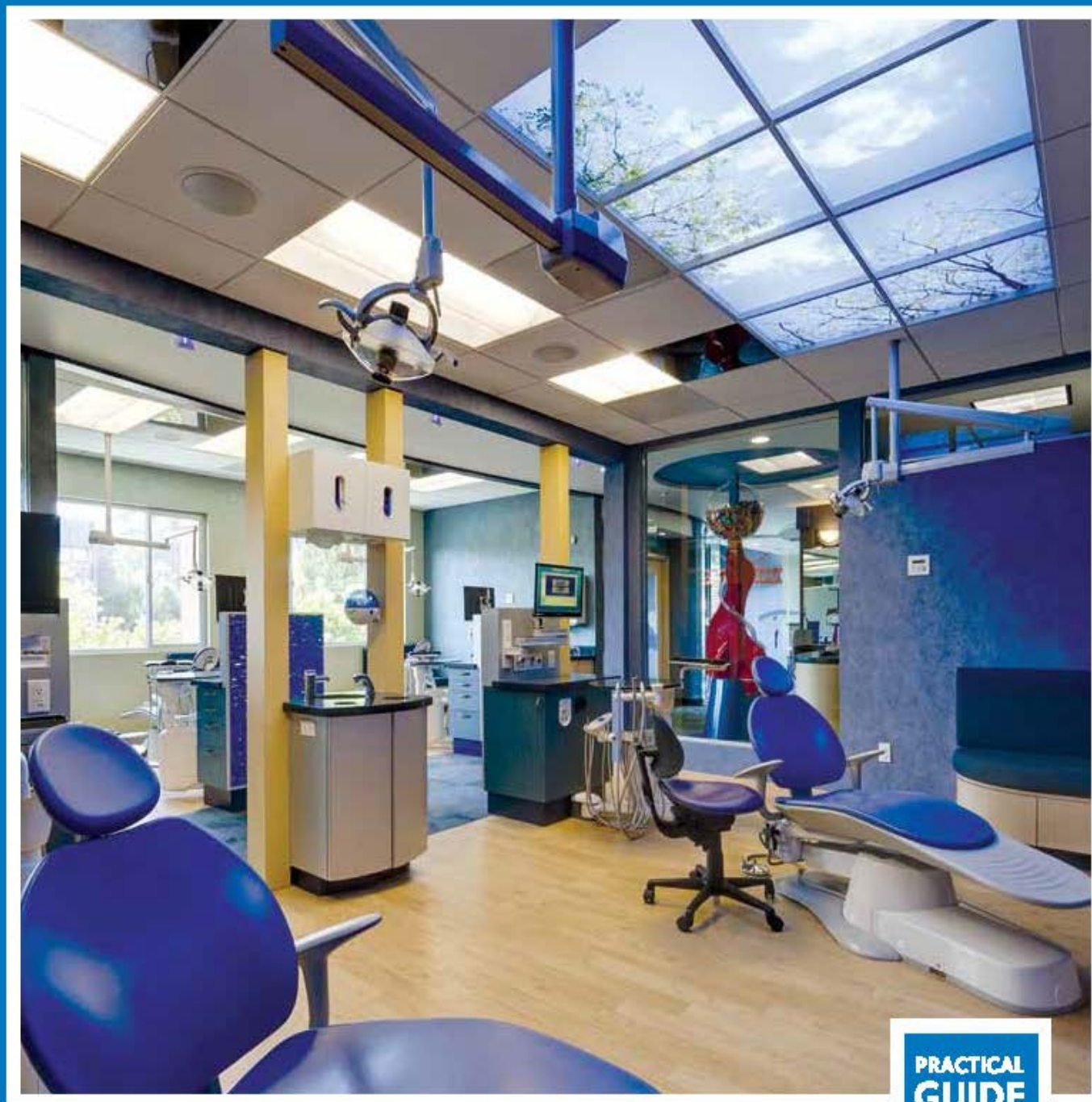


The ADA Practical Guide to

DENTAL OFFICE DESIGN



**PRACTICAL
GUIDE
SERIES**

ADA American Dental Association®
America's leading advocates for oral health

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The ADA Practical Guide to Dental Office Design

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BUILDING A TEAM YOU CAN TRUST





Chapter 1:

Building a Team You Can Trust

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

LEARNING OBJECTIVES

- Choose 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

All 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. You are probably unfamiliar with which architects or contractors in your area are at the top of their field. You are going to have to rely on your dental equipment consultant/supplier or someone else you trust to help assemble a capable team.

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 new 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 initially meet with you to discuss your Ten-Year Plan (how you envision your business to be functioning in ten years, in terms of maximum production). Once a Ten-Year Plan has been established, he or she can help you determine the required square footage for your office. After you choose a commercial real estate agent, and preferably one with dental experience, your consultant can guide you on how to shop for a loan. While you are looking for your dental office space and applying for loan pre-approval, he or she 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 decisions.

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 to 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. 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.

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.

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.

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.

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.

Commercial Real Estate Agent/Broker

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.

An important item often overlooked during the office search is the number of electrical panels assigned to the space you are considering. Make sure your real estate representative gets adequate electric panels assigned. A modern dental office requires many dedicated circuits, electrical circuits reserved for a single piece of equipment. Sharing a circuit will either cause the equipment to function improperly, or overload and shut down the circuit. If the contractor has to dig a trench to a remote electrical source and install an additional electrical panel later, expect significant additional costs.

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 10-20% 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.

Health care finance companies have experience in dental loans. They know that only a small percentage of dentists default on their loans.

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?

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.

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 by giving 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, so do your homework to understand the time and total costs involved.

[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.

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.

Implementing this custom dental equipment specification sheet will cause the percentage of missing dental equipment requirements in the construction documents to drop from 25-30% to less than 10%. That's still 10% too much! Once the dental equipment supplier and architect create this specification sheet, ask them to take the process one step further by creating an addendum.

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.

A thoroughly prepared custom dental equipment specification sheet with an addendum, if necessary, gives you a set of construction documents that reflects your dental equipment requirements with 98-100% accuracy. 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.

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.

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.

[Monitoring a construction bidding process involves much more than looking for the lowest total bid.](#)

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.

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 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 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.

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.

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.

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.

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.

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.

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 (EOBs). HIPAA requires covered entities to safeguard PHI in electronic, hard copy, and spoken form.

Accountant

Your accountant should be a certified public accountant (C.P.A.) 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 C.P.A. can help you determine the length of loan that best suits your particular needs. A C.P.A. 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

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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 currently Founder and President of Valley Dental Consulting Services, Inc., located in Phoenix, Arizona. 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
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Phone: 770.552.5569
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American Institute of Architects (A.I.A.)
1735 New York Ave., NW
Washington, DC 20006-5292
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Email: inforcentral@aia.org
Website: www.aia.org

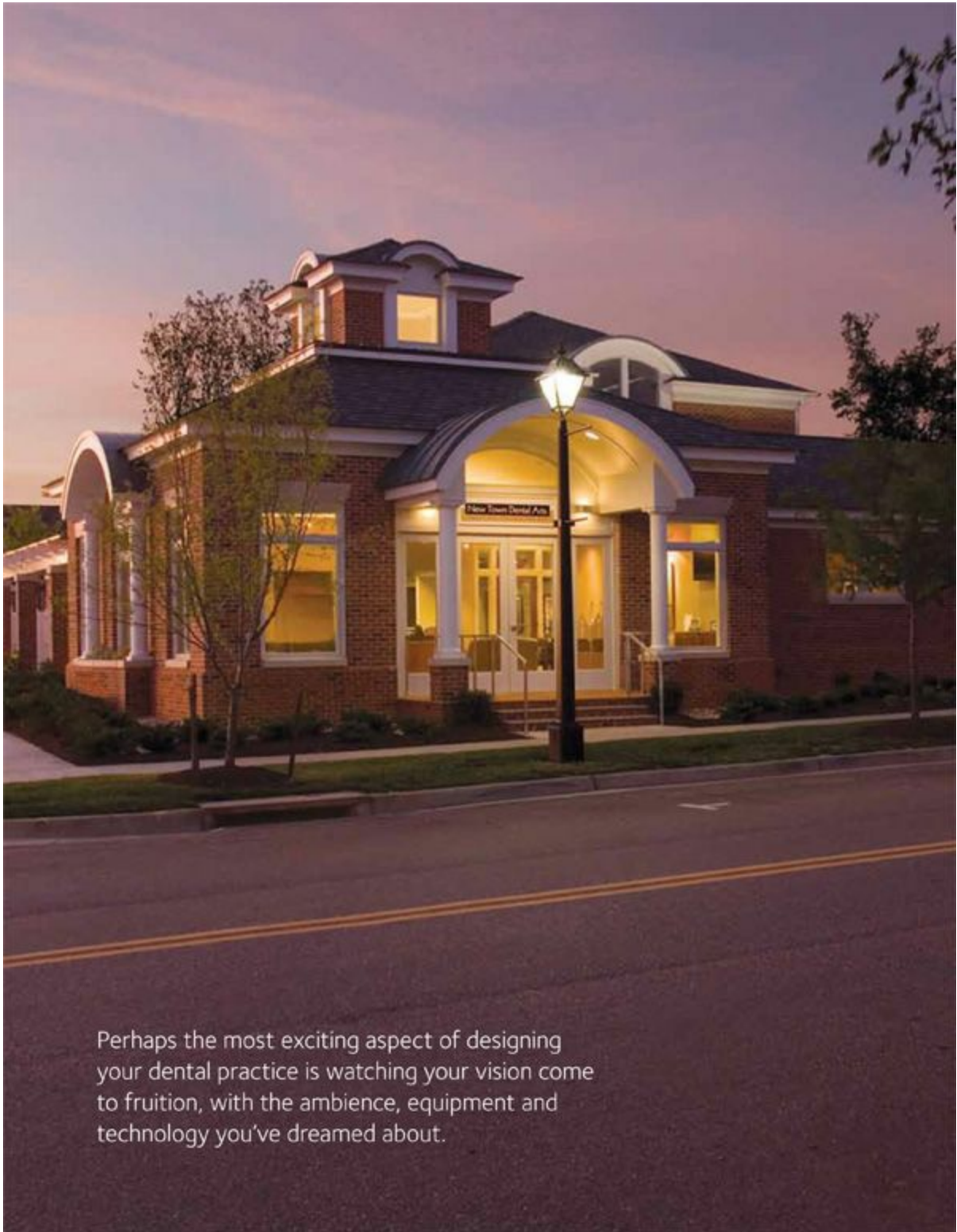
Osterhaus, Gordon F., Jr., D.D.S.. How to Open a New Dental Office or Relocate Your Current One: A Journey Through the Dark Side of Dentistry. Phoenix: GFO Publishing, 2011.

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





Perhaps the most exciting aspect of designing your dental practice is watching your vision come to fruition, with the ambience, equipment and technology you've dreamed about.

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 the benefits and disadvantages of 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 ambience, equipment and technology you've dreamed about. 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 as you put your financial plan together, the question of whether you can afford this kind of project is definitively answered as 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. A careful financial planning process is the beginning of making your dream practice a reality, and starts well before your project manifests a single blueprint — with a plan to build a strong financial profile that positions you for maximum leverage with your lender.

Manage Your Financial Profile

Ask yourself — how strong is your financial profile? What does your credit history tell a lender?

Good credit is the basis for all your financial investments, whether you're building your first dental practice or buying your first home. While lenders consider a number of factors when making a credit decision, the most critical aspects of your financial profile are your personal debt and your credit score. Your personal debt includes student loans, credit cards and lines of credit. Your credit score is determined by your personal credit report, which includes a list of your debts, payment history, public record information, and inquiries about your credit worthiness.

Factors Used in Calculating Credit Scores

The credit score was originated by FICO (formerly Fair Isaac Corporation) and is a numerical expression of your credit worthiness. It is based on a statistical analysis of your credit files and is primarily used in credit reports accessed by lenders and other companies to help them determine if you are a good credit risk.

Credit scores range from 350 to 850, with a score of 723 considered average for Americans. Those with scores below 650 are considered high risk borrowers. Individuals with the same credit score can have very different credit profiles based on how many credit accounts they hold, the type of accounts, whether they have a longer or shorter credit history, and to what degree they use available credit.

For example, credit decisions for practice acquisition loans are typically based on an assessment of practice cash flow and your ability to repay the loan while covering your expenses and lifestyle. Credit decisions for practice start-up loans are mostly based on your new office’s projected cash flow. The amount of your personal debt factors directly into both equations. Generally, a low level of debt yields a higher credit limit decision, meaning the lender is authorized to release more funds to you, while high personal debt results in a lower credit limit determination. (Note: Student loans are not as big a factor as most other credit advances and do not impact your score as much as other types of credit.)

Your credit score directly impacts the interest rate offered by your lender, and can significantly impact the amount you pay over the life of your loan.

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?
Credit history	15%	What is the length of your credit history?
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 credit types?

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

FIGURE 2.2: HOW CREDIT AFFECTS INTEREST RATE

CREDIT SCORE	SAMPLE RATE	SAMPLE PRACTICE LOAN PAYMENT*
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

†Total amount of additional payments over life of loan



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 you can to avoid these credit situations:

- **Maximized credit card.** A maximized credit card indicates to lenders that you are not in control of your debt.

- **30-day late payment.** While a day or two late payment 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 impact on your credit score.

- **Bankruptcy.** Bankruptcy is clearly the worst case scenario and will significantly impact your credit rating for many years.

Clearly, mismanagement of your debt can result in a poor credit score and seriously damage your overall financial profile. Based on the formula for granting loans, this will lower the amount of credit available to you and require a higher interest rate on loan payments.

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.

TEN SIMPLE STEPS Toward a Healthy Financial Profile

Following are ten 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 credit worthy and able to manage debt.

2. Avoid applying for credit from too many lenders. Multiple credit inquiries within a short timeframe 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. All credit information stays on your records for up to ten years.

Start working on improving your credit profile at least 12 months before starting your project. With a strong financial profile, you have 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 has 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 for a practice or space remodel, 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 as needed to improve traffic flow, incorporating current office systems and 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 most often it will not disrupt your patient base — patients will continue to find you at the same location where you have always been. At the same time, you'll need to carefully plan for the down time your practice will experience while under remodel. This can ultimately be a costly undertaking if your project is not properly managed and runs beyond schedule.

Building Can Provide Investment Benefits

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.

FIVE GOOD REASONS For Building Your Dental Practice:

1. **Favorable commercial property values.** Commercial

property values continue to be at their lowest level in decades due to ongoing limited demand. Whether you buy land to build your practice from the ground up, or buy an existing building where your practice will reside, the current market environment gives you more purchasing power and ultimately more office for your investment.

2. **Preferential tax treatment.** Just as with your home mortgage, you can generally deduct 100% 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. This will likely continue despite the current downturn in residential housing and commercial property values, albeit at a slower rate. 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 may 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.** The Federal Reserve continues 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 10% 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 operator 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.

Can I Afford a Practice Expansion or Remodel?

If you require financing for your project, you need to know approximately what your project will cost in monthly payments before you can finalize your design plans. In other words, you need to generate a cost projection so you can determine whether your project is affordable. Your projection should be general at first to give you an idea of overall costs and help you hone in on design

parameters.

Figure 2.3 is a simplified cost projection for a practice expansion project, using broad estimates to summarize categories of expenses. To estimate the monthly payment on your initial cost projection, use an online loan calculator, often found on your practice or commercial real estate lender's website.

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

INVESTMENT	PROJECTED COST
Leasehold Improvements	\$150,000
Soft costs	\$25,000
10% contingency	\$17,500
Working capital	\$25,000
Equipment / furnishings	\$100,000
Total Practice Loan:	\$317,500
Monthly Payment*: *8% fixed over 10 years	\$3,852 (not including current monthly lease)

To be of maximum value to you and your lender, you will eventually 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 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 below:

FIGURE 2.4: DEBT SERVICE CALCULATION

CALCULATION STEPS	EXAMPLE
Determine the annual adjusted cash flow for the practice	\$ 680,000
Determine your total current debt commitment • Home mortgage, car payments, student loans, etc.	\$340,000
Divide the annual adjusted cash flow by the total annual business and personal debt payments	$\$680,000 / \$340,000 = 2^*$

* 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 warrant taking on the amount of financial debt your project would entail.

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 or specialized practice loan or a Small Business Administration (SBA) loan.

Conventional Practice Financing

A conventional practice loan is typically financed over five to ten years, and can range from variable and fixed-rate loan packages with standard repayment terms and possible down payment requirements, to customized fixed-rate loans with up to 100% financing with more flexible terms.

