual accommodation due to their powerful illumination.

For practices that do benefit significantly from microscopy — such as single tooth or small zone treatment including periodontal plastic surgery, implant placement and endodontics — rooms should be specifically designed for fixed mounted microscopes, the mountings of which must be structurally rigid and shock isolated. Ceiling mount is generally preferred, although this does interfere with room lighting choices.

Positioning

Once visibility has been adequately addressed (through technology choices and supply consolidation/location), ideal positioning becomes possible. Positioning choices between doctor and assistant are a critical component of clinical success. The matchup between doctor and assistant should not be made as part of the practice philosophy but rather as a response to both the preferred positioning of the doctor combined with the relative heights of the respective individuals. Generally speaking there are four main methods of assistant positioning for delivering four-handed dentistry.

These are:

- Side Saddle
- Reverse Overlap
- Leg Overlap
- Standing

Side Saddle

This is both the most common and the least ergonomic position for both operator and assistant. By its very nature, side saddle delivery forces one (or both) of the participants to rotate away from the actual field of activity — the mouth. It was conceived to give the dental assistant access to the wide array of supplies spread across a room, and uses a “belly bar” to prevent him or her from falling in the patient’s lap when returning to the operative area. Side saddle requires the assistant to exercise postural extremes, prevents full four-handed function and reduces the practicality of loupe use by the assistant, due to depth of field challenges.

Standing

While not ideal for long procedures, standing is a perfectly acceptable and sometimes preferable method of positioning for an assistant, especially in cases with a relatively tall doctor and short assistant. This allows the closest positioning to the oral cavity and is physically the least stressful on the assistant’s total body, especially for procedures of shorter duration. Taller assistants will not be able to successfully stand upright in most clinical environments and should be discouraged from doing so.

Reverse Overlap

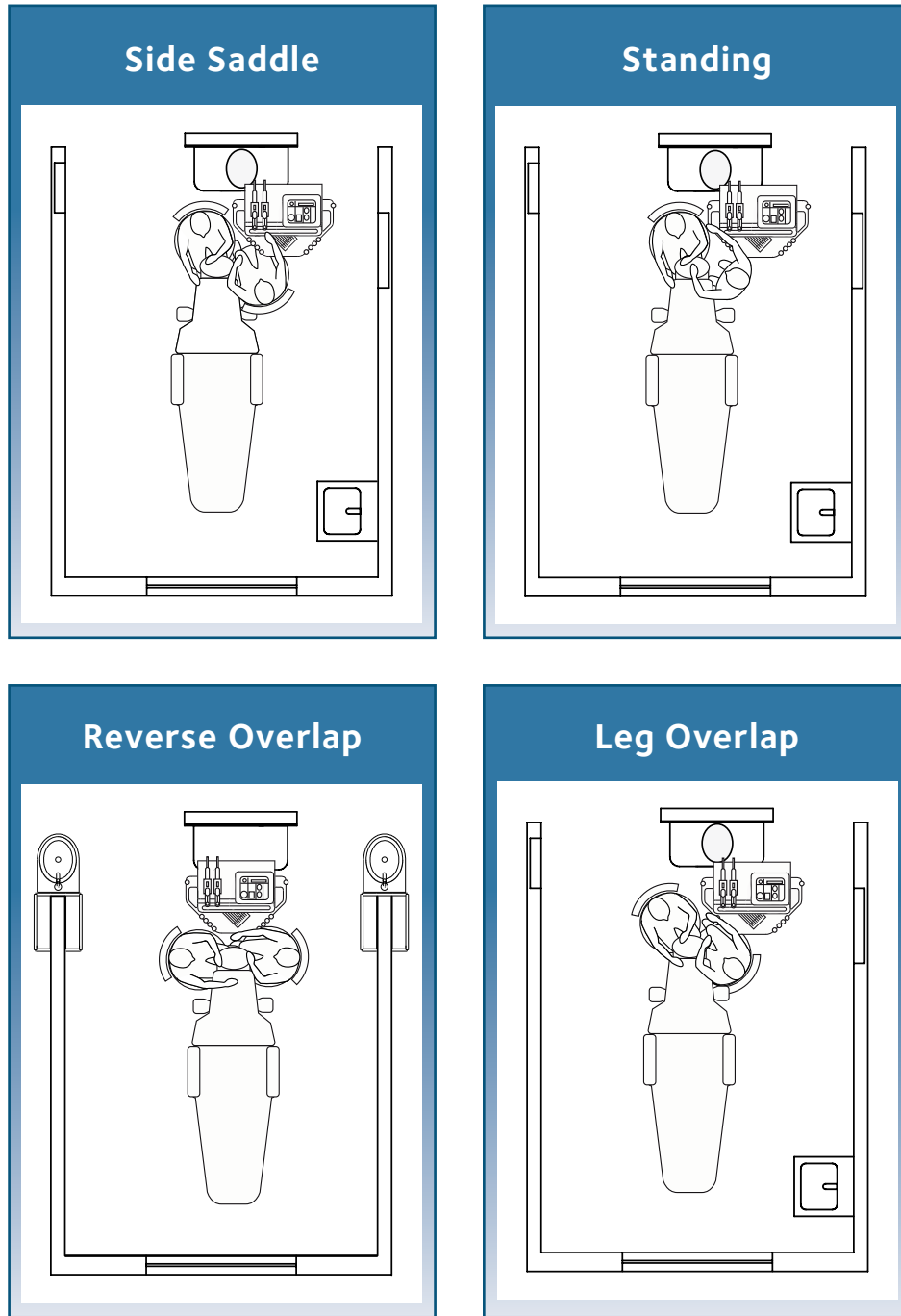
In reverse overlap, practitioners and assistants are seated at the nine o’clock and three o’clock positions. It requires specialized equipment that is not commonly found in North American markets. Reverse overlap does permit narrower room configurations.

Leg Overlap

This positioning was first promoted in the ergonomic literature by Dr. Harold Kilpatrick in *Work Simplification in Dental Practice; Applied Time and Motion Studies* (1974). His time-motion studies clearly showed the benefits of increased acuity by the dental assistants as they related to overall clinical performance. With leg overlap positioning, both operator and assistant directly face the operating field. The effectiveness of this technique is enhanced by the use of shorter focal length loupes, and achieves optimal efficiency when employing consolidated product supply placement, as the position allows the closest seated alignment of operator and assistant within the intraoral zone of production.

FIGURE 10.4

Doctor and Assistant Treatment Positions



Posture

The final element in the biomechanical arena is posture. As we've said, well-designed organizational systems, proper visibility and intelligent positioning are critical foundational elements — but posture will have the greatest observable effect on your body and sustained health over time. Without the knowledge and discipline to maintain good posture, many will find themselves with physical symptoms of trauma in short order.

Figure 10.5 represents what you likely learned in dental school. Unfortunately, this traditional concept for providing dental care is physically impossible (without microscopy). The posture shown in Figure 10.6 provides visibility and accessibility in an ergonomically sound manner that promotes both health and productivity.

Posture will have the greatest observable effect on your body and sustained health over time.

The hand and wrist demands placed upon dental practitioners are somewhat unique in the professional world. Working in the limited area of the oral cavity for extended periods of time can take its toll, especially on hygienists, who are prone to highly repetitive motions. To avoid carpal tunnel syndrome and a host of other neuromuscular conditions, operators should make a conscious effort to maintain a relaxed, neutral hand and wrist position, eschewing prolonged flexion or extension (Figure 10.7).

Many books have been written on the subject of maintaining good posture, but for the purposes of this chapter we will outline the most important considerations.

- The chair should be elevated to create a position where the hip and knee angulation is approximately 110 degrees, rather than at 90 degrees, which is commonly prescribed for clinical work
- Knees should be at least shoulder width apart and slightly bent, at about a 110 degree angle at the hip and knee joints
- Weight should be evenly distributed among the three points of contact with the ground, through both feet and the buttocks (via the stool)
- The back should be upright, with no discernible hunch. However, when in treatment, the entire torso will procline, reducing the hip angle from 110 degrees to 90 degrees. This allows visualization of the oral cavity without constriction of the abdomen or respiration
- The head will, of necessity, be tilted slightly down as if giving a nod and neck tilted forward no more than five to 10 degrees. Note: most through-the-lens loupes require a head tilt that is greater than this.