Conventional practice term loans are often used for practice acquisitions, start-ups and expansions, and can offer a number of advantages to dental practices, including:

- Good interest rates
- Lower fees and less paperwork
- Flexible and customized repayment plans, such as graduated or deferred payments

But conventional practice loans have their disadvantages as well, particularly if you're not working with a specialty lender. Such loans:

- Can be difficult to qualify for lower interest rate options
- Loans from a local or regional bank can require a larger down payment, up to 20%
- Can be based on existing assets rather than future performance (particularly with traditional lenders), making it difficult for young or start-up practices to obtain financing

Small Business Administration (SBA) Loans

If you are not familiar with SBA loans, you may be concerned about the process being more complicated and cumbersome than a typical bank loan. However, SBA loans are not nearly as difficult to get as you might think. The key is to work with a Preferred Lender — a bank or lending institution that 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.

SBA practice loans are term loans obtained through a bank or commercial lending institution and guaranteed by the Small Business Administration. SBA practice loans offer some key advantages over conventional practice loans:

- SBA loans can require a down payment as low as 10% and

offer a fully amortized term up to 25 years

- Maximum loan amounts can range from \$2 million to \$5 million depending on loan type
- A lower variable rate option
- No prepayment penalties
- More flexible credit underwriting guidelines

SBA practice loans also have their limitations:

- The loan fees and closing costs traditionally range from 2-4% depending on the size of the loan
- The loan program may require personal assets and property as collateral
- SBA loans typically require more paperwork

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 specialized healthcare lender for your project can save you both time and money. Unlike most local banks, a specialized 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% financing with flexible repayment plans

- 10-year amortization
- Low closing costs
- Financing based primarily on historical or projected practice income rather than personal assets

Carefully review the pros and cons of each type of loan with your lender to fully understand how they affect your particular circumstances before committing to a financing package.

When you have determined your project cost projections and are familiar with loan options available to you, it's time to select your lender.

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 	Fixed / variable rate <ul style="list-style-type: none"> • 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	• 20%	• 10–15%	• Can be as low as 0%
CLOSING COSTS	• 1% typically	• 2.6–3.5% (can be financed into the loan)	• \$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)

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. You should ask and make sure your lender understands your need for cash flow funding to support business operations during and after construction, and for a flexible repayment structure that increases over time as your new practice grows. Choose a lender that offers practical and valuable incentives for building an ongoing relationship, rather than one that's interested in an independent project transaction alone.

A direct lender is more likely than a financing broker to understand your needs and act as your advocate through the life of your loan. 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 approaches 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, consider a cash-flow lender. This can help 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 receive approvals within one to two days. Approvals for larger or more complicated 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 receipt of required documents (e.g., invoices, contractor budgets, copies of lease agreements, etc.) and the progress of your projects. 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?**
 - Throughout your project, you want to work with a reliable financing team 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 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 mentioned above, 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 items such as furniture, carpeting, fixtures and window treatments, and can be depreciated using a five- or seven-year recovery period, producing significant tax savings.
- **Land improvements.** Typically including items such as sidewalks, fences and significant landscaping, this category is subject to an accelerated depreciation method with a typical recovery period of 15 years, again producing 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 more easily.

- **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.

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” all of the depreciation you could have taken in prior years, in the current year.

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 C.P.A. 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 huge tax savings this represents could significantly offset the costs of owning or constructing your building, providing even 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. 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 doesn't matter if you haven't 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.

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

[Consult your tax advisor and/or accountant for a statement of tax and accounting rules applicable to your particular situation and for all other tax and accounting advice.](#)

Summary

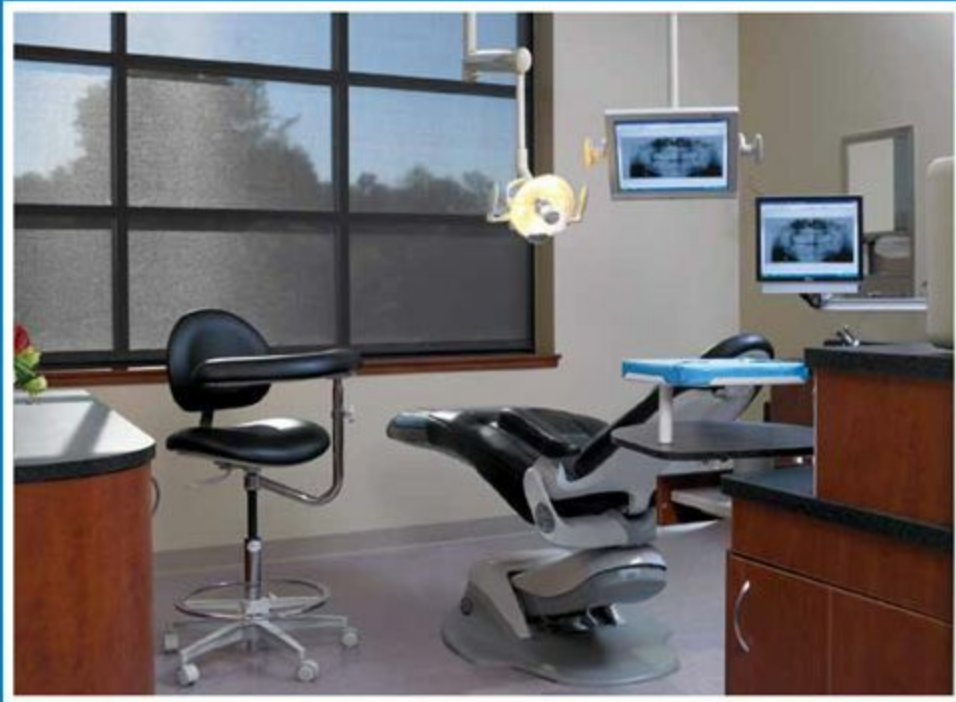
Once you have taken the significant step of starting your financial plan, pat yourself on the back! Financial planning is one of the more complex aspects of any practice construction, expansion or remodel project and requires considerable discipline to paint a thorough portrait of your financial status 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

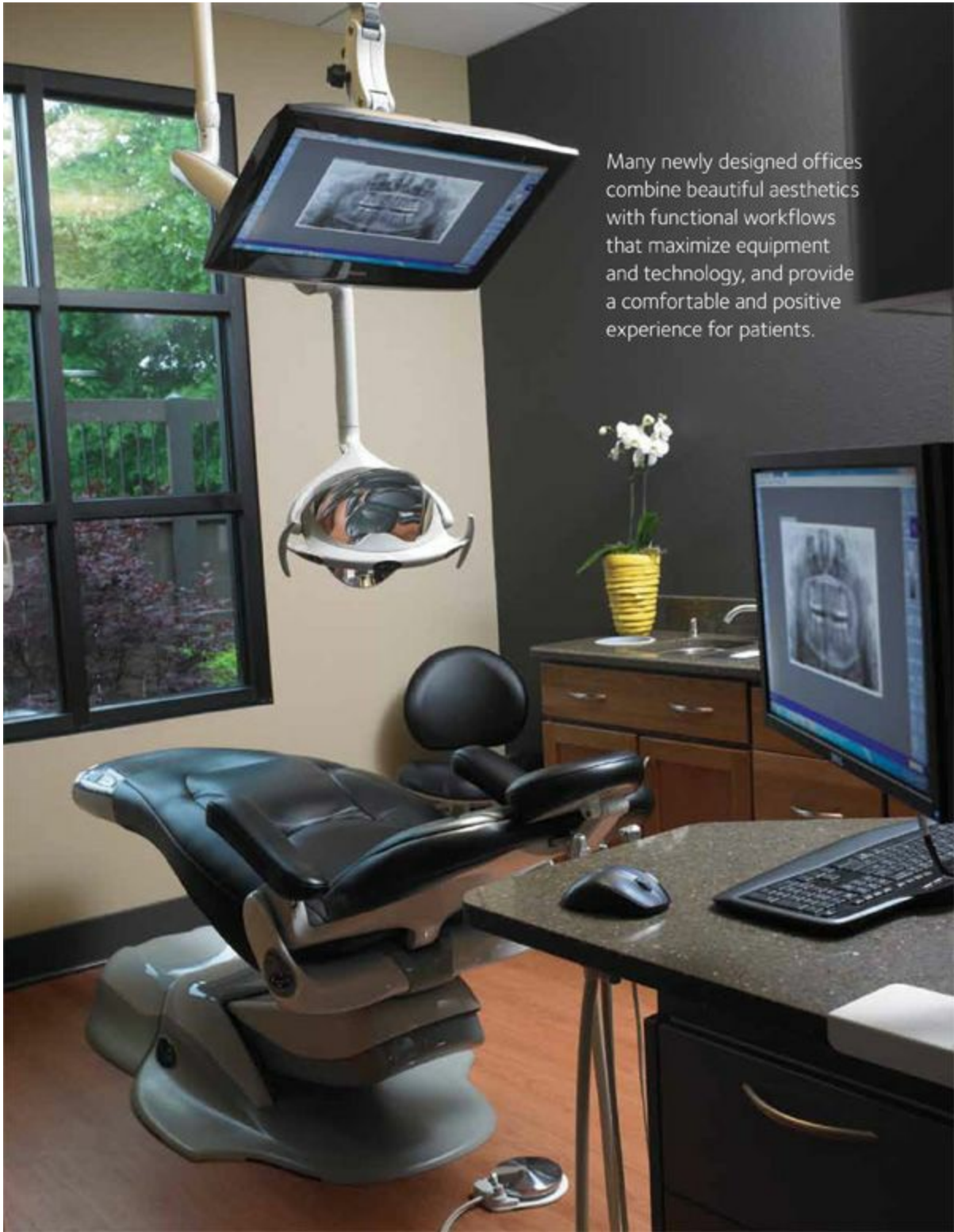
contemporary dental office design.

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 888.937.2321 or www.practicefinance.wellsfargo.com.

Chapter 3:
**DENTAL OFFICE
EQUIPMENT**





Many newly designed offices combine beautiful aesthetics with functional workflows that maximize equipment and technology, and provide a comfortable and positive experience for patients.

Chapter 3:

Dental Office Equipment

By Don Hobbs

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 deliver 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.

Getting Started

Before you begin thinking about building or remodeling your practice, it is a good idea to determine the equipment you will need.

FIGURE 3.1: DREAM OFFICE CHECKLIST

Dream Office Checklist	
Large equipment	<input type="checkbox"/> Delivery Systems
Operatory Room Set Up	<input type="checkbox"/> Lights
<input type="checkbox"/> Cabinets	<input type="checkbox"/> Sterilizers
<input type="checkbox"/> Chairs	<input type="checkbox"/> Stools
<input type="checkbox"/> Delivery Systems	
<input type="checkbox"/> Handpieces	
<input type="checkbox"/> Lights	
<input type="checkbox"/> Stools	
	Technology
Exam Room Set Up	<input type="checkbox"/> Lasers
<input type="checkbox"/> Cabinets	<input type="checkbox"/> Intraoral Camera
<input type="checkbox"/> Chairs	<input type="checkbox"/> CAD/CAM & Digital Impressioning
<input type="checkbox"/> Digital Processors	
<input type="checkbox"/> Instrument Management System	
<input type="checkbox"/> Lights	
<input type="checkbox"/> Nitrous Oxide Systems	X-rays
<input type="checkbox"/> Stools	<input type="checkbox"/> Intraoral X-ray System
<input type="checkbox"/> Vacuum Systems/Air Compressors	<input type="checkbox"/> Digital Intraoral Sensors
	<input type="checkbox"/> Panoramic X-ray System
	<input type="checkbox"/> 3-D Cone Beam CT Radiography
Hygiene Room Set Up	
<input type="checkbox"/> Cabinets	Miscellaneous Technology
<input type="checkbox"/> Chairs	<input type="checkbox"/> Computers (Dental Network)
	<input type="checkbox"/> Practice Management Software
	<input type="checkbox"/> Patient Education
	<input type="checkbox"/> Entertainment

Dream Office Checklist

Merchandise

- | | |
|---|---|
| <input type="checkbox"/> Acrylics & Reline Materials | <input type="checkbox"/> Infection Control |
| <input type="checkbox"/> Alloys & Accessories | <input type="checkbox"/> Instruments |
| <input type="checkbox"/> Anesthetics | <input type="checkbox"/> Laboratory Products |
| <input type="checkbox"/> Articulating Paper & Accessories | <input type="checkbox"/> Matrix Materials & Accessories |
| <input type="checkbox"/> Burs—Carbide & Diamond | <input type="checkbox"/> Pharmaceuticals |
| <input type="checkbox"/> Cements & Liners | <input type="checkbox"/> Pins & Posts |
| <input type="checkbox"/> Cosmetic Dentistry | <input type="checkbox"/> Preventives & Prophy Materials |
| <input type="checkbox"/> Crown Forms, Bands & Shells | <input type="checkbox"/> Retraction Materials |
| <input type="checkbox"/> Disposables | <input type="checkbox"/> Rubber Dam & Accessories |
| <input type="checkbox"/> Endodontic Instruments | <input type="checkbox"/> Sutures & Suture Needles |
| <input type="checkbox"/> Endodontic Products | <input type="checkbox"/> Uniforms |
| <input type="checkbox"/> Evacuation Products | <input type="checkbox"/> Waxes |
| <input type="checkbox"/> Finishing & Polishing | <input type="checkbox"/> X-ray Products |
| <input type="checkbox"/> Handpieces & Accessories | <input type="checkbox"/> Stationery & Office Supplies |
| <input type="checkbox"/> Impression Materials & Accessories | <input type="checkbox"/> Toys |

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

- 4–5 operatories at 500 square feet of office space per operator (4 operatories = 2000 square feet office)

- 6–7 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 doctor and one hygienist: 4 or 5 operatories

- One full-time doctor and two hygienists: 5 or 6 operatories

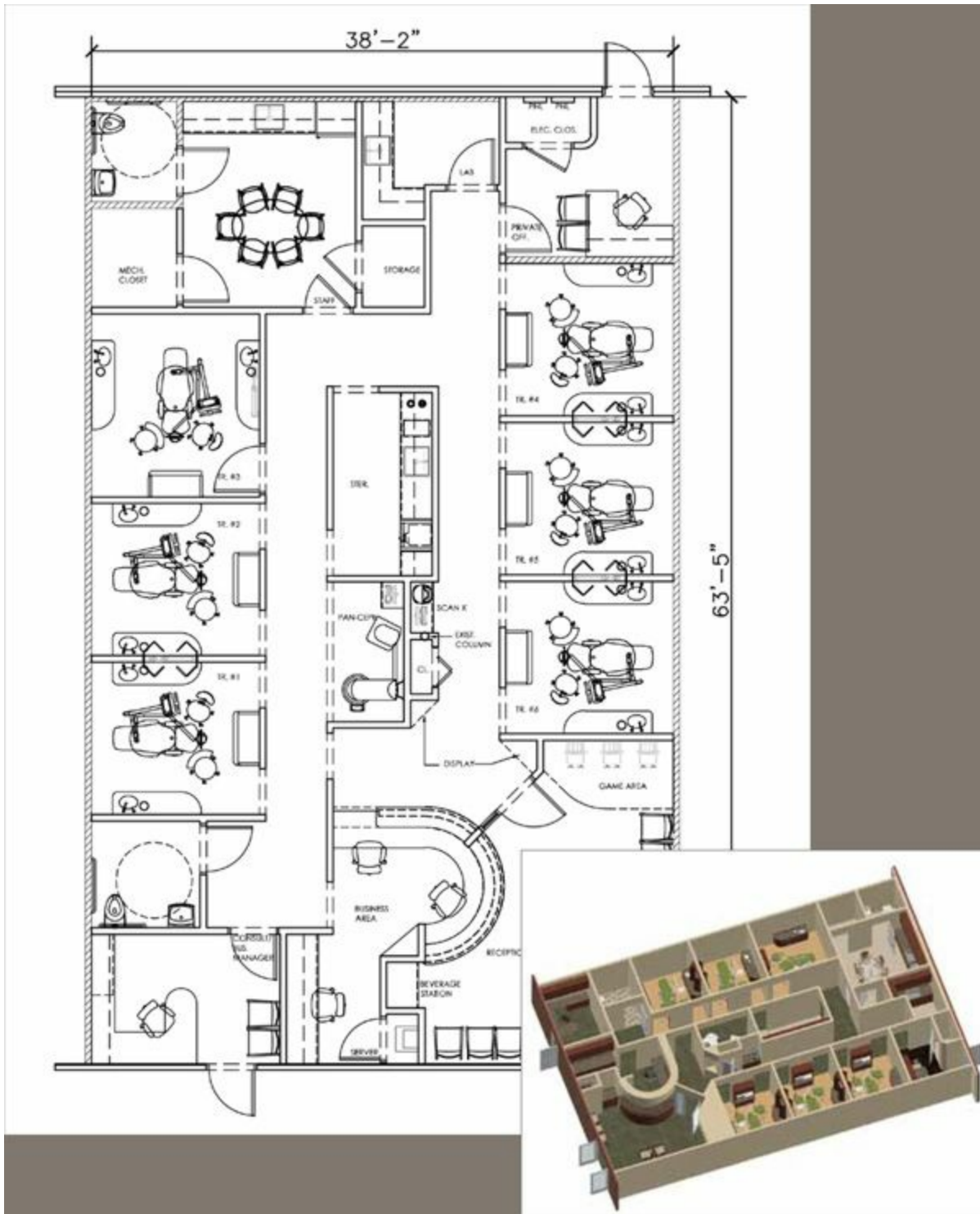
- Two full-time doctors and two hygienists: 6 or 7 operatories



One operatory should be vacant about 50% 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 3.2:
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 3.3 shows an over-the-patient (trans-thoracic) delivery system. Class IV and V movements are necessary with this system, and could be physically devastating 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 3.4 depicts a dual unit/split system. With the dual unit/split system, Class IV movement requirements decrease and Class V are eliminated, reducing the physical damage to the brachial plexus and shoulder muscles of the dental treatment team. While four-handed dentistry can be practiced with this configuration, a disadvantage is that the operator 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 3.5 demonstrates a flexible rear delivery system. For this particular delivery system, all Class IV and V movement can be eliminated, negating the physical damage to 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 is no left- or right-handed operator configuration — 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 reducing 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 very damaging to the musculoskeletal system.