FIGURE 10.5

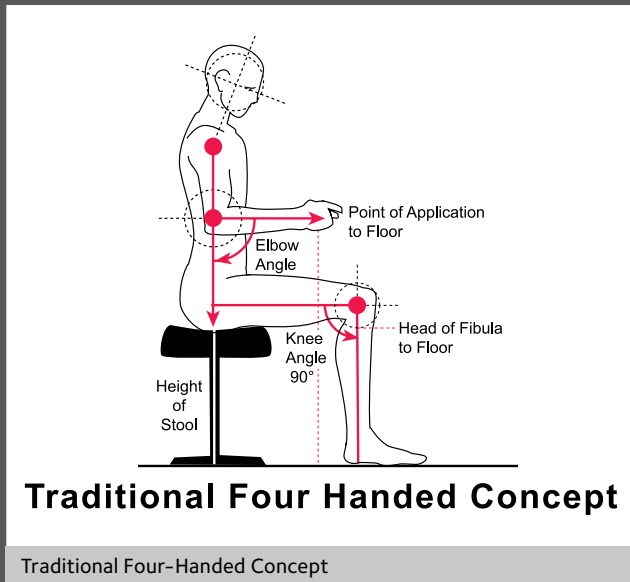
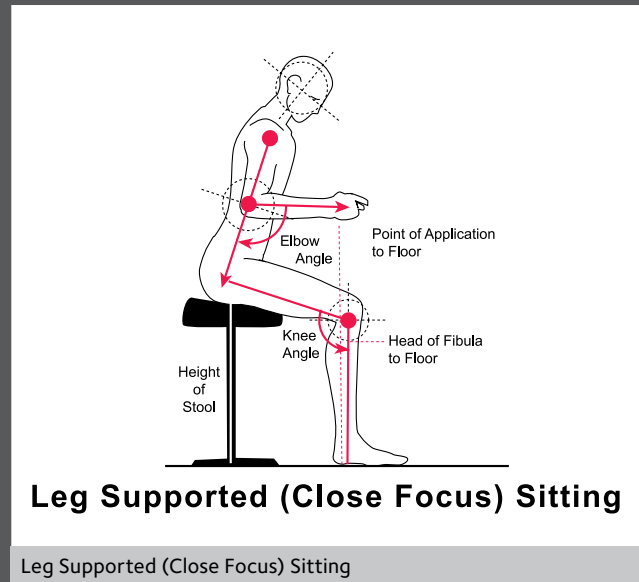
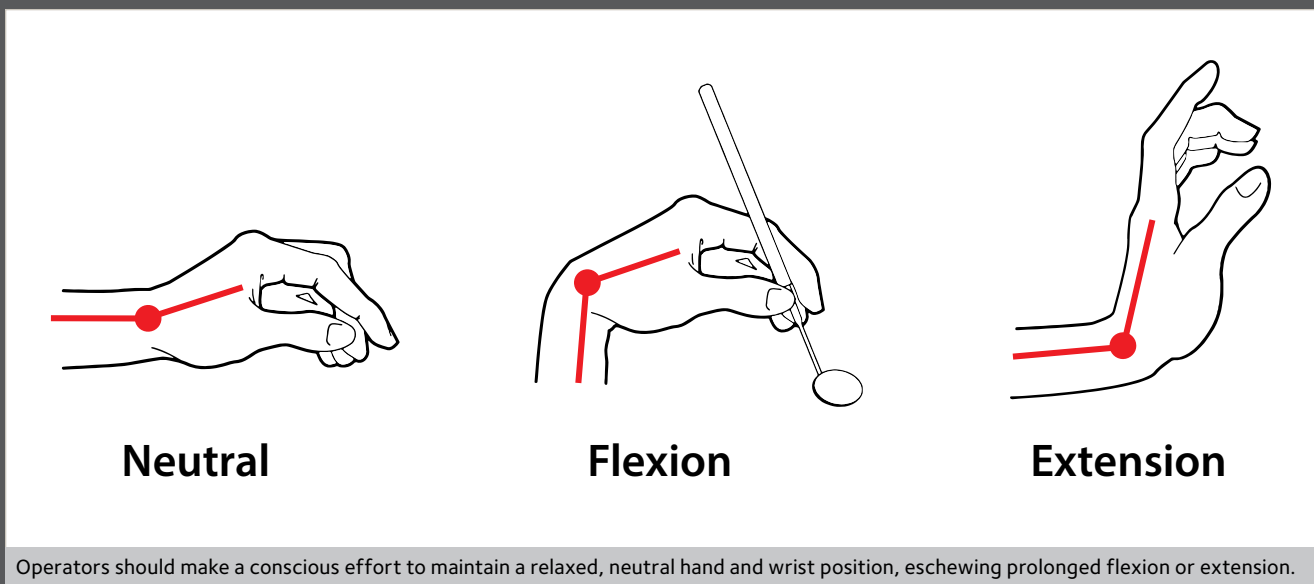


FIGURE 10.6



To avoid carpal tunnel syndrome and a host of other neuromuscular conditions, operators should make a conscious effort to maintain a relaxed, neutral hand and wrist position, eschewing prolonged flexion or extension.

FIGURE 10.7



Summary

If you ask an environmentalist the best time to plant a tree, he'll say "Ten years ago. Barring that, today." The same holds true for implementing good ergonomics. Unfortunately, the multiple demands of an undergraduate dental education often do not permit adequate time and attention to the study of ergonomic science. Further, the speed and complexity of private practice far exceeds that of any teaching environment. As a result, we often pick up unproductive (even destructive) habits early in our practice life that become ingrained behaviors over time. These routines have a negative impact on more than our bodies — they also become the basis for poor design decisions regarding equipment, deployment, and workflow, creating a vicious cycle. As they progress in years, many practitioners suffer back, neck, shoulder and wrist pain or injury that might have been entirely avoided through proper workplace design and use.

Bad habits are hard to break and good habits don't feel comfortable as they are being learned. I strongly suggest that practitioners learn new techniques at the earliest possible stage, preferably prior to designing and building a new practice. If you find that your body resists changing an ingrained behavior, try the following techniques to ease the transition and overcome muscle-memory:

- Practice in a non-critical environment. Spend five minutes a few times each day repeating the motion. In some cases, this can be done outside the working environment altogether with the use of a typodont or in mock procedures with staff members.
- Use visual aids. When making a change to an ingrained behavior, it can help to prompt the conscious mind with a visual reminder: labels, photos, checklists, etc.
- Enlist the help of others. If the action involves your assistant, make sure they know exactly what you are trying to change and why. They can help prompt you on the new method.

Have patience. With effort, your body will internalize the new methods, and the rewards will make the change worthwhile. Remember, proper ergonomic positioning not only reduces strain — when your body and environment are working together in alignment with your task, it also increases productivity.

Contributor Biographies

David J. Ahearn, D.D.S. is a practicing general dentist. He is the president of the office design firm Design/Ergonomics which specializes in creating high productivity practices throughout North America. He was a founding member of the ADA's Ergonomics and Disability Subcommittee and is a nationwide lecturer and contributor to numerous dental publications. He can be reached at www.desergo.com.

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Chapter 11:

Creating a Green Office Environment





Chapter 11:

Creating a Green Office Environment

By Stuart Silk, A.I.A., and Carrie Anderson, L.E.E.D. A.P.

LEARNING OBJECTIVES

- Understand how green design applies to the dental office environment
- Identify green building strategies appropriate to your office
- Build the design team necessary to help you create your green office environment

Consumers and employees alike are becoming more and more conscious of the impact of their surroundings on their health and that of their families. Methods of incorporating green design into your office environment will vary based upon your individual philosophy and your business goals, as well as the type of space you occupy. Whether looking to remodel your current office, relocate to a new existing space or build a whole new building, green building strategies offer the opportunity for high-performance, energy efficient and healthy improvements.

Construction and operation of buildings have a significant impact on our environment. As illustrated by the 2015 United Nations Climate Change Conference and resulting international agreements to reduce greenhouse gas emissions, the world has been mobilized to reduce climate change. The built environment is central to this effort. Impacts of carbon footprints, energy consumption and dwindling air quality must include the construction and operation of buildings.

In addition to overall environmental responsibility, there are measurable bottom-line benefits of green building practices. High-performance mechanical systems reduce operations and maintenance costs while providing improved air quality and enhanced thermal comfort. Energy efficient lighting and daylighting lower expenses while enhancing workplace productivity and providing a more pleasant patient experience.

Buildings account for...

- **73% of electricity consumption in the U.S.**
- **38% of all CO2 emissions in the U.S.**
- **13.6% of potable water (15 trillion gallons per year)**
- **40% of raw materials globally (three billion tons per year)**

Source: U.S. Green Building Council Green Building Facts, www.usgbc.org/articles/green-building-facts. Last accessed on 23 Feb 2015.

Whether looking to remodel your current office, relocate to a new existing space or build a whole new building, green building strategies offer the opportunity for high-performance, energy efficient and healthy improvements.

Green Office Remodel

Time to spruce up your office? A fresh coat of paint, new flooring, or possibly new lobby furniture can be a great way to give your business a fresh face. Careful research of these new products is important to maintaining a green office. Consider using recycled or reclaimed materials. Not only do they reduce waste, but their inherent character can make for interesting stories for your patients. Also consider using materials that are rapidly renewable, such as cork and bamboo. When using wood, find out if it is sustainably harvested. Forest Stewardship Council (FSC) and other certifications give you peace of mind this material is coming from a responsibly harvested forest, rather than diminishing more sensitive resources.

When making design decisions regarding these finishes, you should be mindful of products containing volatile organic compounds (VOC). VOC exposure can result in headaches, nausea, or even long term health risks depending on amount of exposure and individual sensitivity. Unfortunately, VOC are everywhere. Paints, coatings, flooring, furniture and countless other products all contain at least small amounts of VOC. The key to providing your patients and staff with the safest environment possible is to work with your architect and interior designer to identify potential VOC sources and review product data before making your selections. Have your project team check Safety Data Sheets (SDS) for all products where exposure to VOC is a concern. Recommended VOC limits for various products are available from various governmental agencies, including California Air Resources Board and the EPA.

Providing adequate ventilation and minimizing VOCs is vital to a healthy indoor environment.

Green Office Tenant Improvement

Moving or starting a new office is a critical business decision. You want to remain convenient to existing patients while improving visibility to attract potential patients. The space must be the right size for your needs and affordable. You may also consider proximity to public transportation for convenience of patients and staff. Other factors may include the energy efficiency of existing building equipment, condition of existing mechanical systems and access to daylight or potential views.

Evaluating the existing systems of the building will be most critical as they'll contribute greatly to your future operations cost. Consider replacing existing lighting with LED or other efficient fixtures, as well as replacing existing toilets and faucets with low flow alternatives. Look for opportunities to incorporate natural daylight to reduce need for artificial lighting. Existing mechanical systems should also be evaluated as they can be the greatest contributors to indoor air quality. Systems should be sized to ensure adequate number of air changes per hour (ACH) for the size of space and number of occupants. Filtration media such as High Efficiency Particulate Arresting (HEPA) or Minimum Efficiency Reporting Value (MERV) should be used to ensure incoming air is fresh and healthy. Areas of potential indoor pollution, such as bathrooms and chemical storage areas, should be depressurized and ventilated directly to the exterior to prevent contamination to adjacent rooms. A mechanical engineer is a helpful resource to help you evaluate these strategies and implement a system appropriate to your project.

Some of these strategies may increase the cost of your tenant improvement (T.I.) to a certain extent, especially if you decide to upgrade mechanical, electrical and plumbing systems. Your design team should help you evaluate the tradeoffs of this initial investment relative to operation costs over time. You may also negotiate with the landlord to contribute to some of these improvements as an investment in their property.

Consider replacing existing lighting with LED or other efficient fixtures, as well as replacing existing toilets and faucets with low flow alternatives.