New designs now allow the doctor and assistant to move closer to the patient, dramatically enhancing the ergonomics of the operatory.

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 decrease the likelihood of back, neck, and shoulder injuries 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 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° 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 6"-8" above the doctor's eye level. This position affords a clear view of the operating field.

FIGURE 3.3:
OVER-THE-PATIENT (TRANS-THORACIC) DELIVERY SYSTEM

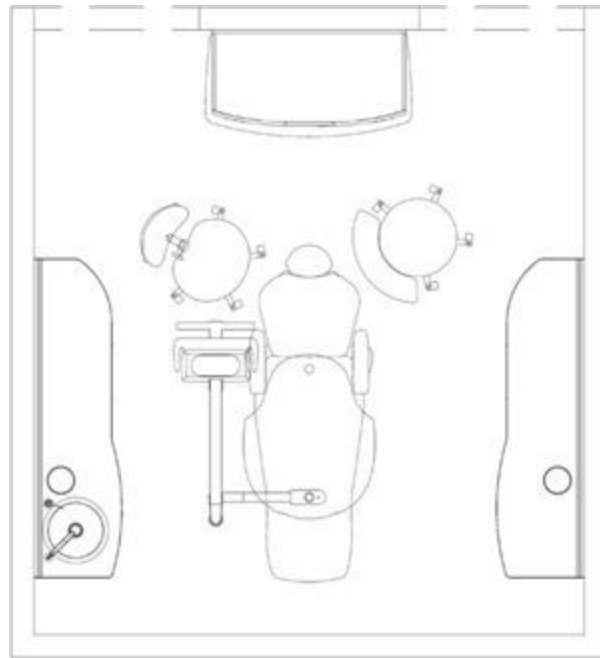


FIGURE 3.4:
DUAL UNIT/SPLIT DELIVERY SYSTEM

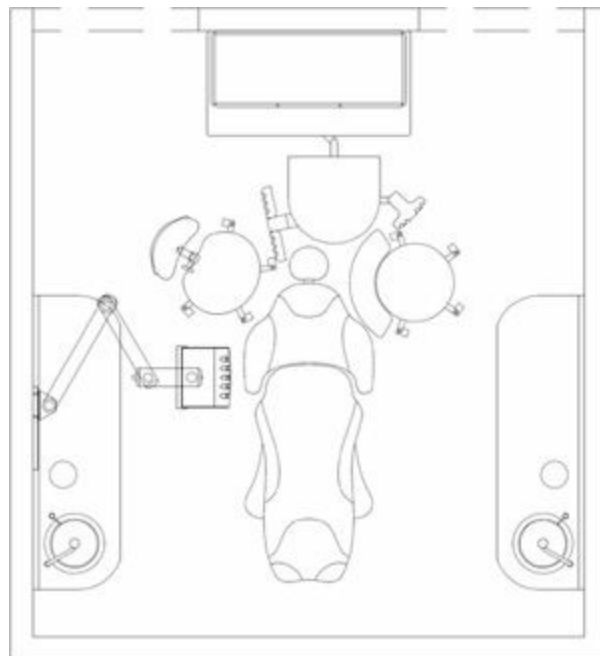


FIGURE 3.5:
FLEXIBLE REAR DELIVERY SYSTEM

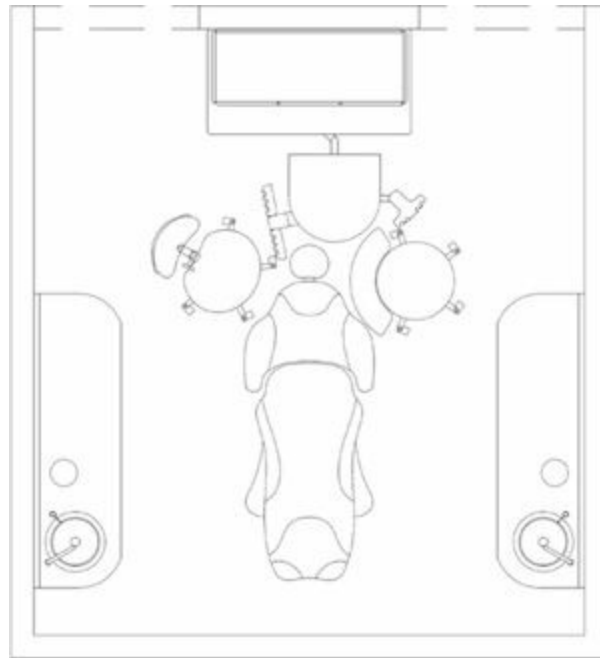


FIGURE 3.6



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

FIGURE 3.7



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

Maintaining the suggested ratio of operating light intensity to ambient light intensity may help prevent eye fatigue and headaches, especially in the afternoon.

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 damage 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° 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.

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 stool is integral to that placement.

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.

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 with electric handpieces offering 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.

CAD/CAM Technology

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. By creating a 3-D image of the patient's teeth using a hand-held intraoral scanner chairside, the process becomes more efficient, precise and comfortable for the patient by eliminating the mess and discomfort associated with taking physical impressions.

A major benefit to utilizing CAD/CAM in your dental office is that it encourages your practice to review their clinical processes and efficiency.

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 the accuracy of the process. Practices who use full (scan and mill) CAD/CAM systems often experience a reduction in lab and fabrication fees, increased return on investment, as well as enhanced office productivity and improved workflow.

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 operatory 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 operatory turnover:

- Cosmetic
- Prosthodontic

Specialties with higher operatory turnover include:

- Family
- Orthodontic
- Pediatric
- Preventive

FIGURE 3.8



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

FIGURE 3.9



Digital pans offer the benefit of saved chair time.

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.

- 4–6 operatories using trays: 16 linear feet of counter space; using cassettes: 11 feet

- 7–8 operatories using trays: 22 linear feet of counter space

- the maximum for any sized office using cassettes: 13–14 feet

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.

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.

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.

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.

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.

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 1 minute compared to 10-15 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 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 include:

- **Speed.** Images are on the screen in 1-3 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 MSDS 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.

Intraoral Cameras

Over 50% 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.

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 insurance partners. 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.

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.

Many newly designed offices combine beautiful aesthetics with functional workflows that maximize equipment and technology, and provide a comfortable and positive experience for patients.

FIGURE 3.10



A well-planned dental office design should begin with a foundation of proven, effective elements that not only look beautiful, but also deliver superior care to patients.

FIGURE 3.11



Combining best practices with your signature style creates a successful and satisfying new office.

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 Sales for Henry Schein Dental. He is responsible for Henry Schein Dental sales, marketing, and operational strategies related to the dental capital equipment categories. He is also responsible for all aspects of capital equipment professional sales training. In addition, Don oversees the Special Markets Equipment sales group, and acts as a company leader with respect to supplier relations for all equipment suppliers.

Henry Schein Dental's Equipment Sales Specialists, along with the National Design Group, 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*. The book is available through [Amazon.com](https://www.amazon.com).

For more information, feel free to contact your local Henry Schein Consultant or call 800.645.6594, prompt #1, or visit www.henryscheindental.com.

Chapter 4:

DENTAL OFFICE PLANNING





Your physical facility is a testament to the care provided. Patients assess the quality of your services on numerous factors, including the physical image that the practice projects.

Chapter 4:

Dental Office Planning

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 or identity for your practice 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 their comfort.

Your physical facility is a testament to the care provided. 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 a 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 your office walls will accommodate, 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?

Top Ten 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

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, “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

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.

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 31 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.

When constructing a building 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 7. 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.

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 on 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.

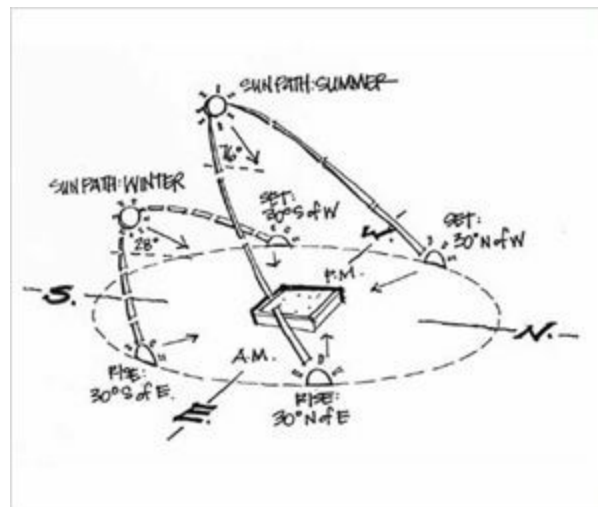
From a planning standpoint, the most efficient shape for your office (and property) is a “squareish” rectangle. Avoid long and narrow shapes, triangular, truncated or L shapes, or any odd geometric form. Look for a suite with no or minimal interior columns. Odd shapes and columns may prove to be complete 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 in your area are 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 per square foot for leasehold improvements (including all custom cabinetry, but excluding dental equipment), and \$220 per square foot for a new one-story dental office building, built on a concrete slab (without a basement), excluding land and equipment costs. An unfinished basement will add about \$20 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). 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.

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.

FIGURE 4.1



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

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.

FIGURE 4.2



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 4.3



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

FIGURE 4.4



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

FIGURE 4.5



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 Millenium Park and Lake Michigan.

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.

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 ideally 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.

As patients enter your office, have your receptionist or dental concierge turn 90 degrees to welcome them and then turn back, 90 degrees away from reception, to face patients who are returning from treatment. This will politely bring the welcome to a close and direct the receptionist’s voice away from the reception area. If your receptionist faces the reception area at all times, all of his or her conversations (whether on the phone or in person) will be overheard by those in the reception area. This can result in a breach of privacy, and will greatly compromise your receptionist’s effectiveness.

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.

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

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.

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.

Dental 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.

FIGURE 4.6



A “fin wall” provides a greater sense of separation and privacy between patients when at the

check out portion of the business area.

FIGURE 4.7



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 4.8



Flexible rear delivery serving 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 4.9



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

FIGURE 4.10



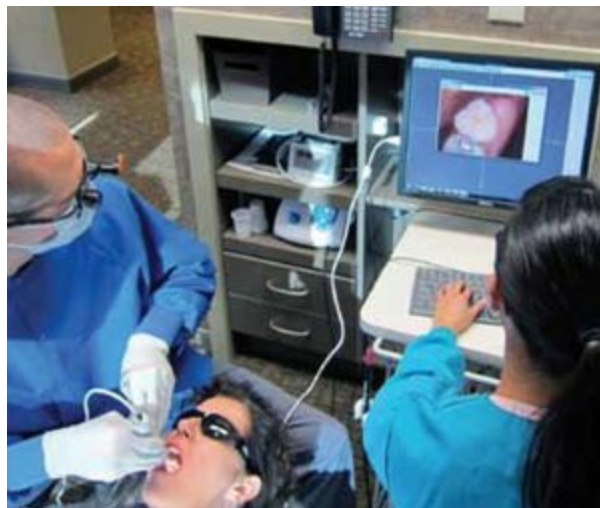
Doctor's side delivery from the patient chair

FIGURE 4.11



Doctor's Over the Patient or Transthoracic delivery

FIGURE 4.12



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 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 delivery of portable 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 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 "utility wall or utility cabinet" located behind the patient can also accommodate treatment technologies such as headlights, portable lasers, curing systems, cavitrons, 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.

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.

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.

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.

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, 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 provide the patient with a drink.

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.

When all treatment rooms are designed and equipped identically, the full spectrum of oral health care can be provided in each and every room.

FIGURE 4.13



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

FIGURE 4.14



The sterilization area accommodates the sterile instrument pre-set concept organized by

procedure type ready to deliver to the treatment rooms.

FIGURE 4.15



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

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 Academy of Dental Management consultants. He can be reached by e-mail at mike@unthank.com or by phone at 402.423.3300. Visit www.unthank.com for design seminar information and www.unthankdesigngroup.com for design services information.

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.

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UNTHANK
DESIGN GROUP

DESIGN PROGRAM

Name: _____

Address: _____ Office: _____

Home: _____

Phone: Office: _____ Home: _____

Fax: _____ Cell: _____

E-mail: _____

Is this project confidential?: No Yes, from? _____

Specialty: _____

Are you currently using any of the following consulting services?

	Yes	No
Management Consulting (If yes, whom?) _____	___	___
Technology Consulting	___	___
Financial Consulting	___	___
Clinical Consulting	___	___
Management Manuals & Tapes	___	___

Have you attended our Office Design seminar? Yes No

Please list any others: _____

Project Type:

- New Free-Standing Building for your practice only
- New Free-Standing Building with additional office lease space
- Lease Space or Condominium in:
 - Existing Building or Building to be Constructed
 - Existing Building to be Remodeled & Expanded
 - Existing Suite to be Remodeled & Expanded

Planning, Architecture & Interior Design for the Dental Professions

5930 VanDervoort Drive • Lincoln, Nebraska 68516 • 402 423 3300 • Fax 402 423 3377 • www.unthank.com

S

Number of floors in the building? _____

On which floor will your office be located? _____

Your estimate of New Square Footage? _____

Number of Doctors who will work in this office? _____

Maximum number of Doctors at any one time? _____

Maximum number of Hygienists at any one time? _____

Doctor's (or doctors') dominant hand(s): Right _____ Left _____

Projected staffing of the new office:

Doctors _____

Business _____

Clinical:

Hygienists _____

Assistants _____

Lab. Tech. _____

Other: _____

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

What are the reasons you have chosen **Unthank Design Group** to assist with the design of your new office?

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As background information on your project, please fill out only *one* of the following three items:

If you are:

- 1) *building* your own building,
what is your land cost? _____
How many square feet of land do you have? _____
- 2) *buying* a condominium,
what is the purchase cost? _____
If there is a "finish out" allowance included in the price, how much is it? _____
- 3) *leasing* a new space,
what is the rental rate? _____
If there is a "common area maintenance" fee, how much is it? _____
If there is a "finish out" allowance, how much is it? _____
Are utilities included in your rent? _____
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, accounting fees)? _____

If you have talked with your lenders and have the necessary information, please answer the following; otherwise, industry standards can be used.

- What terms have you been quoted?
- Interest rate _____
 - Points _____
 - Length of amortization _____

What is your current rent or building debt service (including utilities and taxes) for which you will no longer be responsible? _____

EXAMPLE

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What is your current monthly production (last six months average, including hygiene production)

Number of Doctors (full time)

Number of Hygienists (full time)

Number of hours of chair time scheduled per week per provider

Total number of operatories currently being Used (including hygiene)

How many new patients per month are taken into your practice? (Please list for each Doctor.)

What is your *true* practice overhead? (without auto lease, club dues or other personal expenses included in your corporation)

Has your production risen ___ or dropped ___ in recent months?

How much? _____

If either, to what do you attribute the change?

SAMPLE

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Reception/Waiting Area:

Would you like an entry "Vestibule" (an "airlock", two sets of entry doors)? ____

Number of adult seats needed: _____

Do you want a children's area? Yes ____ No ____

If yes, please describe: _____

Would you like a coffee/refreshment bar? Yes ____ No ____

Would you like an area for patient coats? Yes ____ No ____

If yes, on hangers ____ hooks ____ or our discretion ____

(We will also provide an attractive coat hook/hanger in each treatment room)

Would you like a door separating the Waiting Area from the rest of the office?