Green Building for New Construction

Developing your own building allows you to better ensure stability of future costs while investing in the future of your practice. Without the constraints of an existing structure, you also have the ability to create a select aesthetic to represent your practice to your patients and larger community. Working with your design team, there are a multitude of decisions that will impact the project from start to finish. Start by evaluating the potential sites for their sun exposure, prevailing winds and views. Learn more about the neighborhood by doing an analysis of best visibility to potential patients, walkability for staff to nearby amenities and proximity to public transportation.

Once you start construction there are several green building strategies to keep in mind. Minimizing construction waste will reduce your disposal costs and utilizing a comingled recycling facility will divert remaining waste from landfill. Site design should take into consideration underground or light-colored pervious paving for parking lots to reduce urban heat islands and excessive storm water runoff. (Heat island refers to the phenomenon where cities are inherently warmer than other areas due to large amounts of paved surfaces and buildings.)

Just as with a T.I., electrical, mechanical and plumbing systems should be carefully considered to reduce utility costs over time. Careful placement of doors and windows to maximize daylight reduce the need for artificial lighting and provide a more pleasant interior environment for your patients and staff. These strategies are easily incorporated into the construction of your project and require little to no additional cost.

Other options may require a greater initial investment but may pay back over the life cycle of the building. Increasing the insulation values of exterior walls, roof and windows requires a small initial investment but quickly pays itself back in reduced utility bills and better sound quality. High efficiency mechanical systems require higher initial investment but reduce operation and maintenance costs. These systems often qualify for rebates or tax incentives to offset first investment. Renewable energy systems such as photovoltaics (solar), wind and geothermal systems further reduce maintenance costs and may qualify for state and federal tax incentives. Collecting rainwater for reuse cuts down on your utility costs and minimizes storm water runoff. Green roofs are another strategy to reduce storm water runoff along with urban heat islands. Green roofs reduce the heat island by replacing an otherwise hard surface with vegetation. They also serve to protect the roof material, extending the life of the roof while provide an attractive amenity for patient and staff enjoyment.

Green roofs provide an attractive amenity for patient and staff enjoyment.

Building Certification

Certification allows you to achieve recognition for incorporating sustainable strategies into your project. A number of certification programs are available, both nationwide and local. You should check with your local Master Builders Association for local options. Nationally, LEED and Energy Star are currently the most widely recognized certifications.

LEED stands for Leadership in Energy and Environmental Design, and is a checklist-based certification sponsored by the U.S. Green Building Council. Your project earns points for various sustainable strategies in the categories of site, water, energy, materials, indoor environment, innovation, and regional priority. Total number of points determine certification levels of Certified, Silver, Gold or Platinum. LEED is available for new construction, as well as tenant improvement projects.

Energy Star certification is something you may be familiar with for appliances. Refrigerators, dishwashers, water heaters and other products have long been marked with stickers for their energy use rating. Energy Star certification for buildings was recently developed to encourage energy efficiency and reduce greenhouse gas emissions by buildings. To be eligible for certification, you must demonstrate your project performs better than at least 75 percent of similar buildings nationwide. Certification is renewed annually to continually monitor building performance.

The documentation required for certifications requires careful coordination among your project team as well as various subcontractors and vendors. You should establish your certification goals early on with your team and establish a protocol for tracking documentation and compliance throughout construction.

Why jump through all these hoops? Certification demonstrates your commitment to sustainability in the design of your project. With a plaque on the wall, patients and staff are assured you have done your part to protect their health and the environment. Certification also helps to ensure the sustainable strategies you strive for are actually achieved during construction. Studies show certified projects cost less to maintain than their run-of-the-mill counterparts. Studies also show resale benefits of selling faster and for more money.

Payback of Leed Certified Projects:

- **Nine percent decrease in operating costs over one year, 13 percent over five years**
- **Four percent increase in asset valuation**

Source: U.S. Green Building Council Green Building Facts, www.usgbc.org/articles/green-building-facts. Last accessed on 23 Feb 2015.

Building Your Project Team

The options of green design are vast and can be overwhelming without the proper guidance. Selecting a project team to guide you through these decisions is vital to achieving your goals. In addition to an architect, interior designer and contractor, this team may consist of engineers, equipment consultant or a third-party verifier. Establishing this team as early as possible will best ensure your goals and ideas are integrated into the design.

Establishing this team as early as possible will best ensure your goals and ideas are integrated into the design.

Your architect will assist you with site selection and building orientation in the early stages of design. They'll also work with the contractor on evaluating the cost effectiveness of green strategies and the interior designer in product sections. We've already discussed the role of the mechanical engineer in designing an HVAC system to promote indoor air quality. An equipment consultant will provide recommendations for air sealing, resulting in a more comfortable and energy efficient building.

A third-party verifier is only required if you're seeking certification, but they also bring several valuable skills to the table during design. Verifiers are often trained in energy modeling, to allow you to better predict the performance of your building and the impact of sustainable strategies on overall building performance. They also perform testing of various building components to verify their proper installation and efficient operation. Such testing may include a duct blaster test to verify the ducts are properly installed and sealed, a blower door test to verify the building is well insulated and sealed and a window hose stream test to verify the windows are installed properly and will not leak over time.

Project Team:

- Architect
- Interior designer
- Contractor
- Mechanical Engineer
- Equipment Consultant
- Third-Party Verifier

The options of green design are vast and can be overwhelming without the proper guidance. Selecting a project team to guide you through these decisions is vital to achieving your goals.

Case Study: The Orion Dental Building

When PE Investments approached Stuart Silk Architects to design their new dental building, we were immediately energized by the vibrant neighborhood and stunning territorial views of the project site. The infill lot is located within West Seattle's Admiral Residential Urban Village on a pedestrian friendly street full of small local businesses. Across the street, Hiawatha Park provides views of the Puget Sound and Olympic Mountains.

Despite the advantages of a great neighborhood and views, there were challenges to be addressed. The narrow lot required ingenuity and creativity on the part of the design team and contractors, Constantine Builders. On the side property lines, party walls were constructed of concrete form masonry units (CFMU). This system consists of outer finished masonry block faces held together by recycled plastic webs. Cores of this system are lined with rigid insulation and filled with poured concrete to create the structural wall, insulation and finish all in one. In addition to the material efficiency of this system, the useable floor area of the building was increased by over 400 square feet. The Orion Dental Building was the first commercial building in the Pacific Northwest to use this product.

FIGURE 11.1



Orion Dental Building at dusk

The infill lot is located within West Seattle's Admiral Residential Urban Village on a pedestrian friendly street full of small local businesses. Across the street, Hiawatha Park provides views of the Puget Sound and Olympic Mountains.

FIGURE 11.2



Orion Dental Building street view

Case Study: The Orion Dental Building (Continued)

The design team took advantage of the narrow lot utilizing smart beams spanning full width of the building, allowing the interior spaces to remain free of structural columns. KPFF Structural Engineering worked with the team to troubleshoot the sizing and installation of these beams with a remote staging area and limited access. Mechanical engineers MacDonald-Miller Facility Solutions and installers Merit Mechanical executed a mechanical and plumbing package to maximize the building's usable square footage. An efficient variable refrigerant flow split system eliminated the need for large supply and return shafts while providing heating and cooling to multiple zones simultaneously.

FIGURE 11.3



An outdoor deck provides access to fresh air and natural light.

FIGURE 11.4



Sun shades help minimize heat gain and glare to maintain a comfortable interior environment.

FIGURE 11.5



The interior floor plan was designed with minimal columns to provide flexible office space and maximize views of adjacent park.

FIGURE 11.6



Reception desk with LED lighting

Case Study: The Orion Dental Building (Continued)

When it came to selection of interior materials and fixtures, the team's commitment to sustainability continued. Lighting and plumbing fixtures were identified to reduce building energy and water consumption by over 20 percent. More than 20 percent of the building is constructed of recycled or regionally produced materials. 95 percent of the wood used in the project was sustainably harvested, FSC certified. A green roof was installed to provide habitat, reduce the urban heat island effect, protect the roof membrane and provide additional insulation. On-site parking was located below the building to further reduce heat island effects. Finally, the construction team diverted more than 80 percent of job-site waste to recycling facilities rather than landfill.

The goals of the project required extensive coordination between team members to identify and maximize every opportunity to create a healthier and more efficient building. In the end, a combination of features generated value for the project. Large expanses of glass invigorate the streetscape, provide daylight to the interiors and embrace the nearby park and views. Each square foot of space was crafted with careful consideration.

The project is a unique example of how a building can engage and contribute to a neighborhood's character while creating a functional and desirable workspace.

FIGURE 11.7



Natural light in patient examination rooms provide a more relaxing patient experience.

FIGURE 11.8



A lunch room with natural light and access to an outdoor deck promotes staff health and well-being while improving productivity and job satisfaction.

FIGURE 11.9



The green roof is a critical element to the project, creating a more energy efficient, environmentally beneficial and longer lasting roof assembly.

Summary

The construction and operation of buildings consume considerable amounts of the world's finite resources. A green office environment allows dentists to create healthier environment for patients and staff alike while making efficient use of these resources. There is a growing consumer base actively seeking healthier goods and services for themselves and their families. Harnessing the marketing potential of green design will allow you to reach out to these consumers more effectively. Whether you're remodeling an existing office, finishing out an existing tenant space, or constructing a new building, green strategies are easily implemented to reduce the overall environmental impact while being mindful of budget concerns. Dental offices are a niche market, requiring a specialized approach to sustainable design. You should work closely with your design team to identify which sustainable strategies are best suited for your site, program requirements and short and long-term goals.

Contributor Biographies

Stuart Silk, A.I.A., founded Stuart Silk Architects in Seattle in 1981 after receiving a master's degree from the Yale School of Architecture in 1976. Stuart has lectured at University of California Berkeley, University of Washington, University of Edmonton, and at the Venice Biennale. His work has been included in exhibitions at Yale University, Wesleyan University, and at the Global Architecture art gallery. He has served on juries and taught at the University of Washington. Under Stuart's direction, the firm has grown to 22 full-time employees and received regional and national recognition for its innovatively-designed buildings.

Carrie Anderson, L.E.E.D. A.P., is a licensed architect and Project Manager for Stuart Silk Architects. She holds a Master's Degree in Architecture from the University of Washington and a Bachelor's Degree from University of Wisconsin at Milwaukee. She is passionate about sustainable design and healthy building. She founded the SSA Green Team and advocates for implementing green building practices in each project, as appropriate to the individual client and site.