Yes ____ No ____

Please describe anything else you would like in the Waiting Area (e.g., TV, antiques, bulletin boards, etc.): _____

Business Area:

Number of employees anticipated:

Full-time _____

Part-time _____

Please list each employee and their major responsibilities, e.g.:

Receptionist - greeting, appointing, receive payment, answer telephone

Business Assistant - financial arrangements, insurance, A/R, A/P)

Consultation & Financial Arrangements:

Would you like a semi-private Financial Arrangements Area near the Reappointing Area? Yes ____ No ____

Where will you make case presentations?

Chair Side ____ Consult Room ____

Who will usually be present? _____

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Business Equipment:

Files:

If currently using paper charts, how many folders do you need to provide for?

Active _____ Inactive _____

How many inactives do you want in your office as opposed to remote storage? _____

Do you have any file cabinets that you wish to re-use? Yes ___ No ___
(If yes, please provide dimensions with either photographs or sketches.)

If buying new, do you have a preference as to type as opposed to leaving it to our discretion? Yes ___ No ___

- If yes, Lateral _____
- Revolving Lateral _____
- Slant Lateral _____
- Sliding Lateral _____
- Built-in Lateral _____
- (Other) _____

Do you plan to move toward a "paperless" office? Yes ___ No ___

Computer:

Do you currently have computers in your operatories? Yes ___ No ___

Do you plan to integrate computers in your operatories? Yes ___ No ___

Where will you want monitors located? _____

Where do you want printers located? _____

What dental software program(s) will you incorporate? _____

Copy Machine:

Floor-standing _____ or countertop type _____

Overall Dimensions ___" h x ___" w x ___" d

What is the overall height with the top open? _____

Fax Machine &/or all-in-one machine:

Overall Dimensions ___" h x ___" w x ___" d

What is the overall height with the top open? _____

Miscellaneous Business Machines:

S

Treatment Area:

Number of operatories needed _____

Will all operatories be designed and equipped identically? Yes ___ No ___

If not, explain the differences: _____

Will you have a "Clinical Workstation" computer terminal in each treatment room for use by the Staff? Yes ___ No ___

A "multimedia monitor" for use by the patient (e.g.: Intra-Oral Video, Patient Education, entertainment, etc.)? Yes ___ No ___

Type of Delivery System Desired:

Flexible rear delivery: Cart ___ or Arm ___

Chair delivery: Over The Patient ___ or Doctor's Side Delivery ___

Doctor's Side Wall or Side Cabinet Delivery: ___

Will you use any Dental Equipment Manufacturer Operatory Cabinetry?

If yes, please provide specifics: _____

What type of operatory dental light will be used?

Ceiling mounted track _____ Brand _____

Ceiling mounted post _____ Brand _____

Chair mounted _____ Brand _____

Wall mounted _____ Brand _____

Where will the following treatment technologies be used?

Item, Where & How	Drs.	Hyg.	Cart or	Permanently Installed
Intra-Oral video	___	___	___	___ (Docking Station?) ___
Digital Radiography	___	___	___	___
Digital Photography	___	___	___	___
Cavitron(s)	___	___	___	___
Cavijet(s)	___	___	___	___
Light-cure unit(s)	___	___	___	___
Air Abrasion	___	___	___	___
Laser(s)	___	___	___	___

Will you use a Handheld X-Ray machine (e.g.: Nomad)? Yes ___ No ___

How many Treatment Rooms will have P.A. X-Ray machines? _____

Existing # _____ Model _____

New # _____ Model _____

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Treatment Area: cont'd

Will you use any patient monitoring equipment for anesthesia procedures? Yes ___ No ___

If yes, please elaborate _____

Would you like a "Recovery Room" for post-surgery patients? Yes ___ No ___

Would you like a "Surgery Exit", not passing through the Waiting Area? Yes ___ No ___

"Technology Alcove":

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 ___

Would you like an area for the storage of cart delivered technologies to be used in the Treatment Rooms? Yes ___ No ___

Do you have any mobile devices requiring a place to "park" when not in use?

Yes ___ No ___; If yes, please elaborate (e.g.: Cerec, Biolase, etc.): _____

Product Display Area:

Would you like to display/dispense recommended products? Yes ___ No ___

Sterilization Area:

Anticipated daily average hygiene appointments _____

Anticipated daily average treatment appointments _____

What percentage of your practice will be ortho? _____

What sterilizer type(s) will be used? _____

Will your sterilizer(s) require connections to water and sewer? Yes ___ No ___

Required voltage _____ v

Brand(s) & model(s) _____

Dimensions _____ wide x _____ high x _____ deep

Dimensions _____ wide x _____ high x _____ deep

Will you be using Reversible Hydrocolloid? Yes ___ No ___

Pre-Set Concept:

Cassettes & Tubs _____ (recessed ultrasonic recommended)

Wraps & Tubs _____

Trays & Tubs _____

Will you be using a dishwasher for drying cassettes &/or disinfection? Yes ___ No ___

We will place an under-counter refrigerator in your Sterilization area unless directed otherwise.

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Lab:

What type of lab would you like?

Pour-Up ___ Production ___

If full production, indicate the square footage desired: _____

If a "pour-up" lab is desired, we will provide for compressed air, lab vacuum, plaster bins or drawers, a sink and counter space for pour-up and the following:

- Model trimmer _____
- Lathe _____
- Vacuum forming machine _____
- Gas outlet(s) _____ How many? _____
- Porcelain Glazing Oven _____
- Knee Space(s) _____ How many? _____
- Case Pans _____ How many? _____
- Porcelain Milling Device _____
- (Other) _____

Radiography:

Will you have a panoramic X-ray machine? Yes ___ No ___

With a cephalometric attachment? Yes ___ No ___

Will you use wall mounted cephalometric brackets? Yes ___ No ___

Would you like a Central Periapical X-ray area? Yes ___ No ___

Will this be used with cephalometric brackets? Yes ___ No ___

Will you have a Cone Beam CT? Yes ___ No ___ Mfr.? _____

Film Processing:

Will you incorporate digital radiography?

Using sensors? Yes ___ No ___ Mfr. _____

Using a scanning system? Yes ___ No ___ Mfr. _____

Do you want a darkroom? Yes ___ No ___

If yes, with a large format processor? Yes ___ No ___

Deep sink ___ Duplicator ___ Developing tank ___

Other _____

Will you use a daylight-loaded processor? Yes ___ No ___

Brand & Model _____

What percentage of your films will be processed by:

Hygienists _____ Assistants _____

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Doctor's Office(s):

How many offices do you want? ____

Do you have a room size preference? ____

Our discretion? ____

What type of desk do you want? _____

Built-in ____ dim. ____" x ____"

- or -

Free-standing:

Against wall ____ dim. ____" x ____"

- or -

Center of room ____ dim. ____" ____"

Additional furniture:

If existing to be reused:

Credenza? Yes ____ No ____ dim. ____" x ____"

Side Return? Yes ____ No ____ dim. ____" x ____"

Comp. Term.? Yes ____ No ____ dim. ____" x ____"

Bookshelves? Yes ____ No ____ dim. ____" x ____"

Do you need any other seating in this room? Yes ____ No ____

If yes, please describe and give dimensions of any existing furniture to be reused.

Do you want a private restroom? Yes ____ No ____

Opening to Private Office? Yes ____ No ____

Or near Private Office(s)? Yes ____ No ____

Do you want a private shower? Yes ____ No ____

Do you want a private closet? Yes ____ No ____

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Staff Lounge:

Total number attending office team meetings: _____

Would you like a Staff Lounge? Yes ___ No ___

If yes, describe the furniture you would like (e.g., rectangular table and five chairs):

Is this space to double as a "conference facility" (teaching, etc.)? Yes ___ No ___

Please elaborate _____

Would you like a Kitchenette (typically 6' of counter with a sink)? Yes ___ No ___

Please indicate what you would like to include:

Microwave: Yes ___ No ___

Dishwasher: Yes ___ No ___

Disposal: Yes ___ No ___

Ice Maker: Yes ___ No ___

Oven: Yes ___ No ___

Range: Yes ___ No ___

Refrigerator: Under-counter ___ - or - Full Sized ___

Coat closet and cubicle lockers? ___ - or - Full Lockers ___

Clinical Attire storage Yes ___ No ___

Staff restroom Yes ___ No ___

Washer/Dryer? Yes ___ No ___

Stacking ___ - or - side by side ___

A Changing Area in addition to the Clinical Attire Space and Staff restroom?

Yes ___ No ___

Would you like a shipment "Receiving Area"? (a strong shelving unit to prevent boxes from being scattered in the Staff Lounge) Yes ___ No ___

Storage:

Supply Storage:

We will provide Supply Storage based on your office parameters (e.g.: # of patients per day) unless directed otherwise.

Would you like a Bulk Storage room (e.g.: for items in quantity)? Yes ___ No ___

Unless otherwise indicated, we will provide for Business Supply storage in the Business Area cabinetry.

E

S

Mechanical Equipment:

Where will the "furnaces" (air handling units) be located?

Above the ceiling as a "horizontal package" Yes ___ No ___
or in a "furnace room"? Yes ___ No ___

Dental Mechanical Equipment:

Will you have your own compressor and vacuum? Yes ___ No ___
Will this equipment be located in your space? Yes ___ No ___
Will you have an amalgam separator? Yes ___ No ___

Medical Gases:

Will you use a mobile nitrous cart? Yes ___ No ___
Will nitrous be plumbed to each treatment chair? Yes ___ No ___
Number of tanks to be stored: ___

Janitorial Supply Closet:

For general cleaning supplies. Would you like one? Yes ___ No ___
Combined with Furnace or Dent. Equip. Room? Yes ___ No ___

Handicapped Accessible Restroom Requirements:

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.

Along with the Staff and Doctor's restrooms (as listed previously) we will provide one unisex restroom for patients, unless otherwise directed:

Chapter 5:
INTERIOR DESIGN



The interior design of your dental office is an opportunity to present your personal brand to the community. It is an extension of who you are and a way to differentiate your practice from the competition.



Chapter 5:

Interior Design

By Joe Miller, A.I.A.

LEARNING OBJECTIVES

- Understand the value of working with a licensed design professional
- Select a design professional that understands your vision for the office and has the experience and resources to make it happen
- Distinguish between interior design and “decorating”
- Communicate your personal style and interests to your team
- Recognize and make effective use of the wide range of materials and finishes that are available for your interior design
- Open your mind to new and exciting design possibilities - and don't be afraid to break the rules

The interior design of your dental office is an opportunity to present your personal brand to the community. It is an extension of who you are and a way to differentiate your practice from the competition. Your patients will often meet your office before they meet you. A well-designed office can suggest the quality of care and service that your patients can expect from you and your practice. Understanding the design process before you start down the path allows you to maximize the opportunity and truly

enjoy the experience.

Please note that, for the purpose of this chapter, the terms design professional and designer are used in reference to your architect and/or interior designer. It is important to recognize the role of an experienced, licensed professional in the planning and construction of your office.

Why Do I Need to Work with an Architect/Interior Designer?

I am often asked, “Why should I hire a licensed design professional when my dental equipment vendor will provide me with a dental equipment plan for free?” To answer this question, I provide the following visual: the equipment plan that a vendor provides typically fits on an 8 ½” x 11” sheet of paper. An architect/designer experienced in dental office design will provide you with a set of drawings that consists of 20 to 25 sheets, 24” x 36” in size and packed with information. This considerable discrepancy is made up of hundreds of design decisions that need to be made before construction begins. These decisions include, but are not limited to, the selection of finishes, doors, ceilings, lighting, plumbing fixtures and cabinetry. Everything you and your patients can see and touch must be selected and specified in the drawings. It is your designer’s job to guide you through each of these decisions and do so in a clear and simple manner.

This is not to minimize the importance of your dental equipment specialist - they are an extremely important member of the team. They will need to work closely with you and your architect to help everyone fully understand your equipment goals. However, the job of designing your office should be left to design professionals, not your equipment specialist and certainly not your general contractor.

Selecting a Design Professional

Selecting a designer is a process not unlike selecting a dentist. You

will speak with friends and colleagues to gauge their experiences. You may even meet with several professionals before selecting an individual or firm that best aligns with your needs.

When considering designers, speak with dentists in the area who have recently been through the process of designing and building/remodeling an office. Ask your equipment specialist for a list of the design firms they have worked with and what their experience has been. A good design professional makes their job easier. Review the designers' websites and confirm that they have a body of work that is presented in a professional manner.

The individual or firm you select should have the ability and resources to perform and facilitate all of the skills necessary to design a dental office.

When interviewing the applicants, you may come across examples in their portfolio of past projects that closely represent what you are looking for in the design of your office and in some cases you may not. Do not be distracted if their current portfolio doesn't already include "your office." This should not be the only measure of the designer. Architects and interior designers are not trained to design in one particular style. Good designers have an ability to interpret their client's goal and provide a design that is unique to them.

Selecting a designer is a process not unlike selecting a dentist. You will speak with friends and colleagues to gauge their experiences.

INTERVIEW

your shortlist of architects using the following questions as a guide:

- Do they have prior experience designing dental or dental specialty offices?
-

- Request a list of references and letters of recommendation

- Are they able to use and understand the dental lingo?

- What tools do they utilize when working with a dental client?

- Do they work with dental-specific schedules, forms and questionnaires?

- Do they work with 3-dimensional imaging software?

- Visit dental offices previously designed by the architect and ask the doctor how the facility is working for them

- Are they licensed to perform design services in the jurisdiction in which you are located? If not, what strategy do they use to assist you in working with someone who is?

- If they are a licensed architect rather than an interior designer, do they have the ability (skills) to make interior finish selections?

- Are they capable of providing the mechanical and electrical engineering required for the construction of your office?

Good Interior Design Is More Than Skin Deep

In my opinion, the interior design of your dental office should ideally be performed by the same professional who is responsible for designing your floor plan (as described in [Chapter 4: Office Layout](#)) and defining the three-dimensional character of your space.

While it is technically possible to bring in a secondary designer or “decorator” towards the end of the process to select some attractive finishes, this approach will often yield disjointed results. Selecting finishes should be an integral part of the overall design process, not a superficial afterthought. When your design professional is performing a full scope of services, from design through

construction, he or she is better able to guide the process toward the intended the results.

Good designers have an ability to interpret their client's goal and provide a design that is unique to them.

FIGURE 5.1:
DESIGN INFLUENCED BY PAINTING



The office design for Riverside Dental, located in Littleton, Colorado, was influenced by a painting by the dentist's father located at the left hand side of the photo.

WHAT'S MY STYLE?

While many dentists have a strong sense of their personal style and how they would like to present the character of their office to the public, an equal number do not. Some may know what they want but don't know how to effectively communicate it to their designer. It is the job of the design professional to work with the doctor to understand their aesthetic goals for the office. This communication can take place in a number of different ways:

- A simple dialog discussing the doctor's interests and passions outside of their professional life

- The doctor can point to examples in the designer's portfolio of offices that they like and that approximate their personal taste

- A visit to the doctor's current office or home

- A visit to other local dental offices that approximate the doctor's taste

- The doctor completes a dental office design questionnaire provided by the designer

- The doctor provides the designer with visual cues such as images from magazines, websites, etc. that represent their personal taste

Some of the images we have received from our clients over the years have been of other dental offices but often these images have nothing directly to do with dental. They might be of a restaurant the doctor and his or her family frequent, or a hotel where they have stayed on a recent vacation. As we have learned, this inspiration can come from anywhere. Recently, a general dentist presented us with

a painting that her father, a talented artist, had painted years earlier and asked us to allow the painting's forms and colors to inspire the design of her office, presented in [Figure 5.1](#). On another occasion, a client who is passionate about collecting small antique sculptures and artifacts asked us if we could find a place for these pieces in his new office. Together, we decided to design the office around them. Work closely with your architect to discover where the inspiration for your new office lies.

Know Your Audience

Putting personal styles aside for a moment, the right interior design for a general practice in downtown Chicago is not necessarily right for an office in rural Indiana. What may be right on the mark for an office design in suburban Dallas may not be appropriate for a practice located on the Florida coast. It is important to have a clear understanding of the patient demographic you are serving. This will allow you and your architect to target that audience through a well thought out design scheme.

Keeping Up with the Joneses

The interior design of your office is a way to differentiate yourself from the competition. Let's say that you are a general dentist planning your first office or an established dentist looking for another way to distinguish yourself from the masses. If you are located in an established community, there is a very good chance that many of the existing offices in the area are a bit "long in the tooth." That is to say old, outdated and perhaps a bit threadbare.