Special thanks to **Andrew Patterson**, **Clint Keithley** and **Karen Chiu** for their contribution to this article.

Stuart Silk Architects is committed to creating multi-generational buildings that are energy efficient, healthy and sustainably constructed. We approach this challenge by observing time-tested passive design principles while actively seeking to educate ourselves and our clients about new technologies, materials and systems. Incorporating old wisdom and new technologies into a comprehensive approach creates buildings that are responsive to the needs of our clients as well as accountable to our community and planet.

Contact Stuart Silk Architects at info@stuartsilksilk.com or visit their website at www.stuartsilksilk.com.

Chapter 12:

Legal Issues Affecting Dental Office Design





Specialty Care For Kids
and
ORTHOPTICS

Chapter 12:

Legal Issues Affecting Dental Office Design

By the ADA Division of Legal Affairs

LEARNING OBJECTIVES

- Become familiar with various laws that can affect dental office design
- Understand the importance of working with qualified legal counsel
- Consider the Americans with Disabilities Act from the start of your design plan
- Understand how HIPAA, state data security laws, and the Payment Card Industry Data Security Standards (PCI DSS) can affect dental office design
- Become familiar with legal issues involving matters such as ergonomics and waste management

Constructing an all-new dental building, remodeling an existing practice, or even building out a space not previously used as a dental office requires patience, planning, commitment, investment dollars, and a great deal of vision. An important part of that process involves anticipating and addressing legal considerations. A broad range of legal concerns may be involved, such as civil rights laws, zoning and building codes, privacy and data security, contracts with architects and contractors, and much more.

The point of this chapter is not to turn dentists into lawyers, but simply to alert you to examples of legal considerations that may affect a dental office design project. This information can help educate you as you prepare to discuss the proposed project with your attorney and negotiate contracts. The goal is to help you be proactive about such matters, rather than wind up in a costly reactive process after the fact, when you may be facing a crisis that could have been averted in the first place. Being proactive can include properly shifting the burden of legal compliance to others who will bear responsibility if they take you down an improper path. For example, if someone is going to require you to make extensive alternations to a new dental building because it isn't "legal," it certainly makes sense for the person who caused the non-compliance (whether the architect or otherwise) to bear the cost, doesn't it?

It is important for your design planning to take into account that there is a wide variety of federal, state, and local laws that affect office design.

Applicable Laws

A variety of laws come into play when designing, altering, or building a dental office. It is important that your dental office comply with all applicable laws. That said, this introductory design book cannot, nor does it purport to, fully address every legal requirement. That is among the many good reasons why it is prudent for dentists involved in developing a new or remodeled office to obtain professional advice from a qualified attorney, and a qualified architect and/or contractor.

Perhaps surprisingly, some of the first law that many dentists consider at the beginning of an office design project is actually a civil rights law, and not a zoning law or building code. At the federal level, the Americans with Disabilities Act (AwDA) imposes minimum requirements regarding accessibility for individuals with disabilities. Similar state and local laws may impose more stringent requirements than the AwDA. State and local zoning laws and building codes may impose a wide array of additional requirements for purposes such as safety, as well as for disability access. Zoning laws must typically be addressed in order to commence construction. In addition, laws on issues such as ergonomics, data security, and waste management have the potential to shape dental office design decisions. The bottom line: the AwDA may be a good starting point to think about when it comes to dental office design, but there are other laws that also come into play.

A variety of laws come into play when designing, altering, or building a dental office. It is important that your dental office comply with all applicable laws.

Examples of Design Issues Affected by Federal, State and/or Local Laws

Your design planning should take into account the wide variety of office design issues that may be affected by federal, state, and local laws, such as:

- Handicapped parking
- Curbs and ramps
- Stairs and elevators
- Doorways and halls
- Door opening force
- Restrooms/toilets
- Public telephones
- Drinking fountains
- Carpeting
- Floor surfaces
- Fixed or built-in seating (with allowance for wheelchair)
- Signage
- Countertop width
- Emergency alarms
- Shelving and coat rack height
- Wall mounted protruding objects in pathways
- Light switch placement

Examples of additional considerations that may be relevant regarding where and how a dental office may be constructed include:

- Zoning
- Land use restrictions
- Environmental laws (e.g., regarding hidden structures such as underground tanks)
- Required easements
- Safety requirements, such as fire protection
- Storm water run-off requirements
- Facility security
- Data safeguards, such as secure storage and disposal

Americans with Disabilities Act

Among other things, the Americans with Disabilities Act helps persons with disabilities access places of public accommodation. A public accommodation is a private entity that owns, operates, leases, or leases to a place of public accommodation. For purposes of the AwDA (and many similar state laws), most dental practices qualify as places of public accommodation, and therefore must comply with the requirements of the AwDA related to accessibility. The AwDA is not specific to dental offices, but it does cover dental offices, including home offices.

Before addressing what the AwDA means for dental office design, here is a word about why it is important to comply. The AwDA allows private individuals to bring lawsuits in which they can obtain court orders to stop discrimination against individuals with disabilities. If an individual sues successfully, the defendant may have to pay the individual's attorney's fees. Individuals may also file complaints with the Justice Department, which is authorized to bring lawsuits in certain cases. The Justice Department may seek monetary damages and civil penalties up to \$75,000 for a first violation, or \$150,000 for any subsequent violation. Remedies can be severe, and can include a court order to implement expensive alternations to bring a facility into compliance.

A claim of discrimination against an individual with a disability could also be brought under Section 1557 of the Affordable Care Act if a covered dental practice (such as a dental practice that bills Medicaid) fails to comply with the appropriate AwDA standards.

In addition to complying because it is legally required, compliance can help make your office convenient for all visitors, reduce liability risks, and expand your patient base.

Now that the reasons for compliance with the AwDA are clear, let's talk about what you need to do. The AwDA requires that places of public accommodation — including entry areas, treatment rooms, restrooms, business office, etc. — meet certain accessibility standards.

Let's take the easiest compliance requirements first: the ones for existing facilities. With limited exceptions, the AwDA requires that architectural barriers in an existing dental office must be removed to the extent that doing so is "readily achievable," whether or not the office is planning renovations. The AwDA regulations describe "readily achievable" as something that is "easily accomplishable and able to be carried out without much difficulty or expense."

To remove barriers, you need to know they exist. And under the law, it is your responsibility to know. A disabilities compliance audit can be helpful in this regard. Information about potential barriers in your office can come from various sources. Perhaps you, your family or friends have disabilities. Maybe patients have made complaints, or you or your staff have watched individuals with disabilities traverse your office with some difficulty, and they may want to contribute their input. It can be valuable, and a good risk management tool, to have a disability rights group help with your audit.

In addition to complying because it is legally required, compliance can help make your office convenient for all visitors, reduce liability risks, and expand your patient base.

Once you've identified barriers to access, the focus becomes what types of barrier removal are readily achievable. In most cases, this may include the simple ramping of a few steps, the installation of grab bars where only routine reinforcement of the wall is required, the lowering of telephones, and similar modest adjustments.

Other examples of barrier removal that may be considered readily achievable for a private dental office may include:

- Making curb cuts in sidewalks and entrances
- Rearranging furniture
- Adding raised markings on elevator control buttons
- Replacing doorknobs with lever-type openers

The U.S. Department of Justice recommends prioritizing the removal of barriers in existing facilities because you may not have sufficient resources to remove all existing barriers at one time. These priorities are not mandatory, and you are free to exercise discretion in determining the most effective "mix" of barrier removal measures.

The first priority enables individuals to get through the door. It recognizes that providing physical access to a facility from public sidewalks, public transportation, or parking is generally preferable to any alternative arrangements in terms of both business efficiency and the dignity of individuals with disabilities. The second priority is providing access to the areas where goods and services are made available to the public. The third priority is providing access to restrooms (if restrooms are provided for use by customers or clients). The fourth priority is removing any remaining barriers, for example, lowering telephones.

The standard of readily achievable barrier removal does not mean the office must be "fully accessible." It does mean, however, that a prudent dentist may wish to undertake an audit of which barriers to access exist, and remove them if it can be done without significant difficulty or expense. And keep in mind that applicable state or local laws in addition to the AwDA may impose even more stringent requirements that would require additional compliance steps. With certain exceptions, measures taken to comply with barrier removal requirements must comply with the applicable AwDA requirements for alterations to an existing facility, so is it prudent to consult a qualified attorney or professional before making decisions regarding barrier removal.

With certain exceptions, measures taken to comply with barrier removal requirements must comply with the applicable AwDA requirements for alterations to an existing facility, so is it prudent to consult a qualified attorney or professional before making decisions regarding barrier removal.

In contrast to the barrier removal requirements for existing facilities, alterations (remodeling, renovations, etc.) must be made so that, to the maximum extent feasible, the altered portions of the facility are readily accessible to individuals with disabilities, including individuals who use wheelchairs. New construction must be designed and constructed so that it is readily accessible as defined in the Act and applicable standards. The standards are very specific regarding many requirements, such as those pertaining to parking lots, entrances, doors, operatory size, counter heights, restrooms, elevators and more. Moreover, if Section 1557 applies, a dental practice must comply with the set of AwDA standards specified in the Section 1557 regulations.