A fresh office design is going to stand out in the crowd. There is also the obvious perception that the standard of hygiene in a newer, cleaner office is superior to that of the practice that hasn't been renovated since the Nixon administration. The same can be said regarding technology. If a doctor is going to invest in the latest equipment and technology it is reasonable for them to want the interior design of the office to reflect the same progressive approach to dentistry. From a timing standpoint, remodeling an office at the same time as you are upgrading the technology can often be less

expensive then performing this work separately.

Dollars and Sense

We often have doctors voice the concern, “I don’t want my patients coming into a Taj Mahal office and thinking, ‘I guess this is what I am paying for.’” You certainly don’t want your patients preoccupied with the level of finish in your office to the point where they feel like they are subsidizing you pipe dream.

That is not to say that you shouldn’t put the same level of design attention into a \$90 per square foot office that you do into a \$200 per square foot space. Good design is not synonymous with expensive design. Good design is a function of thoughtful planning regardless of the budget. A sensitive designer will understand this and provide you with an interior design, and with a palette of materials, fixtures and finishes that is appropriate for your audience.

[Figures 5.2](#) and [5.3](#) show two general dental offices located in the same town, designed by the same architect and constructed at approximately the same time. One is a new office for an established dentist. While price is a concern on every project, this office was not built on what we would consider an entry-level budget. The other is of an office for a new-start general dentist. In his case, he was working on a limited budget based on what the bank typically provides for someone just starting out.

While we might argue about which office design we prefer or which has the higher level of finish, I think we can all agree that the quality of the interiors in both cases is relatively high. Neither space would ever be described as “vanilla.” What is important is that the same level of attention was invested in the design of both offices. As I stated earlier, good design is not synonymous with expensive design.

Time for a Facelift

If your current office is somewhat dated or worn out, but appropriate in size and functioning properly, then you may be a candidate for a

“facelift.” A facelift is a term used to describe a minimal level of remodeling that does not require adding or subtracting walls or any other invasive form of construction. It is typically limited to modifying existing surfaces of your office such as floors, walls, ceilings, lighting and occasionally cabinetry. A facelift can be a quick and relatively inexpensive way to breathe new life into a fading office environment. Depending on the extent of the remodel, this work can sometimes take place over the course of a week or less.

Keep in mind that while a facelift will certainly make your office outwardly more attractive, it will not cover-up flaws in the original design, layout or flow of the office. Before rushing into construction, work with your design professional to determine your goals for the remodel. If what you really need is that extra chair or a designated consultation room, a facelift is not the answer. An extensive remodel can be costly and time consuming, but it may add far more to your practice’s bottom line when compared to a facelift.

Before rushing into construction, work with your design professional to determine your goals for the remodel.

FIGURE 5.2:
ESTABLISHED DENTIST



Dental office design for an established dentist who's budget allowed for a higher level of finish. Reception area for Cosmetic Dentistry of Colorado, located in Denver, Colorado.

FIGURE 5.3:
NEW-START DENTIST



Dental office design for a new-start dentist who was working with an entry-level budget. Clinical hallway and operatories for The Dental Shoppe, located in Lafayette, Colorado.

Good design is not synonymous with expensive design.
Good design is a function of thoughtful planning regardless
of the budget.

FIGURE 5.4:
3-D RENDERING



3-D design software is used to create a digital rendering of the waiting area for Stapleton Orthodontics, located in Denver, Colorado.

FIGURE 5.5: PHOTO OF SPACE



The completed waiting area for Stapleton Orthodontics, located in Denver, Colorado, brings the digital rendering to life.

3-D software allows your designer to present realistic images of what your office will actually look like when it is complete including the representation of selected finishes.

Three-dimensional Imagery

The technology available to design professionals these days is not unlike what you are experiencing in dentistry. Our three-dimensional modeling software is the cone beam unit. While a two-dimensional floor plan is at the heart of every great office design, it only tells part of the story. 3-D software allows your designer to present realistic images of what your office will actually look like when it is complete including the representation of selected finishes. A virtual camera can be placed anywhere on the floor plan to provide the client with a 3-D snapshot of a specific viewpoint of the office.

Figures 5.4 and 5.5 illustrate two images of a waiting area in an orthodontic office. The image to the left is a 3-D rendering; the

image to the right is a photograph of the completed space. As you can see, the resemblance is quite remarkable. For designers who choose to invest in this technology, 3-D software is another powerful tool that they can use as to communicate their ideas to their dental clients.

Traditional vs. Modern

The answer to this question depends on several different factors, the most important being the doctor's personal taste. Traditional vs. modern is not an either/or proposition. It is actually more of a linear scale. Determining where you fall on the traditional-to-modern scale is an exercise that your designer can help you with as you begin the design process.

The demographics of your community will also play a part in this decision. If your practice is located in a retirement community then a sleek, modern, "Apple Store" version of a dental office may fall flat. Conversely, a quaint, Victorian office is probably not going to fly with a young, hip demographic. Of course, these are extreme examples and most of you are going to find that your design sweet spot lies somewhere in-between.

The terms "modern" or "contemporary" conjure different images to different people. What is important to remember is that modern does not need to feel cold and clinical. [Figures 5.6](#), [5.7](#) and [5.8](#) compare three different dental offices. Each of these designs could accurately be classified as modern. However, as you move from left to right, you will notice that the offices get increasingly warmer. The terms "modern" and "warmth" do not need to be mutually exclusive. Through the proper introduction of wood, stone, color and lighting it is very possible to design an office that reflects the modern, progressive spirit of your practice without ever feeling cold.

The terms "modern" or "contemporary" conjure different images to different people. What is important to remember is that modern does not need to feel cold and clinical.

FIGURE 5.6: MODERN



The reception area for Dental Elements, located in Denver, Colorado, represents a clean, crisp approach to modern design. This simple, uncluttered style of design is best described as minimalist.

FIGURE 5.7: WARM MODERN



The waiting area for Bennett Signature Dentistry, located in Denver, Colorado, utilizes stone, espresso stained wood and a contemporary fireplace to add warmth to the modern vocabulary.

FIGURE 5.8: WARMER MODERN



Stained concrete, and a cork faced reception desk turns up the warmth factor for Stapleton Dental, located in Denver, Colorado and explodes the myth that modern design is cold and clinical.

Color

I could regurgitate reams of studies and statistics that describe what your emotional response might be when placed in a room painted a specific color. I could also list the colors you are never supposed to use in a healthcare facility because they make people feel “anxious” or “overly stimulated.” The fact is, you’ve heard it all before. I’m not disputing any of these studies but I do believe that there is an exception to every rule.

For years I’ve heard “experts” state that you should never use red in a dental office because of the allusion to blood. I respectfully disagree. First of all, if blood is that much of an issue in your general dental practice you’ve got bigger worries than what color to paint your walls. Second, I’ve personally seen the wonderful impact that a bold red accent can bring to an office design when used with restraint, such as in [Figure 5.1](#).

Restraint is a key point when discussing accent colors and interior design in general. In my experience, good interior design is less an issue of what color you select and more about where you choose to locate that color and how much of that color you choose to use. [Figure 5.9](#) reveals a dental office with a relatively neutral palette. As you can see, there are occasional pops of color to catch your eye. It is the interplay of color and contrast against the muted backdrop that

creates the visual interest.

FIGURE 5.9:
OCCASIONAL POPS OF COLOR



Occasional pops of color are strategically placed for maximum impact against a neutral backdrop at Sewell Family Dentistry, located in Boulder, Colorado.

Pick Your Places

When working with clients on a design, I often use the phrase, “Pick your places.” That is to say, let’s decide on a handful of places throughout the office to really capture the patient’s imagination. This may be the design of the front desk, or the glass walled consult, or the dramatic lighting in the hallways, or the cool sink in the patient bathroom, or all of the above. Other areas of the office may be relatively simple and without much in the way of a “wow” factor. That’s okay and should be intentional. Every square inch of your office design should not be competing for your attention. Otherwise, the eye doesn’t know where to look first. The “wow” places need something subtler to play off of. Work with your designer to pick your places.

Decide on a handful of places throughout the office to really capture the patient's imagination. This may be the design of the front desk, or the glass walled consult, or the dramatic lighting in the hallways, or the cool sink in the patient bathroom, or all of the above.

Design with Future Flexibility in Mind

A common question that we often hear is, "How can my office design avoid becoming dated?" The short answer is it can't. No one can predict what future design trends will bring. If you could, the guy who designed those avocado green refrigerators back in the 70s would have known better. What you can do is design your dental office with future flexibility in mind.

Even with the best interior design there will come a time when you will want to update the finishes in your office. Your reasons may include:

- Wear and tear on the existing office finishes

- The interior is looking dated when compared to other dental offices in the area

- You're just plain tired of the appearance and need a change

Knowing where to incorporate color and other bold statements in your office will allow you to more easily make modifications in the future. The table in [Figure 5.10](#) separates the visible finishes/fixtures in a dental office and rates the degree of difficulty and potential cost to update these elements. Please note that increased difficulty usually translates to increased length of construction.

FIGURE 5.10: DEGREE OF DIFFICULTY TABLE

Relatively Easy/Inexpensive	Moderately Difficult/Expensive	Very Difficult/Expensive
Paint	Countertops	Built-in Cabinetry
Carpet	Recessed Lighting	Built-in Plumbing Fixtures
Ceiling Tile	Free-standing Plumbing Fixtures	Wall Modifications
Surface Mounted Lighting	Wallcoverings	Ceiling Modifications
Furniture	Doors	Ceramic Floor/Wall Tile
Art	Vinyl/Laminate Flooring	

What this table tells us is that if you are planning to use bold colors, patterns or fixtures in your design, try to use them on the left side of the table because replacing them down the road will be less costly. As you move to the right side of the chart, you will encounter increased difficulty, cost and time to make these changes.

Over the years I have visited dozens of dental offices in need of an update where the existing built-in cabinetry was sheathed in a particularly “idiosyncratic” plastic laminate. Let’s just say that it wasn’t a color that we could continue to work with. This immediately turns what would have been a simple facelift into a moderate to extensive remodel.

That’s not to say that you shouldn’t take some chances with the design of your office. By all means get outside the box. Just know that where you decide to make that statement may matter later down the road.

Interior Design for the Whole Family

While the focus of this chapter is not pediatric or orthodontic some of you may have family practices that have specialties in these areas. I thought I would set aside a few sentences to address interior design that appeals to kids and teens as well as adults.

There is a misconception that we need to dumb-down office interiors that cater to children, that we need to resort to “thematic design” that utilizes cartoon characters to capture and maintain their attention. While themes can be a fun and effective way to engage younger kids, they tend to have a very limited audience. For

example:

- Teenagers can feel alienated
- Parents and guardians can feel uncomfortable in the environment (and they're the ones signing the check)
- The theme can get old fast as the kids age and popular culture evolves

FIGURE 5.11:
DESIGN FOR THE WHOLE FAMILY



Dynamic colors, forms, patterns and textures take the place of “thematic” pediatric design at Colorado Kids Pediatric Dentistry, located in Highlands Ranch, Colorado.

In my experience, it is possible to provide interior design that is fun and interesting for the entire family without being condescending or trite. In [Figures 5.11](#) and [5.12](#), you will find images of two pediatric dental offices. As you can see, the visual interest is created through color, form, pattern and texture rather than literal representation. Whether it's Junior or Dad walking through the front door of these offices the response will probably be the same: “Wow, this is cool!” Approaching the design in this manner allows you to provide your patients an environment that appeals to all ages and endures over time.

In my experience, it is possible to provide interior design that is fun and interesting for the entire family without being condescending or trite.

FIGURE 5.12:
DESIGN FOR THE WHOLE FAMILY



The reception area at Little Britches Pediatric Dentistry, located in Longmont, Colorado, demonstrates that pediatric office design can appeal to the whole family.

Materials and Finishes

In 25 years of practicing architecture and interior design I have seen an explosion in the palette of available materials and finishes. When I first started, choices were quite limited. Today options and opportunities are endless. The purpose of this section is to present you with a cross-section of finishes.

The table in [Figure 5.13](#) includes a product description, appropriate location of use, relative cost (low, medium or high). Please note that this is only a limited sampling intended to give you an idea of some of the products that are available and successfully being used in the interior design of general dental offices.

Below you will find some additional details on a number of commonly used materials and finishes along with some that are gaining increased popularity in the dental setting.

Carpet

Carpet has rapidly fallen out of favor in clinical areas because it is more difficult to clean than a hard surface and because carpeting is perceived to be un-hygienic. However, carpet still has an important role to play in an office setting. It is regularly used in waiting areas, offices and hallways. It can be specified as a broadloom (large continuous rolls) as well as carpet tile. Carpet tile is a great option instead of broadloom since damaged or stained tiles can be easily replaced. Regardless of the format, carpet is easy on the back and feet, and is great at absorbing sound. Even the priciest commercial carpet is inexpensive when compared to other flooring options. It is easy to replace and can often be done over the course of a weekend.

FIGURE 5.13: RELATIVE COST TABLE

	Product	Appropriate Locations	Relative Cost
Floors:	Carpet	Non-clinical Areas	Low
	Vinyl Composition Tile	Clinical, Staff Areas	Low
	Sheet Vinyl	Clinical, Staff Areas	Medium
	Polished/Stained Concrete	All Areas	Medium
	Luxury Vinyl Tile	Clinical, Patient Areas	Medium/High
	Wood Plank Flooring	Non-clinical Areas	High
	Porcelain Tile	All Areas	High
	Stone	All Areas	High
Walls:	Painted Gypsum Board	All Areas	Low
	Wallcovering	Patient Areas	Medium
	Laminate Wall Panels	Restrooms	Medium
	Ceramic/Glass Tile	Restrooms	Medium/High
	Wood Veneer Panels	Patient Areas	Medium/High
	Frameless Glass	Patient Areas	High
	Translucent Panels	Patient Areas	High
Ceilings:	Suspended Acoustic Grid	All Areas	Low
	Painted Gypsum Board	Patient Areas, Restrooms	Medium
	Painted Exposed Structure	Patient Areas	Medium
	Metal Ceiling Systems	Patient Areas	High
	Translucent Panel Systems	Patient Areas	High
	Wood Ceiling Systems	Patient Areas	High
Cabinetry:	Plastic Laminate Facing	All Areas	Low
	Wood Veneer Facing	Patient Areas	Medium
	Ceramic/Glass Tile Facing	Patient Areas	Medium/High
	Granite Countertops	Patient Areas	Medium/High
	Wood Countertops	Patient Areas	Medium/High
	Lacquered Wood	Patient Areas	Medium/High
	Solid Surface Countertops	All Areas	High
	Quartz Countertops	Patient Areas	High
	Marble Countertops	Patient Areas	High
	Concrete Countertops	Patient Areas	High
Stainless Steel Countertops	Clinical, Patient Areas	High	
Doors:	Painted Wood Doors	All Areas	Low
	Wood Veneer Doors	All Areas	Medium
	Glass Panel Wood Doors	All Areas	Medium/High
	Frameless Glass Doors	Patient Areas	High

Luxury Vinyl Tile Flooring

In clinical areas, the most popular flooring we have seen for dental office operatories in recent years has easily been luxury vinyl tile, pictured in [Figure 5.14](#). It is a commercial grade product that

adheres directly to the substrate and involves very little maintenance (no wax — usually just a damp mop). It is designed to simulate wood, stone and a myriad of other materials. The simulated wood planks are particularly convincing and bring a nice level of warmth to the office. Worn planks or tiles can be easily replaced. While not inexpensive, the cost of this product tends to work quite well within a typical dental office budget.

The simulated wood planks are particularly convincing and bring a nice level of warmth to the office.

Polished Concrete Floors

When your designer suggests concrete as a flooring option, try not to think about your oil stained garage floor. Polished concrete is an attractive, durable, highly functional and economical option for flooring throughout the office, as shown in [Figure 5.15](#). It is particularly popular in offices with a contemporary character. In many cases the concrete is already present in the building so the doctor is only paying for the stain and polishing process. It can be stained a variety of colors or just polished with its natural grey patina. The polishing process can transform the concrete from a dull sheen to a high gloss appearance. Area rugs strategically placed over the concrete can warm up a waiting area or a doctor's private office.

Frameless Glass Wall/Door Systems

Frameless glass wall/door systems, depicted in [Figure 5.16](#), are clean, crisp and bring a level of class to any dental office. The frameless nature of this system offers uncluttered views to and from the space. The glass panels can be frosted for privacy with a variety of film products or can remain crystal clear. The clear panels serve as a great backdrop for a logo. The only down side is the relatively high cost and the cleaning of occasional fingerprints. Consultation rooms remain a very popular application for this wall system.