You will want to be able to rely on your architect or contractor to make sure all your compliance ducks are in a row. For example, it is prudent to ask the attorney who reviews proposed agreements related to the renovation or construction to make sure that the legal obligation for compliance with the AwDA as well as other applicable laws and regulations rests on the appropriate party, such as the architect or contractor. Among the factors to keep in mind:

Renovations/Alterations

- All alterations that could affect the usability of a facility must be made in an accessible manner to the maximum extent feasible. For example, if during renovations a doorway is being relocated, the new doorway must be wide enough to meet the applicable construction standard for accessibility.
- When alterations are made to a primary function area, an accessible path of travel to the altered area must also be provided. Any area where people carry out one or more of the major activities for which a facility is used is considered to be a “primary function area” under the AwDA. For example, the waiting room and examination rooms at a doctor’s office and other areas where the public is served are primary function areas. The bathrooms, telephones, and drinking fountains serving that area must also be made accessible. These additional accessibility alterations are only required to the extent that the added accessibility costs do not exceed 20 percent of the cost of the alteration. For example, if you remodel a private office in which you sometimes consult with patients, there would have to be an accessible path of travel from the entrance to your office to the private office, unless the cost of making an accessible path of travel would exceed 20 percent of the cost of remodeling a private office. In that case, make as many of the changes as you can without going over the 20 percent limit, in the following order of priority: entrance; route to the primary function area; restroom (one unisex or one for each sex); public telephones; drinking fountains; other elements.
- If you are only redecorating, such as painting or wallpapering, you are not required to make structural changes to enhance accessibility unless the redecoration affects the usability of the building or facility. The same is true when the only features being altered in a primary function area are the windows, hardware, controls, electrical outlets, or signage, and when you are doing normal maintenance such as reroofing. In addition, when you are simply removing barriers as discussed above, there is no requirement to make the additional improvements. However, the law prohibits you from doing things that would make your office less accessible. For example, if you re-carpet, you should not install high pile carpeting that would make use of a wheelchair or walker more difficult or impossible.

When alterations are made to a primary function area, an accessible path of travel to the altered area must also be provided. Any area where people carry out one or more of the major activities for which a facility is used is considered to be a “primary function area” under the AwDA.

New Construction

- All new construction of places of public accommodation must be accessible.
- The entire office must comply, including areas not intended for public access, such as the dentist's private office, file areas, etc.
- Only a specified number of certain elements, such as parking spaces and drinking fountains, need be made accessible in order for a facility to be "readily accessible."
- A dental office is required to have an elevator even in situations when many other businesses would not. A professional office of a health care provider is an exception to the general rule that an elevator is not required in a facility under three stories or with fewer than 3,000 square feet per floor.
- Certain non-occupiable spaces, such as elevator pits, elevator penthouses, and piping or equipment catwalks, need not be accessible. A basement areas built for utilities (e.g., furnace/plumbing, etc.) may fall into this category; however, office use of a basement (e.g., as a filing room) may make the basement part of the public accommodation and require elevator access.

Landlord-Tenant Issues

The AwDA places the legal obligation to remove barriers or provide auxiliary aids and services on both the landlord and the tenant. The landlord and the tenant may decide by the lease who will actually make the changes and provide the aids and services, but both remain legally responsible. Dentists who lease office space may wish to shift some of the burden of compliance with the AwDA in their lease to their landlords, e.g., with respect to the common areas of the building. Your lease should specify your responsibilities and those of the landlord for complying with the AwDA. And you may want to ask your landlord to indemnify you if the landlord fails to honor its responsibilities, since you will both be responsible under the AwDA. Of course, the landlord may ask for your indemnification in return. You should inform the attorney you hire to review the lease that you intend to use the space as a dental office and whether you are covered under Section 1557, and you should discuss with the attorney the lease allocation of responsibility for AwDA compliance.

The AwDA places the legal obligation to remove barriers or provide auxiliary aids and services on both the landlord and the tenant. The landlord and the tenant may decide by the lease who will actually make the changes and provide the aids and services, but both remain legally responsible.

Tax Relief

To help businesses comply with the AwDA, deductions and tax credits are available in certain circumstances. A business that incurs eligible expenses annually for the purpose of bringing itself into compliance with the AwDA may be able to use these tax incentives each year:

- **Tax credit**

The Disabled Access Credit may provide a non-refundable credit for small businesses that incur expenditures for the purpose of providing access to persons with disabilities. An eligible small business is one that that earned \$1 million or less or had no more than 30 full-time employees in the previous year; the business may be eligible to take the credit each year they incur access expenditures.

- **Tax deduction**

The Architectural Barrier Removal Tax Deduction encourages businesses of any size to remove architectural and transportation barriers to the mobility of persons with disabilities and the elderly. Businesses may be able to claim a deduction of up to \$15,000 a year for qualified expenses for items that normally must be capitalized. Businesses claim the deduction by listing it as a separate expense on their income tax return. Also, businesses may be able to use the Disabled Tax Credit and the architectural/transportation tax deduction together in the same tax year, if the expenses meet the requirements of both sections. To use both, the deduction is equal to the difference between the total expenditures and the amount of the credit claimed.

For more information, visit the IRS website at www.irs.gov or consult a qualified accountant.

Technical Assistance

Listed below are some government resources to help you understand the Americans with Disabilities Act. Again, it is important to emphasize that these resources focus on the AwDA, and will not have information about other more stringent federal, state, or local law requirements that may apply:

- The U. S. Department of Justice ADA Information Line
1.800.514.0301
1.800.514.0383 (TTY)
www.usdoj.gov/crt/ada/adahom1.htm
- Americans with Disabilities Act Technical Assistance Centers
1.800.949.4ADA
www.adata.org
- The US Architectural and Transportation Barriers Compliance Board
1.800.USA.ABLE
TTY 1.800.993.2822
www.access-board.gov

The following is a list of some of the government publications on AwDA compliance that may be helpful to businesses:

- 2010 ADA Standards for Accessible Design
www.ada.gov/2010ADASTandards_index.htm
- ADA Update: A Primer for Small Businesses
www.ada.gov/regs2010/smallbusiness/smallbusprimer2010.htm
- A Guide to Disability Rights Laws
www.ada.gov/cguide.htm
- ADA Technical Assistance Updates from the Department of Justice
www.ada.gov/taprog.htm
- Current text of the Americans with Disabilities Act of 1990 incorporating the changes made by the ADA Amendments Act of 2008
www.ada.gov/pubs/adastatute08.htm
- Revised Final ADA Regulation for Title III
www.ada.gov/regs2010/ADAREgs2010.htm

State and Local Laws

In addition to the federal law requirements such as those imposed by the AwDA, you will also need to comply with applicable state and local laws pertaining to disability and access. These laws may impose more stringent requirements and stronger penalties for non-compliance than the AwDA.

Local building codes also include requirements and restrictions that can affect the dental office. For example, plumbing codes may require specific line sizes for drains, based on the number of sinks to be installed, as well as vent pipes. Materials for plumbing, wall fire resistance, insulation and many other building components are also generally mandated by local ordinances. Required setbacks and limits in building height are features that may be determined by local code. Compliance with state and local requirements does not ensure AwDA compliance; even if the local building code official insists something is necessary for or will ensure AwDA compliance, that official may have no enforcement authority or direct role with respect to the AwDA. However, the AwDA allows the Attorney General to certify that a state law, local building code, or similar ordinance that establishes accessibility requirements meets or exceeds the minimum accessibility requirements for public accommodations and commercial facilities. Any state or local government may apply for certification of its code or ordinance. The Department of Justice solicits public comments in writing and at public hearings. This sets the stage to allow a place of public accommodation to argue that its construction or alteration meets the requirements of the AwDA because it was done in compliance with the state or local code that had been certified. A current listing of such certifications can be secured from the Department of Justice.

Local building codes also include requirements and restrictions that can affect the dental office. For example, plumbing codes may require specific line sizes for drains, based on the number of sinks to be installed, as well as vent pipes.

Other Laws and Regulations

A number of other laws affecting dental practice have the potential to significantly impact dental office design. A few are mentioned only briefly here. Have your professional advisors take them, and all legal and regulatory requirements, into account. Some are addressed in more detail elsewhere in this publication.

Ergonomics

Although there may not be dentistry-specific federal ergonomics standards, dentists should consider ergonomics when making decisions related to dental office design. Under the OSHA General Duty Clause, employers have an obligation to keep the workplace free from recognized serious hazards, including ergonomic hazards. Applicable state or local ergonomics laws should also be considered in connection with design decisions. In addition, proactively addressing ergonomics issues in your office design can be good risk management.

Waste Management

Concerns about waste management may dramatically affect office design. Some wastes that have come under regulatory scrutiny include X-ray fixer and developer, mercury/amalgam in wastewater, and solid medical waste. Space needs to be allowed for the segregation of regulated medical waste from other solid waste. Thought should be given to how you will remove mercury/amalgam from the office wastewater. And, what if your state requires, or you on your own choose, the use of water systems that are internal to the dental office and do not discharge down pipes? How will you accommodate a system's space needs? Is this an opportunity to design more creatively?

HIPAA and Data Security

If your practice is a HIPAA covered entity, you must also consider HIPAA compliance when building or remodeling a dental office. HIPAA covered entities must take certain steps to safeguard protected health information (PHI), whether in written, spoken or electronic form. While most of these steps do not involve office design, certain HIPAA provisions, such as facility security, can be affected by design decisions. Qualified legal counsel can help you understand how to comply with HIPAA and how to work with your architect or contractor to implement appropriate safeguards. Failure to comply with HIPAA can result in heavy penalties. HIPAA does not preempt more stringent state laws, so covered entities must comply with applicable state law in addition to HIPAA. Dental practices that are not subject to HIPAA must comply with applicable state laws.

HIPAA covered entities must take certain steps to safeguard protected health information (PHI), whether in written, spoken or electronic form. While most of these steps do not involve office design, certain HIPAA provisions, such as facility security, can be affected by design decisions.

The HIPAA Security Rule, which requires certain safeguards to protect electronic PHI (ePHI), contains a number of standards that can affect dental office design, such as requirements affecting access control, the physical attributes of the surroundings of workstations that can access ePHI, and physical safeguards for workstations that can access ePHI.

The design of your dental office can affect the security of ePHI, which must be safeguarded from threats such as theft, tampering, damage, and unauthorized access. Contingency plans, including accessible data backup, should be in place in the event of a natural disaster such as a flood or tornado, as well as incidents such as power failures. Contingency operations may need to include procedures that allow someone to restore of lost data in the event of an emergency.

Examples of dental office design decisions that can affect HIPAA Security compliance include:

- where to locate any onsite computer servers to help prevent theft
- how to orient the reception desk so that computer monitors and paper documents cannot be viewed by passersby
- whether a backup power source will protect electronic records and permit access in the event of a power shortage

The HIPAA Privacy Rule requires covered entities to take a number of steps to protect PHI in any form, including electronic, hard copy (such as paper documents, photographs, and films), and spoken information, such as:

- having in place appropriate administrative, technical, and physical safeguards to protect the privacy of PHI
- reasonably safeguarding PHI from any intentional or unintentional use or disclosure in violation of the HIPAA Privacy Rule
- reasonably safeguard PHI to limit incidental uses or disclosures

Some dental office design decisions might put PHI at risk and increase the likelihood of a data breach. When unsecured PHI is breached, HIPAA requires the dental practice to notify affected individuals, the government, and, in some cases, the media. A data breach can be expensive, even if the government does not impose penalties for a HIPAA violation. Prudent design choices, along with other appropriate safeguards, can help a dental office avoid HIPAA violations and minimize the likelihood of a breach.

When designing a dental office, keep in mind the division of public and private spaces. Public spaces are areas where anyone, including staff, patients and others (such as mail carriers and delivery people) can see or overhear information. Examples include the waiting room, the break room, and the parking lot. Private spaces are the places where information may be stored, displayed, or transmitted more confidentially. Private spaces include treatment rooms, consultation rooms, and the office area where both physical and electronic files are stored. Consider how traffic flow and access will affect the privacy of PHI in public and private spaces.

The reception area presents a special challenge because it exists in both the public and private spheres. While the receptionist is charged with greeting patients and overseeing the waiting area, he or she may also receive and disclose private information, such as information pertaining to an individual's health condition, treatment, or payment. What are some ways you can design your space so the receptionist can fulfill these seemingly conflicting roles?

When making dental office design decisions, picture yourself as a patient or visitor in the waiting room and imagine the view from this vantage point. Can you see computer screens, or are they adjusted so that information is shielded from public scrutiny? Can you view patient files or schedules of appointments on the receptionist's desk, or does the design of the reception area include a secure, designated area for storage of these materials? When the receptionist addresses a patient's billing or treatment question, can you hear the conversation? Is there an area out of earshot (whether this is behind a closed door, around a corner, or on the other side of a dividing wall) where private discussions can take place?

When making dental office design decisions, picture yourself as a patient or visitor in the waiting room and imagine the view from this vantage point.

Try the same exercise in other areas of the office. For example, how will treatment areas be separated? Using cabinets or partial walls may allow other patients and visitors to see or overhear PHI. Will the treatment environment make it possible to hold a private conversation? Will consultation rooms be isolated and insulated enough to hold confidential conversations regarding treatment and financial plans?

Try the same exercise in other areas of the office. For example, how will treatment areas be separated? Using cabinets or partial walls may allow other patients and visitors to see or overhear PHI.

Another HIPAA concern is the storage of confidential files, both hard copy and electronic. Few practices with paper files have the financial or spatial resources to devote an entire room to file storage, and it may be impractical to keep files constantly under lock and key. It may be appropriate to protect paper files by storing them in locking file cabinets that can be visibly monitored when unlocked.

The ADA Practical Guide to HIPAA Compliance: Privacy and Security Manual can help dentists use a systematic approach to implementing or updating a HIPAA privacy and security compliance program. *The ADA Practical Guide to HIPAA Training* provides a general overview of HIPAA in two levels, one for staff and one for office managers charged with designing and implementing a dental office HIPAA program. These resources discuss security and privacy requirements that may be appropriate to integrate into the design plan. Both are available through the ADA Catalog at adacatalog.org or by calling 1.800.947.4746.

In addition to HIPAA, state data security laws and the Payment Card Industry Data Security Standards (PCI DSS) can influence your office design decisions. For example, the law of your state may require secure storage and secure disposal of certain kinds of sensitive personally identifiable information (PII), such as documents that contain a social security number, credit or debit card number, or driver's license number. Many states have laws requiring notification in the event of a data breach involving PII. Investigating suspected breaches and providing required notification can place a heavy burden on staff time and financial resources. PCI DSS requires businesses that accept credit and debit card payment to physically secure "media" containing payment card data (including computers, removable electronic media, paper receipts and reports, and faxes), and to destroy such media when it is no longer needed for business or

legal reasons. Designing the dental office to include secure storage and disposal can help you comply with applicable data security laws and industry standards.

Data security concerns can influence decisions such as facility security (e.g., door locks, window placement and locks, alarm systems), storage for hard copy documents, computers, and electronic media, access to devices such as fax machines, printers, and photocopier machines, and data disposal (e.g., a shredder or a locked bin for materials awaiting shredding or incineration). Although many HIPAA and data security compliance issues do not involve office design, making prudent design decisions that help safeguard PHI and PII can help protect your patients, your employees, and your practice from the consequences of data breaches and identity theft.

Summary

As any seasoned dentist knows, the days of dentistry being relatively unregulated are long past. A short while ago, it was OSHA and the AwDA. Today regulations also include HIPAA and other privacy and security laws as well as waste management. Tomorrow, who knows? The importance of keeping up with regulatory developments cannot be overstated. They will affect not only how you practice, but also the design elements of your practice environment. Relying on experts "in the know" about legal requirements, and shaping your contracts with them to protect you and assure compliance, is one of the best ways for you to proactively address this important aspect of dental office design.

The interplay of federal, state, and local laws varies from jurisdiction to jurisdiction. A prudent dentist will consult and rely upon competent professionals for advice. A qualified lawyer can help you understand what is required and draft contracts that obligate your architect and contractor to be responsible for the compliance of your dental office design with applicable laws and to provide insurance and indemnification to protect you.

Chapter 13:

Dental Office Design Competition: Case Studies





WHERE SMILES START

BALLARD
ORTHODONTI



Chapter 13:

Dental Office Design Competition: Case Studies

By Wells Fargo Practice Finance

LEARNING OBJECTIVES

- Describe the history of the Dental Office Design Competition and its value to the dental community
- Identify the five key design criteria for well-designed dental practices
- Understand the competition categories and the unique practice characteristics they award
- Know the most important points in effectively completing a DODC entry form

By now you probably have many ideas for your new dental office design — but how do you turn your concepts into a practical, affordable, and functioning office? It's useful to review what others have done for inspiration and helpful insights, and one of the best venues for well-designed dental practices is the Dental Office Design Competition (DODC). Co-sponsored by Wells Fargo Practice Finance, Dental Economics, the ADA and ADA Business ResourcesSM, the DODC recognizes outstanding achievements in dental practice design and showcases competition winners every year at the ADA Annual Meeting and online at www.dentalofficedesigncompetition.com.

In fact, an excellent way to gain valuable perspectives on how to focus your design objectives, overcome challenges, and make your vision a reality is to examine case studies of previous DODC entrants. Who knows — perhaps your dental practice will become a design competition winner!

DODC: An Inspiration to Assist New Doctors

The Dental Office Design Competition was started in 1999 as part of a learning symposium offered by Matsco, now Wells Fargo Practice Finance. While working with doctors applying for practice purchase or start-up financing, Matsco discovered that many practitioners were uncertain where to turn for help in developing the design for their new dental practices. Doctors had plenty of ideas, but no context for understanding which ideas were useful, and which were counterproductive. A design competition proved to be an excellent way to showcase well-designed offices as a learning tool for dentists planning to build or remodel their practices.

As the competition grew, Matsco joined with *Dental Economics* magazine and the American Dental Association to formalize and co-sponsor the national Dental Office Design Competition. A panel of judges from the dental practice design, practice management, and dental healthcare disciplines was selected to help develop a judging process that was objective and fair. Every DODC entry receives careful consideration by at least two judges. If a judge has been involved in any way with an entrant — as an architect, designer, consultant, or friend — he or she must decline to review that entry. A point system is used to score entries based on a variety of design criteria. All top entries are reviewed by all judges for final determination of winners in each category.

While members of the DODC judging panel rotate periodically, the mix typically includes architectural planners who are also dentists, interior designers specializing in dental practices, technology and equipment consultants who specialize in dental practices, practicing dentists who have experienced the office design-and-build process, ergonomic consultants specializing in the dental field, and dental practice management consultants.

Determining a Design Competition Winner — Five Key Criteria

The Dental Office Design Competition recognizes those dental offices that most effectively express the practice philosophy of the practitioner and demonstrate a thoughtful assembly of design characteristics associated with an up-to-date dental facility.

According to DODC judge Pat Carter, interior designer and owner, PDG-Practice Design Group, “We’ve always been concerned that some people think the Competition winner is simply the one who spends the most money. What we have been pleased about is that it isn’t typically the one spending the most who wins.”

So who does win? The DODC judges are remarkably consistent in expressing what they’re looking for in a winning practice. Below are the five key factors in determining Dental Office Design Competition winners.

1. Achieves Functional Balance

A functional balance of operational, technological, and design features, expressed as the fulfillment of the practitioner’s personal vision, is the overriding element that drives the judges’ pick of winners in each design category.

DODC judge Gregory R. Liberatore, D.D.S., Liberatore Family Dental, expresses it this way: “A winning practice needs to incorporate all the principles of architectural design, clinical design and function, and ergonomics, and needs to take into account the budgeting of the project and integration of technology. All of the parts must come together in a well-designed project.”

Pat Carter adds, “Congruency, aesthetics, function — those are the big design elements. In completing the entry form, we’re asking them to express what it is they were trying to do in their remodel, lease space or ground-up project. I’m looking to see that the result is congruent with their vision, and that the design appears to solve their stated problems or expand their capabilities. And we’re looking for effective function — we place a lot of value on a well-functioning office.”

2. Meets Stated Objectives

Every DODC judge has stated that winning practices demonstrate through both their narrative and photographs how the chosen design efficiently and effectively addresses the office needs identified by the practitioner. The completed project illustrates that they understood their goal and executed it well.

As DODC judge Jeff Carter, D.D.S., architectural planner and owner, PDG-Practice Design Group, states, “Award winners are driven by a compelling vision that they were able to execute in their design and articulate in their competition entry form. We’ll find a thread running through the narrative with these practices — they needed more space, better technology, more functionality, an open, friendly environment — whatever it is, we find that the vision does actually show up in the practice plan and entry photos.”

Dr. Liberatore adds, “Every application gives us an opportunity to see whether the entrant has thought through the design project and understands why they’re doing it. They let us know why they started from scratch, or why they built a free-standing office and what went into that. The better they understand it, the better they are at executing the plan. We evaluate whether the outcome successfully met the plan and goals outlined in their entry form.”

3. Utilizes an Effective Floor Plan

Several judges have expressed that the floor plan submitted with the DODC application tells a good part of the story as to whether the design is ultimately successful.