Translucent Panels

Translucent panels, like the example shown in [Figure 5.17](#), are one of the more exciting products we have seen in recent years. They are made from plastic resins and embedded with everything from branches to shells to fabrics to stones. You name it - they can embed it. The panels provide a level of privacy as well as visual interest. They can be used for walls, doors and ceiling elements, but pick your places - these panels don't come cheap.

[Translucent panels, like the example shown in Figure 5.17, are one of the more exciting products we have seen in recent years.](#)

FIGURE 5.14:
LUXURY VINYL TILE



Luxury vinyl tile flooring with a simulated wood appearance is used at the operatories of Elements Family Dentistry in Parker, Colorado.

FIGURE 5.15:
POLISHED CONCRETE FLOOR



Polished concrete can be an attractive, functional and economical flooring option for dental office as seen here at Pineland Dental, located in Larkspur, Colorado

FIGURE 5.16:
FRAMELESS GLASS



Frameless glass wall systems are clean, crisp and provide unobscured views to and from spaces such as consultation rooms as in this example at Pearl Dentistry, located in Denver, Colorado.

FIGURE 5.17:
TRANSLUCENT PANELS



Translucent panels, such as the ones utilized at Levin Family Dentistry, located in Denver, Colorado, come in a myriad of color, patterns and textures.

FIGURE 5.18:
EXPOSED STRUCTURE CEILING



The ceiling structure and ductwork at Stapleton Dentistry, located in Denver, Colorado, is exposed and painted for a modern, industrial look.

FIGURE 5.19:

LACQUERED WALL PANELS



Lacquered wood panels create an upscale yet economical effect for walls and cabinetry as represented here at Lotus Family Dental, located in Aurora, Colorado.

Lacquered wood, displayed in [Figure 5.19](#), is an exciting alternative to plastic laminate providing an upscale look for cabinetry and wall panels without the upscale price. Inexpensive particleboard panels are painted with an automotive grade paint to create a high gloss, lacquered effect that is surprisingly durable.

Exposed Structure Ceiling

The term “exposed structure ceiling” is a misnomer. It is really not a ceiling at all. In lieu of a ceiling, the existing structure and mechanical systems such as beams, joists, pipes and ductwork are left exposed and usually painted, as you can see in [Figure 5.18](#). This approach provides a nice change-of-pace from the typical dropped ceiling and can give an office a modern, industrial look. The affect can also be surprisingly warm depending on the color palette selected. The cost of an exposed structure ceiling is quite reasonable but, since the exposed structure is a hard surface, provisions need to be made for sound absorption.

Lacquered Wood

Lacquered wood, displayed in [Figure 5.19](#), is an exciting alternative to plastic laminate providing an upscale look for cabinetry and wall panels without the upscale price. Inexpensive particleboard panels are painted with an automotive grade paint to create a high gloss, lacquered effect that is surprisingly durable. The image referenced in [Figure 5.19](#) is of a white lacquered wall panel but your color options are literally endless.

Precast Concrete Countertops

Comparable in price to fine stone or quartz countertops but with the ability to customize them to your personal taste, precast concrete countertops are a great option for a reception desks, beverage station or other signature location. Concrete can also be colored and formed into to sinks and other design elements. Foreign objects such as metal, stone and glass can be embedded into the concrete for a more custom appearance. Precast concrete elements are typically cast off-site in a factory and installed at the very end of construction.

[Concrete can also be colored and formed into to sinks and other design elements.](#)

Lighting

The advances in lighting technology have closely paralleled the country's increased awareness in energy conservation along with the more restrictive code requirements that now exist in most jurisdictions. Incandescent lamps have been slowly phased out over the years and are now used sparingly in dental offices due to their excessive energy consumption.

Fluorescent is the go-to lamp for commercial construction. Fluorescent tubes and compact fluorescents have been a mainstay for years, particularly in operatories. Better fixture design has improved the quality of the light, reduced the glare and made the fixtures more pleasant to look at. Indirect fixtures hide the tubes from view, improving the dental experience for patients when they are fully reclined in the chair. Ideal color rendition can be achieved by

selecting the proper lamp temperature and introducing natural light into the clinical environment whenever possible. Compact fluorescent lamps are used in recessed can fixtures commonly specified in waiting rooms, hallways and other front-of-house locations.

LED lamps (light emitting diodes) are the latest in lighting technology. They carry an up-front cost premium but are extremely energy efficient and last a short eternity. There is every indication that LEDs will eventually take over the commercial market as the technology advances and prices continue to come down.

Feature lighting such as pendants, sconces and cove lighting can be specified with a variety of lamp types, from incandescent to LEDs, depending on the affect you are trying to achieve. Pendants are frequently used at reception desks but over the years this look has become a bit overdone. As you can see from many of the office images in this chapter, it is possible to design an interesting reception experience without the cliché of pendants. Inexpensive theatrical gels can be placed over cove fixtures to introduce additional color into the interior environment for a dramatic affect.

Acoustics

Since most surfaces in a dental office are hard, it can be a fairly noisy environment if accommodations are not made for sound absorption. Acoustical grid ceilings are the most common way to achieve this. These products have become more refined over the years, as they have moved away from the ever-present cafeteria tile you remember flinging your pencil up into in junior high. They are available in a multitude of sizes, patterns and textures, and do a great job of absorbing sound. They can also be painted any color to compliment your office design. When exposing the existing structure above, acoustical panel can be adhered directly to the structural deck and painted to essentially disappear. Carpeting and acoustical wall panels are also frequently used to soften a space.

Since most surfaces in a dental office are hard, it can be a fairly noisy environment if accommodations are not made

for sound absorption. Acoustical grid ceilings are the most common way to achieve this.

Furniture and Art

Furniture and art is all too often an afterthought tacked on at the end of construction. Work with your designer early in the process to determine an appropriate budget. I suggest avoiding chairs designed for residential use and select instead chairs built for commercial use. Residential chairs in a dental office can quickly look shabby and you will very likely end up replacing them in just a few short years. Also, after spending all of the time and effort designing an office that meets your vision, it is counterproductive to introduce cheap chairs that detract from the overall look and patient experience. Plan on spending a minimum of \$300 a chair for waiting room chairs and \$600 - \$700 per chair for comfortable, ergonomic workstation chairs. This may sound like a lot but when you consider that well-designed, well-built furniture can often outlive your office it's quite reasonable. [Figure 5.20](#) illustrates how the thoughtful selection of furniture and art reinforces the overall office design.

Your office need not be fully accessorized with art on day one. The addition of art can be slowly phased over time. You may start with 1 or 2 pieces in prime locations and then build on that. Sourcing art does not necessarily mean going to galleries and spending thousands on original art. Online resources allow for easy access to unique printed art and photography for very reasonable prices. Another popular method for providing art is to display original work by local artists on a consignment basis. This approach can be a win-win for both dentist and artist. The artist gets to display their work in a heavily trafficked space in hopes of selling it and the dentist get free art for a predetermined period of time. Your designer can often help facilitate this process.

FIGURE 5.20:
FURNITURE & ART



The thoughtful selection of furniture and art can reinforce the overall interior design of the office as illustrated here at Dental Elements, located in Denver, Colorado.

Summary

By working with a skilled architect/interior designer on the design of your dental office, you maximize the opportunity to

bring your personal vision to reality. Good planning saves time, money and heartburn. The design and construction should be a fun and exciting experience. A design professional with experience in dental can guide you seamlessly through the process.

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 200 dental offices in the past 13 years.

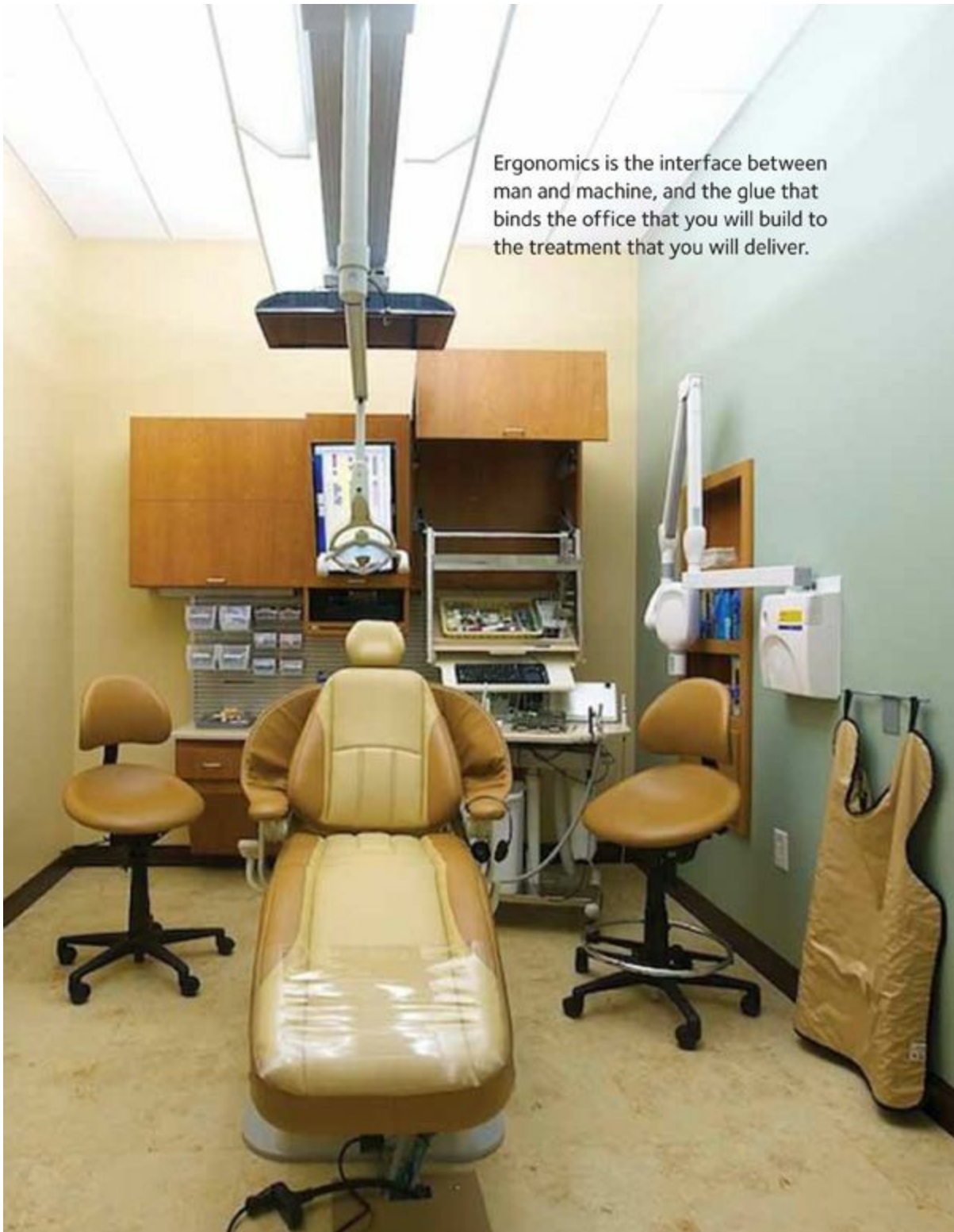
To learn more about JoeArchitect and their work, visit their website at www.joearchitect.com or contact Joe Miller directly at joe@joearchitect.com.

Chapter 6:

ERGONOMICS



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.



Chapter 6:

Ergonomics

By David J. Ahearn, D.D.S.

LEARNING OBJECTIVES

- Differentiate and prioritize the two types of ergonomic improvements involved in a design project, internal and external

- Clarify the role of the office layout and its relationship to operatory workflow and internal ergonomic performance

- Discuss the important components of lean manufacturing principles which positively impact office ergonomics by eliminating wasted effort, simplifying systems and reducing cost in your office design

- Understand the three essential elements of internal ergonomics: proximity, posture, and visibility

With all the details of creating a new office, it is possible to overlook what is ultimately the most critical element of a practice: the dentist. Stated simply, you can't break the machine that makes it all happen. All of the components of a great practice are of little value if the practitioner becomes unable to practice or cannot practice effectively due to trauma.

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 neuromuscular goniometry, by which

we study stress on our bodies, to the principles of lean manufacturing, which seek to reduce the work involved in any manufacturing process. There are two types of ergonomics: “external” ergonomics relate to workflow principles and process simplification, and “internal” ergonomics deal with the reduction of fatigue, stress and injury through the appropriate orientation of the operative environment. We will touch on both types in this chapter as they relate to dental office layout and design.

Great Ergonomics Make You Faster, Not Slower

Some dentists erroneously believe that proper ergonomics will slow down their ability to treat patients. We may learn habits very early in our practice life that we may later wish to alter. Other habits that form early may be unproductive or downright destructive. These habits tend to be reinforced as the practice continues and efforts are made to “improve” performance because by this time, these are learned behaviors. Unfortunately, bad habits are hard to break and good habits don’t feel comfortable as they are being learned.

I strongly suggest that a practitioner learn new techniques for proper visualization at the earliest possible stage, preferably prior to designing and building a new practice. Unfortunately, the multiple demands of an undergraduate dental education may 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, and many practice situations require us to adopt a very different type of dental delivery than that taught in dental school ([Figure 6.1](#)). As a result, less than ideal design decisions regarding workflow, deployment, equipping costs, etc. become built into many practices. Many of these practitioners as they progress in years suffer back, neck, shoulder and wrist pain or injury that might have been entirely avoided through proper workplace design and use.

FIGURE 6.1

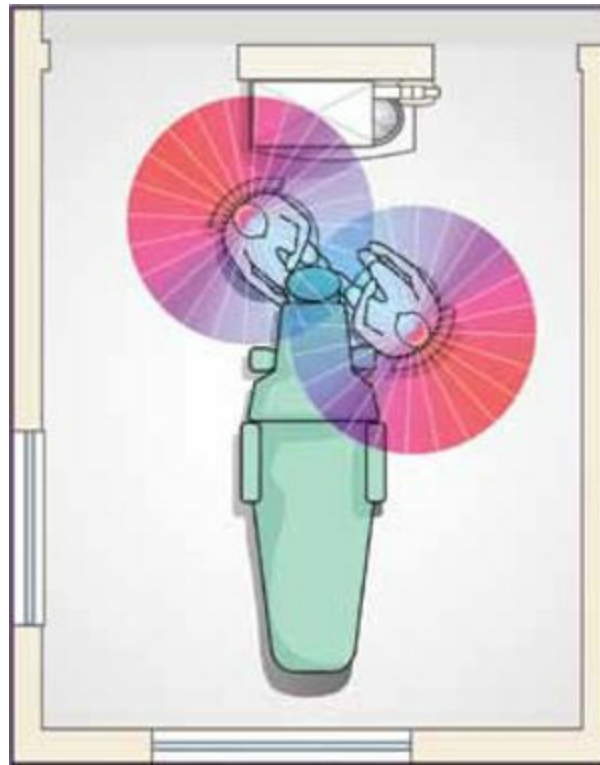


Bad habits can develop early in practice life. Many dental students report some level of back, neck or shoulder pain prior to graduation.

You Can't Use What You Can't Reach

There are many opinions regarding proper operatory layout. However, one central principle that is not subject to opinion is that dental equipment and supplies that are outside the primary range of motion for both operator and the assistant can create an inherent disadvantage from both a performance and an ergonomic standpoint (Figure 6.2). An operatory layout that does not adhere to this central principle can subject the practice to compromises that can have long range effects on the practice. In addition patient size and health variations can require practitioners to be able to respond with a range of postures in order to be able to deliver care to all patients. Therefore, one of the goals of your operatory design should be to increase the flexibility of successful care from a variety of treatment positions rather than to create a treatment environment that locks doctors and staff members into a constricted delivery range of function.

FIGURE 6.2

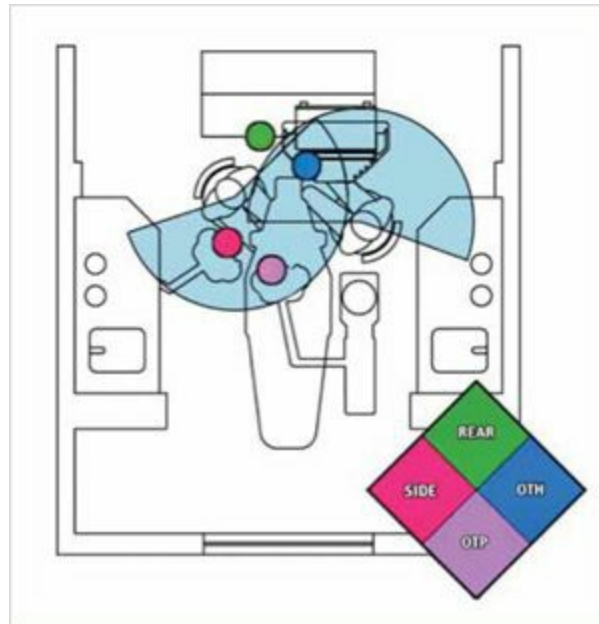


The area of active, ergonomically acceptable, treatment area (see blue) is actually quite limited.

Unfortunately, dentists often get confused between two rather significant decisions regarding how the operatory is to be equipped. The first is from where the handpieces are delivered and the second is where the overwhelming majority of the supplies reside. Of these two decisions, the most important relates to supply placement rather than handpiece placement (Figure 6.3). This is due to the fact that actual handpiece use comprises less than 10% of a typical procedure time.

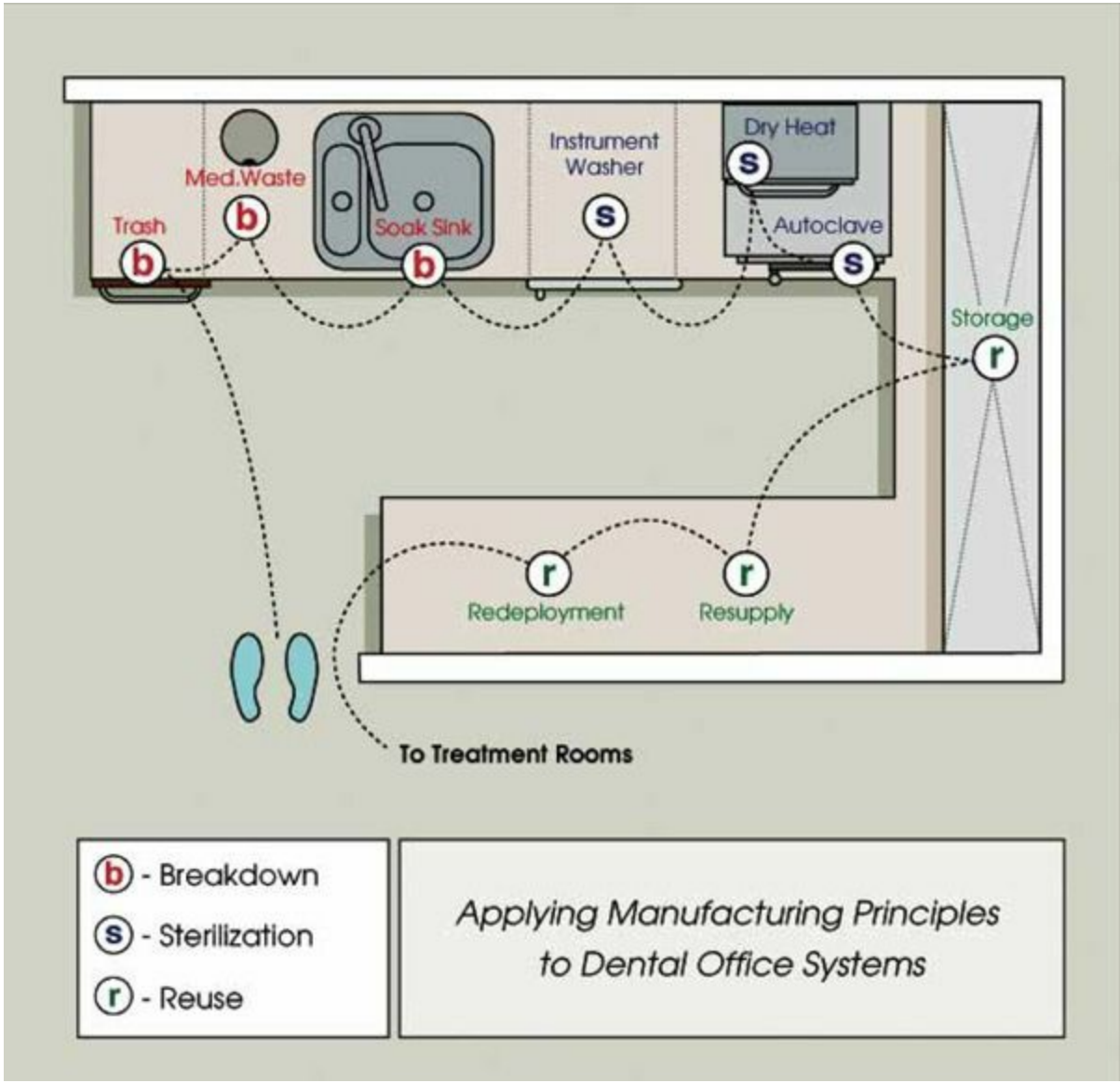
What has happened over the prior decades is that as supply complexity increased due to the evolving diversity of procedures and materials used, many treatment rooms became increasingly cluttered by storage of excess materials, which can render the operatory more of a warehouse than a location for providing care. This can restrict practitioner range of motion, obstruct the introduction of advanced technology and increase room construction costs.

FIGURE 6.3



There are 4 major variants for handpiece placement. Over-the-head and over-the-patient have the fewest ergonomic and productivity challenges.

FIGURE 6.4



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

FIGURE 6.5



Judicious use of cabinetry in the operatory results in a combination of high treatment efficiency, compact and economical room configuration and multi-functional use.

Office Layout and its Influence on Workflow

One of the primary reasons why excellence in office design is so closely linked to practice success is that a great office design streamlines workflow. Improved workflow reduces the effort required to complete the myriad of tasks involved in successfully servicing a patient from the initial phone call, right up to the completed restoration. Therefore, workflow is a very significant aspect of the office ergonomic improvement effort. There are immeasurable aspects and details of the office architectural design that will affect workflow. Here we will discuss three examples in an effort to illustrate the principles of workflow effectiveness.

One of the primary reasons why excellence in office design is so closely linked to practice success is that a great office design streamlines workflow.

Overall Office Layout

The overall layout directly impacts workflow efficiency. Careful attention to appropriate adjacencies has a beneficial effect on productivity. Unfortunately, every office design requires a common measure of prioritization and compromise. For example, the “ideal” office plan would have sterilization, resupply, storage, imaging, doctor’s offices, and consultation all in the immediate center of the main corridor of the office. Obviously, this is not possible. What is possible is to minimize compromise by tailoring each design individually to the desired practice type. This is why there is no true “one size fits all” office design. Successfully copying another practice’s office plan may require a commitment to copy that practice model in its entirety. This is an area of significant misunderstanding and leads many doctors to fail in their efforts at matching others’ success. You can buy a Ferrari, but if you do you should plan to drive it as intended.

Sterilization Area

Sterilization is often regarded as a singular activity, a process in and of itself. However, the objective of sterilization is not to render an instrument sterile, but it is the return of a clean, useful instrument to use by the practice for the next procedure. The value in the process is achieved through the entire process of sterilization, restocking, and resupply. It must be looked at as a singular entity, and as part of a “one piece flow” manufacturing cell ([Figure 6.4](#)). The design of your sterilization sequence and its resupply and restocking components can reduce labor in a typical 10-chair practice by as much as one full employee equivalent while improving treatment and reducing room turnaround times simultaneously.

Patient Consultation Area

Patient consultation is another area where improved workflow has a significant impact on practice performance and therefore success. There can be a discrepancy between what has been designed for and utilized in what are regarded as “exclusive” practices, which may admit fewer new patients, and what actually happens day to day in a

typical practice. The workflow sequence of a more exclusive practice is generally that the patient is seen for an interview either chairside or in a private office/consultation space (Figure 6.5). Then an examination is performed in the operatory, after which the patient is returned to a dedicated consultation room for treatment discussion, which then concludes with financial arrangements and scheduling at the front desk.

While a dedicated consultation space is highly desirable, it has also been observed that in more and more practices, a higher new patient count is accompanied by a need to reduce the steps required to accomplish greeting, examination, education, consultation, financial arrangements, and scheduling. Consolidation of functions through operatory flow reconfiguration allows for significant workflow improvement. This can be successfully accomplished through careful treatment room sound isolation, removal of threatening dental equipment from the visual field and introducing a usable consultation format into the treatment space.

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

An office's system of production affects practice layout, which in turn has a significant effect upon operatory design and function. There are two basic concepts for the setup and deployment of supplies and equipment in any office: room-centric and office-centric.

An office's system of production affects practice layout, which in turn has a significant effect upon operatory design and function.

Room-centric deployment is what is most commonly used in a practice start up. It is what doctors in two or three room practices commonly begin with. In a room-centric office, a significant share of the supply storage volume is housed in the actual operatories with many drawers and tubs for a wide array of procedures (Figure 6.6). The setup is most productively deployed when both of the doctor

rooms are fully and identically stocked.

Here sterilization is often disconnected from resupply and the deployment of specialty products. Thus, the central core of the office is lighter at the expense of the treatment room volume. Room-centric layouts work well for a three- or four-chair office because the cost of outfitting and provisioning a small number of rooms is economically acceptable. However, room-centric layouts tend to bog down the practice as room counts increase.

Office-centric layouts are a change in thinking about supply deployment with respect to whole office flow, which is the basis of lean production principles. Lean production is a system of production developed by Dr. Taiichi Ohno of Toyota. The central principles focus on elimination of waste, empowering workers and reducing inventory in order to improve productivity. The improved flow of the resulting system allows an organization to respond more rapidly to customer demands in both the short and long term. Lean production permits a much higher room count than was previously thought practical (Figure 6.7). In office-centric design, the central core of lab/sterilization/restocking/redeployment takes on a greater importance while the in-room storage is both reduced and focused on the point of use. Your choice of deployment type will have longstanding ramifications for the health and productivity of both the practitioner and the practice, and is an essential decision in the clinical aspect of office design.

Operatory Layout and Internal Ergonomics: Posture, Positioning and Visibility

In dental school, we are often told that dentistry is a service business and, of course, this is true. However, what is too often unsaid is that dentistry requires that all practitioners are also part of a manufacturing enterprise, for 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 of the matter is that patients actually

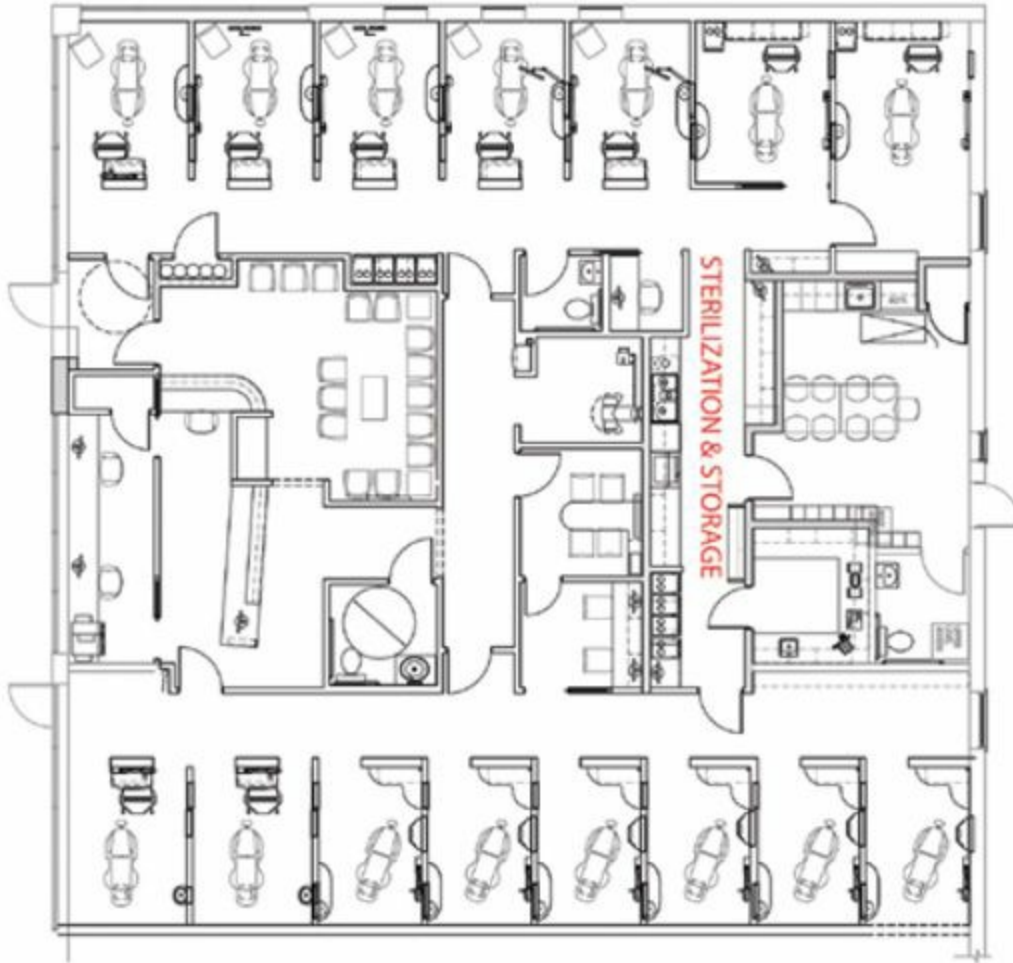
pay us to improve oral structure physically. We are therefore manufacturers and as such three principles of internal ergonomics are of the utmost importance for the health of the entire dental team: posture, positioning, and visibility.

FIGURE 6.6



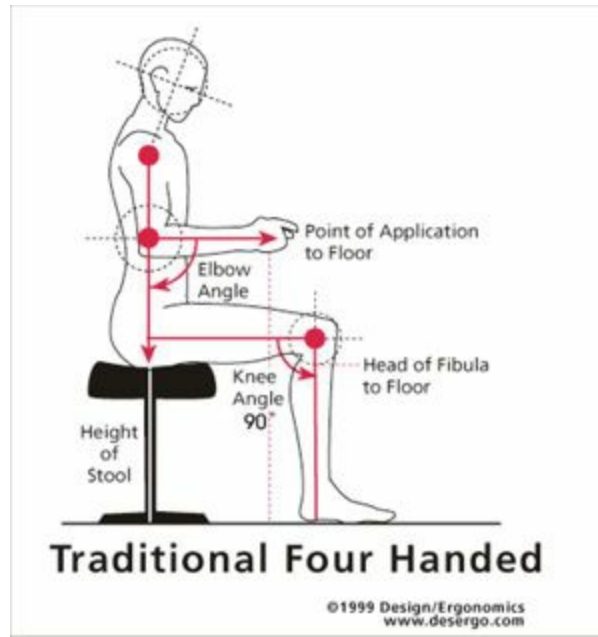
Typical room centric layout with storage

FIGURE 6.7



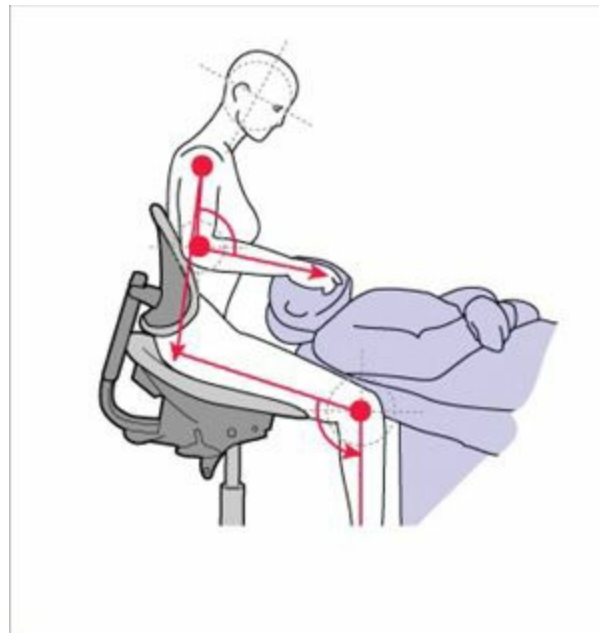
This office centric layout permits 15 treatment rooms to comfortably fit in only 4000 square feet, in part due to its careful use of efficient sterilization, resupply and restocking in its design.