Judge Michael Unthank, D.D.S., owner and architect, Unthank Design Group, states, “I basically approach the competition by first looking at the planning to make sure the office performs like a well-oiled machine on behalf of the practitioner. I want to see if it’s an efficient plan laid out in terms of zoning and flow for both the staff and patients, from public to private spaces, and accommodates patients who need privacy.”

All of the competition judges agree that the floor plan needs to have long-term utility so that it supports efficient patient flow and ready access to necessary equipment and services throughout the life of the dental office.

4. Incorporates Updated Equipment

DODC judges are looking to see that the entry is technologically up-to-date with systems that create efficiencies, are safe, and are comfortable for the practice. Computer and digitally-driven technologies are at the forefront of today’s most advanced dental equipment. These technologies not only position practices for a successful future, but also deliver multiple benefits to the practice. Ultimately, doctors are able to provide a higher level of care to their patients with high-level technology, increase efficiencies in scheduling so they can get more and better work accomplished with less chair time, and increase profit potential by raising average fees as they deliver state-of-the-art services.

As Dr. Unthank states, “The technology functions and treatment settings should all be integrated. Does the practice have the clinical ability to access information and use technology for patient education, entertainment and distraction? I look at all of the support functions in relation to the treatment area, and efficiency from the standpoint of no wasted steps.”

5. Looks Professional and Appealing

And finally, to be selected as a DODC winner, it’s important that the practice has general physical appeal to patients and presents professionally to instill confidence. Dr. Unthank emphasizes, “Patients have no way of evaluating the quality of services you’re providing. They base their assumptions on other factors, and those that are most influential are tangible. The built environment becomes incredibly important in communicating the quality of the practice. Is there an overall professional presentation to ensure the patient’s confidence in the doctor’s abilities?”

Understanding Competition Categories

The Dental Office Design Competition features several unique design categories in which practices can compete. Competition entries are considered for all categories for which they qualify. Below are some of the judges' thoughts on determining winners in these categories.

Dental Office Design of the Year — Small Practice

(one to two practitioners working regularly in the practice)

- Excels at the five key design parameters for determining a DODC competition winner
- May have a more modest design budget and floor plan

“Entrants will be slightly different because of the physicality of office needs — clinical needs, ergonomic needs, functional needs. We tell practices to look beyond the budget. Remember, it’s all to scale.”

— DODC judge Dr. Gregory R. Liberatore.

Dental Office Design of the Year — Group Practice

(three or more practitioners working regularly in the practice)

- Excels at the five key design parameters for determining a DODC competition winner
- Successfully meets the challenge of designing more complex work spaces while managing patient and staff flow patterns

Since these are larger dental facilities, judges look more closely at patient flow patterns and whether or not an appropriate amount of space was used. More space does not necessarily translate to a more efficient office.

Dental Office Design of the Year — Outstanding New Dentist Practice

- Satisfies key design parameters for dental practice design winners
- Effective design with a more modest design budget
- May emphasize technology over aesthetics as new practices are often building their functional workspace from scratch

“We’re looking for creativity on a budget, which in many ways is much more difficult than investing high dollar amounts in office design.”

— DODC judge Dr. Jeff Carter

“New practices need to create an office that isn’t lopsided — don’t spend all your money on equipment and ignore the impact when people walk in. This is a greater challenge now for new dentists as equipment costs are quite high, so it’s hard to know where to distribute the funds.”

— DODC judge Pat Carter, Interior Designer

Dental Office Design of the Year — Outstanding Specialty Practice

- Satisfies key design parameters for dental practice design winners
- Demonstrates that they have overcome the unique design challenges for their particular specialty in regards to functional work space, patient flow patterns, technology solutions and aesthetics

“Specialty practices represent a harder design challenge as each specialty has entirely different clinical goals, so it requires more thoughtfulness to come up with effective design solutions.”

— DODC judge Dr. Gregory R. Liberatore

Dental Office Design of the Year – Outstanding Design Efficiency

- Satisfies key design parameters for dental practice design winners
- Meets challenge to create a highly functional office within a limited amount of space

The Design Efficiency category considers the degree of functionality within the available square footage and whether the space is as productive and effective as possible for all its users.

DODC Case Studies

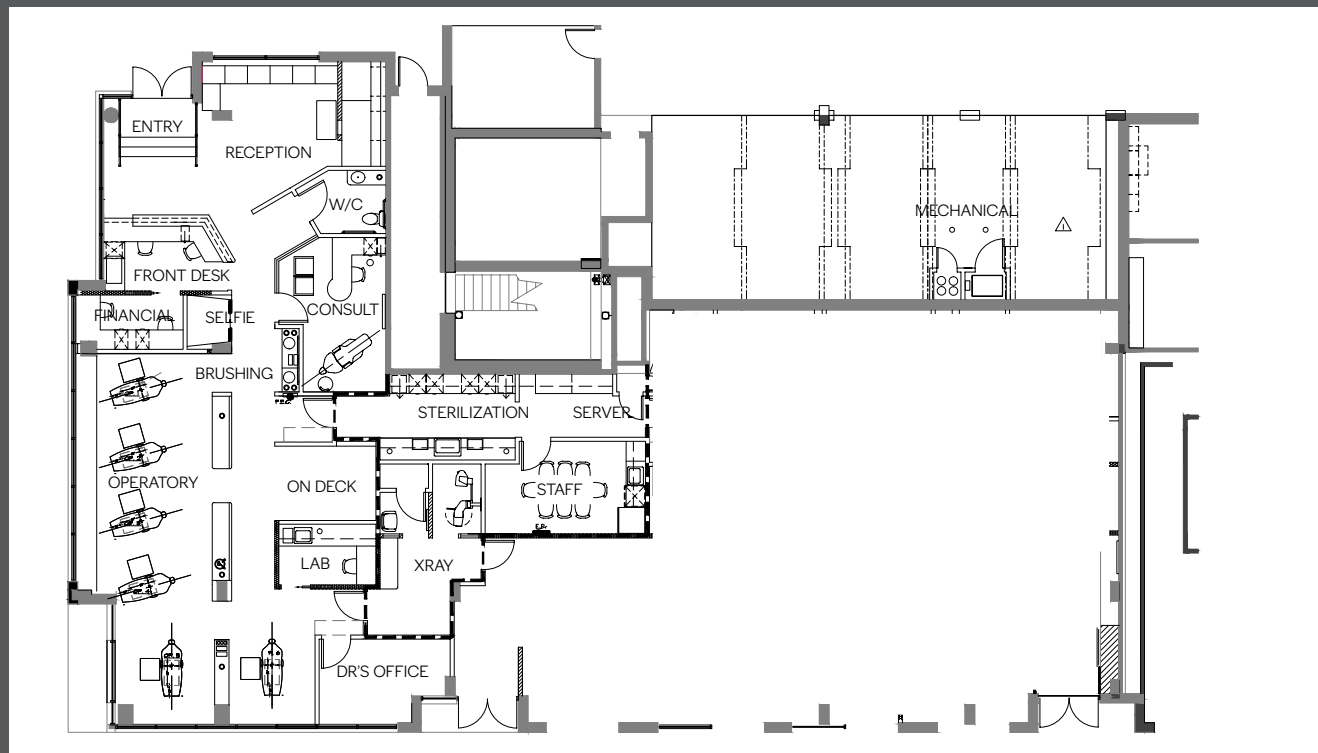
To help understand how these design principles are applied in the dental office, on the following pages are case studies of two 2015 Dental Office Design Competition winners who received awards for Outstanding New Dentist Practice and Outstanding Specialty Practice.

Case Study #1: Shafeena Chatur, D.D.S., Ballard Orthodontics, Outstanding New Dentist Practice

Dr. Shafeena Chatur of Ballard Orthodontics graduated from dental school at the University of Washington in 2005, and 10 years later won the 2015 Dental Office Design Competition for Outstanding New Dentist Practice. A fundamental objective in designing her new practice was to “maintain a professional environment while having fun.” Dr. Chatur states, “The neighborhood my office is located in has traditionally been a fishing village, and most buildings are older. My goal was to add modernity and youthfulness to Ballard.”

Practice Information	
Owner	Shafeena Chatur, D.D.S.
Practice Type	Orthodontics
Location	Seattle, WA
Number of Operatories	6
Number of FT Staff	3
Practice Philosophy	To provide the highest quality of orthodontic health care to children and adults in a comfortable, compassionate, and fun environment where each person is appreciated as a unique individual and service is unsurpassed.

FIGURE 13.1



Shafeena Chatur, D.D.S. floor plan

FIGURE 13.2



Ballard front desk area

FIGURE 13.3



Children's play area

FIGURE 13.4



Ballard reception area

Case Study #1: Outstanding New Dentist Practice (Continued)

Practice Design Influences

Dr. Chatur was influenced by design features she saw in architectural and design magazines, ideas borrowed from other offices she visited, unique design requirements for her style of practice, research conducted on dental equipment and technology, input from professional design team members, and her own design innovations. She sought to develop efficiency in every aspect of the design, saving time and steps with an effective floor plan to facilitate patient flow and create optimum opportunities for profitability.

Design Project Overview

Project Overview	
Building Type & Construction	Leasehold
Total Square Footage	2,400 sq. ft.
Completion Date	December 2014
Project Objectives	<ul style="list-style-type: none">• Create a modern, clean and open atmosphere that makes patients feel comfortable• Add modernity and youthfulness in an older neighborhood• Maintain a professional environment while having fun• Appeal to both adults and children
Design Solutions	<ul style="list-style-type: none">• Effective placement of the consultation room, brushing station, laboratory and treatment areas to ensure efficiency when moving between areas• Cloud-based software and applications to enable a paperless environment• Enclosed spaces for vacuums, compressor, and other large equipment to help eliminate clutter• Bright and cheerful colors throughout• Dedicated safe area for toddlers to play, and a reclaimed walnut wood bar for teens to work on homework or play a video game
Advice	<ul style="list-style-type: none">• Visit as many practices as possible to see what flow works well and what doesn't• Ask staff members what type of dental equipment they prefer and what they would want changed• Hire a branding company to come up with your logo, then work with your designer to implement the office colors into your brand

FIGURE 13.5



Teen activity area

FIGURE 13.6



Floor-to-ceiling windows in operatory area

FIGURE 13.7



Ballard open operatory area

Case Study #2: Elizabeth N. Katzberg, D.D.S., M.S., Genesis Orthodontics, Outstanding Specialty Practice

When Dr. Elizabeth N. Katzberg joined her father in his orthodontic dental practice, they needed to expand their space to accommodate two doctors, one left-handed and one right-handed. The dental team also sought to create an open and friendly environment that would create opportunities to connect with their patients and families from the reception area to the treatment rooms. They chose to use the building of their new practice as an opportunity to transition to a paperless system by eliminating paper patient charts.

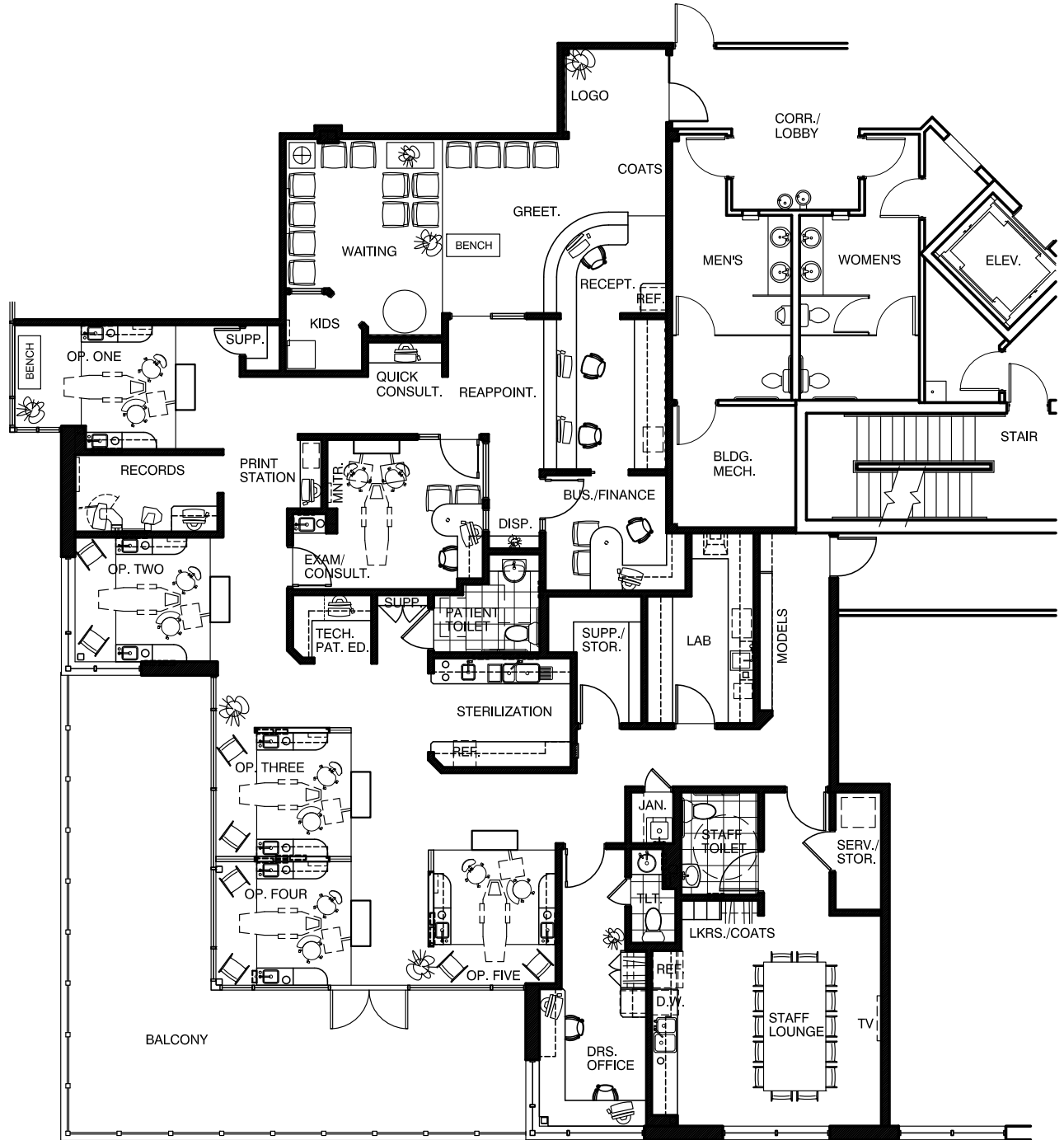
Practice Information	
Owner	Elizabeth N. Katzberg, D.D.S., M.S.
Practice Type	Orthodontic specialty practice
Location	Lincoln, NE
Number of Operatories	6
Number of FT Staff	6
Practice Philosophy	To partner with our patients to provide uncompromisingly excellent orthodontic treatment, as well as a friendly office atmosphere and genuine personal care to meet individual needs. It's our desire that each patient will come away with not only a beautiful healthy smile, but also with a rewarding treatment experience.

FIGURE 13.8



Genesis reception area

FIGURE 13.9



 **NEW ORTHODONTIC OFFICE**
 1" = 10'
 3,400 SQ. FT. - NET

Elizabeth N. Katzberg, D.D.S., M.S. floor plan

Case Study #2: Outstanding Specialty Practice (Continued)

Practice Design Influences

Dr. Katzberg believes that orthodontics is by nature an aesthetic discipline, and this outlook influenced her design choices in creating a clean, contemporary, and aesthetically pleasing environment. To encourage a friendly and welcoming atmosphere, reception room chairs were placed in treatment rooms so parents and family members can sit with patients during treatment. While the practice values having the most current radiographic technology, orthodontic appliances, and practice management software, Dr. Katzberg states that most importantly, she loves people. She has therefore designed her practice to make patients feel comfortable, cared for, and welcome from the first time they hear about Genesis Orthodontics.

Design Project Overview

Project Overview	
Building Type & Construction	Leasehold
Total Square Footage	3,399 sq. ft.
Completion Date	May 2013
Project Objectives	<ul style="list-style-type: none"> • Expand the practice space to accommodate two doctors, one left-handed and one right-handed • Transition to a paperless system • Create efficient traffic flow while ensuring patient privacy • Create a warm and welcoming environment that delivers excellent orthodontic treatment and genuine personal care
Design Solutions	<ul style="list-style-type: none"> • Extra space at the head of patient chairs to accommodate both a left-handed and a right-handed doctor • Custom-made and branded dental carts that are accessible to assistants and doctors on either side of the chair • Installation of a paperless charting system using 14 Apple iMacs and topsOrtho™ practice management software • Dual monitors with Apple Thunderbolt display in treatment rooms to enhance staff and patient educational opportunities • A large and comfortable consultation room that provides privacy for financial and treatment planning considerations • Floor-to-ceiling windows for natural light and warmth
Advice	<ul style="list-style-type: none"> • Hire a dental architect! “This was the best money we spent.” • Determine early on what you want to ethically and morally portray, and let your design follow that passion

FIGURE 13.10



Head cab from corridor

FIGURE 13.11



Sterilization area

FIGURE 13.12



Side-by-side greeting and reappointment areas

FIGURE 13.13



Dr. Katzberg practicing with her father, Robert W. Glenn, D.D.S., M.S.

Tips for Submitting Your DODC Entry

Once you have completed the significant undertaking of designing and constructing your dental practice, consider entering the Dental Office Design Competition. The nationally recognized program provides an opportunity to receive recognition from your peers for the excellent work you have accomplished. Plus, the entry process itself can be rewarding as it allows you to acknowledge your achievements in meeting your practice design objectives.

Completing the DODC Entry Form

The Dental Office Design Competition entry form requires a good deal of thought and organization to complete. The judging panel looks for a full description of your practice mission, your design objectives, the challenges your design solved, the level of technology used, and your rationale for the design choices you made. They want to see your floor plans as well as professional photographs of the finished product.

The thoughtfulness and clarity used in completing the entry form will influence the judges' determination of a winner. As panel judge Dr. Jeff Carter points out, "Just like with anything else, the best projects are the most organized. Information is organized, answers are nicely printed, photographs are mounted, neat and orderly. The presentation is important. If the binder is in a jumble, it's not likely to be a winner."

If you choose to enter the competition (and we encourage you to do so!), follow these tips to ensure your entry form is well-organized and stands out from the rest:

- Presentation is important — be organized, neat and orderly, presumably just like your design project itself.
- Be concise and clear in answering questions — it makes a more powerful impact.
- Make sure your descriptions are congruent with the photos you submit. There should be no conflict between what you are saying and what you are showing.
- Include photos that illustrate the functionality of the practice, particularly chair-side images that include the clinical staff and patient.
- Be sure photos are of professional quality. Winning practices are showcased to your colleagues, so it's important that images be publishable.
- Ensure your application is complete and reflects the level of thoughtfulness you put into your design project.

DODC judge Dr. Gregory R. Liberatore states, "Every application gives us an opportunity to see whether the entrant has thought through the design project and understands why they're doing it. The application reflects the level of thoughtfulness put into the project and its execution."

Benefits of Participating

In summary, the Dental Office Design Competition rewards those practices that exemplify a balance of efficiency, function, and design aesthetics while accurately reflecting the doctor's personal vision for his or her practice. The competition further provides a vehicle for an ongoing library of outstanding designs to help inform and inspire those considering a practice remodel, expansion, or build-out.

Consider entering your own practice in the Dental Office Design Competition. It does take time and dedication to complete the application process — but whether or not you are a winner, you will gain a better understanding of how well you achieved your design goals, and what the next steps might be in refining the objectives for your dental practice. As Dr. Greg Liberatore says, “Don't judge yourself first — enter the competition so we can have an opportunity to review your submission. Your office may be better than you realize.”

As a competition entrant, know that all of the hard work you put into documenting your design process is very thoroughly reviewed by the judging panel and given meticulous consideration. The DODC judges take your project very seriously, and find it a genuine pleasure to participate in honoring all of your hard work in planning and executing your creative vision for your practice.

Visit www.dentalofficedesigncompetition.com to review recent winners and submit your application.

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Contributor Biographies

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