FIGURE 6.8A



Typical idealized posture of a dentist

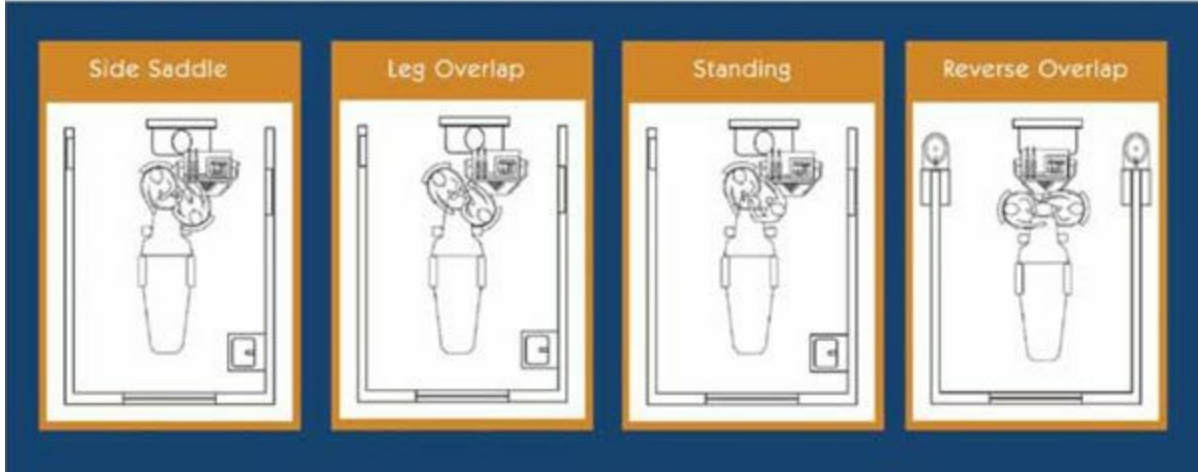
FIGURE 6.8B



Elevated seating allows the back/hip angle to approximate 90 degrees, which permits an upright, if proclined, posture. It also allows for much closer assistant positioning.

FIGURE 6.9

Doctor & Assistant Treatment Positions



There are 4 possible assistant positions for 4 handed dentistry. Side saddle is the most common. Standing and leg overlap are generally far more ergonomically advantageous.

Posture is the most easily understood principle. However, optimal posture cannot be attained in the absence of positioning of the staff and patient in such a way as to permit access for all staff members and comfort for the patient. Further, all of these objectives are subordinate to the visibility which makes dentistry possible in the first place ([Figures 6.8a](#) and [6.8b](#))!

Choices regarding visibility in the current state of dental practice are built around three tiers of seeing: natural vision, loupe enhanced vision and microscopy (optical and digital). When proper visibility is attained, it then becomes possible to optimize positioning and posture around the chosen method of deployment. Natural vision has the distinct advantage of permitting both a free range of motion around the oral cavity and in addition leaves the practitioner with a depth of fields that is for all intents and purposes limited only to the doctor's length of reach. Nonetheless close focus, higher acuity natural viewing length is actually much shorter than that shown in educational text books.

Natural vision and most lower magnification loupe use permits close positioning of the operator and assistant to the operating field and can make possible the elimination of the assistant's belly bar if desired. At higher magnification or with the use of an intraoral

microscope, the posture of the practitioner can often be brought closer to neutral for a greater proportion of the day. However this may have the effect of moving the assistant further from the operating field, requiring the use of a belly bar or standing.

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. For example, a tall doctor when matched with a short assistant may create an optimal environment for the assistant to be utilized in the standing position rather than seated. It is strongly encouraged that the doctor take into full account improved visual access by the assistant as a significant opportunity for improved performance (Figure 6.9).

Balancing Ergonomics with Patient Comfort

There is not one standard for dental delivery simply because the patient cannot be placed in a truly “ideal” position. The ideal patient position for treatment of maxillary bicuspids would undoubtedly to have the patient suspended by their toes from the ceiling!

If the patient cannot be suspended as such and must be placed in the supine position, then the ideal handpiece placement would deliver from the ceiling on retractable coiled hoses (this has been attempted).

Obviously these options are not remotely acceptable to patients and thus what is an absolutely essential decision in dental practice — instrument placement — becomes transformed into a decision regarding what is the dentist’s chosen balance point between patient acceptance, practitioner comfort and cost to equip the operator (Figure 6.10).

FIGURE 6.10

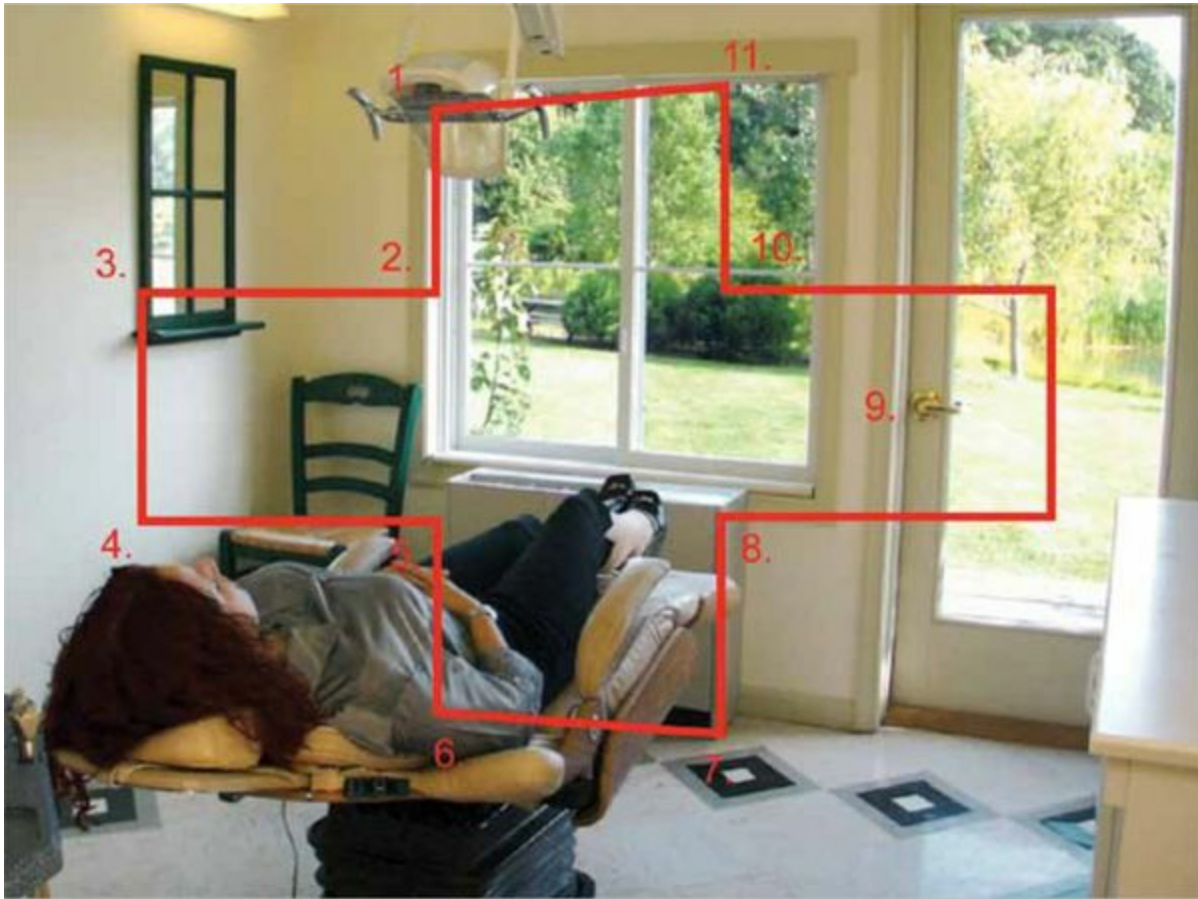


You must balance these three components in your office design based upon the goals of the practice.

While it is beyond the scope of this chapter to discuss this decision process in detail, what is clear from the patient's point of view is that most of our operatories are emotionally unacceptable. Many prospective patients do not like what our treatment rooms represent to them — our equipment scares them and, unfortunately, many potential patients are visual learners. Second, many dentists want to place the most objectionable elements for providing care right in the center of the patient's initial visual field. This unquestionably creates a conflict between the desires of the practitioner and that of the patient (Figure 6.11).

A second area of conflict between doctors and their patients is noise, with the majority of patients having a strong preference for the sound isolation of a closed operatory. Many practitioners, on the other hand, have already become immune to the sounds (and smells) of the operative environment due to time spent in university cubicles. Open cabinet environments are unable to create the level of sonic isolation desired by many patients thus leading to heightened levels of apprehension and an increase in patient tension and resultant operator fatigue.

FIGURE 6.11



Because all humans are hard wired to see in a predictable manner, it is possible to markedly change patient perception of the treatment environment simply by removing threatening objects from the field of recognition.

A final example of the balance between ergonomics and patient comfort relates to lighting. It has been stated that the minimal ambient lighting level in the operatory environment should be no less than one-third of the intraoral light. Many dental operatory lights today have outputs far in excess of 1,500 foot candles thus suggesting that operatory ambient intensity be 500 lumens per square foot or greater.

This is both virtually impossible and creates an extremely uninviting place to receive health care. Adjustable lighting levels can be applied through the use of carefully-placed, higher intensity task lighting combined with whole operatory indirect lighting (Figure 6.12). This can be further enhanced with adjustability through the use of electronic dimmers.

FIGURE 6.12



The use of indirect lighting permits high visual acuity and patient comfort, while reducing energy consumption by 30-40%.

Summary

The overall office layout has a profound and direct effect of the performance of every office. There are three essential principles for operatory performance that must be optimized: posture, positioning and visibility. Great ergonomics in dentistry involves compromise because the designer must take into account and balance the ideals of practitioner comfort and

performance, along with the emotional and physical needs of the patient. The physiological stresses placed upon practitioners providing dental care in a well-designed and properly utilized dental office do not subject the operator to stress levels in excess of those found to permit sustainable good health. However, ignoring basic principles of good ergonomics can leave practitioners susceptible to injury.

Remember that before you can begin your office design it is strongly recommended that the method of whole office delivery (room-centric vs. office-centric) be decided. This will influence the office square footage needs, operatory volume and even the labor required to provide dental care. Make sure that the decision made takes into account future growth of the practice if that is anticipated.

Contributor Biography

David J. Ahearn, D.D.S., is an active general practitioner. He is the president of the office design firm Design/Ergonomics which specializes in creating high productivity practices. 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.

Chapter 7:

TRENDS IN DENTAL OFFICE DESIGN





It is entirely realistic (and financially savvy) to expect a solid ten-year life span for the majority of surfaces in the dental office, in terms of durability, appropriateness, and "current" appearance.

Chapter 7:

Trends in Dental Office Design

By Geri True, A.S.I.D., A.D.M.C.

LEARNING OBJECTIVES

- Understand how the current economic climate affects design decisions in the dental office

- Better grasp how advances in technology, global information sharing, and the online marketplace influence dental office design

- Increase awareness of demographic shifts in the US population, and how to address these shifts through the design of the dental environment

- Learn about the importance of creating the practice “brand,” and how to reinforce it through the design of the office

- Recognize common pitfalls in dental office design with regard to short-term versus long-term choices

When examining the concept of “design trends” in the dental environment, it is important to consider some global realities which have a significant impact on the design choices of today:

- The “New Economy”
- The information age/global access to information and products

- Shifting demographics
- Emphasis on creating a brand

Design in the “New Economy”

The global recession has had an enormous effect on the world in countless ways, including the design of dental environments. Although low interest rates and competitive construction costs have made building new (or remodeling and/or expanding existing) offices more affordable, there is increased scrutiny of the value of the investment made. There is also a heightened sensitivity on the part of the dental patient as to the line between an office which is professional in its appearance and one which is “over the top” in its presentation.

The nature of the “New Economy” underscores the idea that one of the strongest “trends” in dental office design is to generally avoid that which is perceived as “trendy” and may soon become dated. Ultimately, the goal of most dental office projects is to create an environment which is perceived as pleasant, inviting and professional. In addition to that goal, it is economically ideal that the scheme be timeless, not rooted in a particular trend or time frame. While retail or hospitality businesses, such as Starbucks, may opt for a cutting-edge approach to their architecture and interior design, remember that they also spend a great deal on continuous renovation programs to stay on the design forefront. This relieves them of the need to make long-term choices in colors and materials, given the expectation that they will be replaced in a matter of a few years.

Contrast this approach with the design of a dental office. To make short-term choices is to invite repeated expense and disruption to the practice.

Trendy designs and color and material selections are the surest way to make an office appear dated and obsolete before its time. It is entirely realistic (and financially savvy) to expect a solid ten-year life

span for the majority of surfaces in the dental office, in terms of durability, appropriateness, and “current” appearance.

Trendy designs and color and material selections are the surest way to make an office appear dated and obsolete before its time.

FIGURE 7.1



It is economically ideal that the scheme be timeless, not rooted in a particular trend or time frame, as with the reception area of Dr. Andrew Glenn in Lincoln, Nebraska.

FIGURE 7.2



One of the best ways to maximize the value of an office design is to begin with a color scheme which is both timeless and versatile, as in the office of Dr. Amber Allen, located in Omaha, Nebraska.

FIGURE 7.3



Strong colors can be introduced easily through artwork and accessories, without a daunting financial commitment, as in the office of Dr. Dominik Dubravek, in Frankfort, Illinois.

FIGURE 7.4



The affordability of flat-screen TVs has made them highly popular in reception areas, including that of Dr. Monte Zysset in Lincoln, Nebraska.

One of the best ways to maximize the value of that ten-year period is to begin with a color scheme which is both timeless and versatile. Versatility is a result of using a mix of colors and neutrals rather than relying heavily on a single hue. By skillfully blending warm and cool tones with variations of value and intensity, your interior designer can set the stage for seasonal décor and low-cost “refresher” updates over the life of the scheme.

It is also wise to use fairly neutral tones on surfaces which are difficult or expensive to change, and reserve bolder colors for elements which are less costly and easier to update. Reupholstering the seats and backs of reception area chairs will cost far less than recovering a sofa or loveseat; changing the wallcovering in a limited area is more cost-effective than replacing it throughout a reception area or in hallways. Particular attention should be paid to the colors and patterns used on cabinetry and countertops. While countertops

can be replaced with relative ease, the process entails disconnecting and reconnecting faucets, sinks and sensors. Plastic laminate cabinetry is even more permanent, usually costing less to replace altogether than to resurface. When using strong color in a scheme, paint and accessories are generally the most budget-friendly tools available, allowing currently popular colors to be used without a daunting financial commitment.

FIGURE 7.5



Digital picture frames can provide a cost-effective means of displaying product information or patient “before and after” photos, as shown at Owen Dental Care, Chadron, Nebraska.

No discussion of color scheme is truly meaningful until it includes the actual finish materials selected for your project. Just as optimal color choices will extend the aesthetic life of the scheme, appropriate finish material selections will impact the usable life and ongoing cost of maintenance for the office. The concept of total cost of a product over its use is called its life cycle cost.

Life cycle cost includes far more than the initial cost of a product and its installation. It includes all maintenance and repairs it requires (which can vary widely between products), and the cost of removal, disposal, and re-preparing the substrate to receive its replacement. Repair or removal may also entail the cost of removing and reinstalling equipment, furniture, and/or artwork. All of these costs must be added together and divided by the years of product use in order to determine its actual cost per year. A comparison of such variables between finish materials allows sound, long-term, financially-wise decisions to be made.

The Information Age

We are living in an era which allows unprecedented freedom for personal expression through design. The availability of innovative products and sharing of design ideas through TV shows, online sources and social media has greatly raised the public's design awareness. It could also be argued that this abundance of information must be tempered with some much-needed critical thinking.

The internet can be an extremely helpful tool in finding inspiration, whether it means looking at other dentists' website "office tours," perusing dental design companies' online galleries, or searching for specific products. Creating virtual photo files and "pinboards" of ideas can assist you in determining your likes and dislikes, and in communicating your desires to the design professionals assisting you with your project. However, it is wise to look beyond what is simply visually appealing in cyberspace.

It is all too easy to make the assumption that a product or idea from HGTV or Pinterest would automatically translate to the dental environment. Wallcoverings which might be attractive in a residence may not meet applicable fire codes for a dental office. Concrete floors which appear hip and trendy in a restaurant atmosphere may wreak havoc on dropped instruments and sensors. Chairs purchased from a residential furniture source may be uncomfortable in a dental office reception area, or fail to hold the weight of a large patient.

Every design decision must be viewed through the lens of what is appropriate for the requirements of the dental environment. Often overlooked considerations include:

- The need for high-quality commercial grade furnishings which will accommodate patients of all ages and sizes
- Flooring materials which will absorb sound, cushion dropped instruments, and which are slip-resistant and easily

maintained

- Wall finishes, upholstery materials, and window treatments which are durable and flame-retardant

- Countertop materials which are stain-resistant and cost-effective

- Ceiling systems which provide acoustical benefit and allow access to electrical and mechanical systems

- Spatial arrangements and full-height walls which provide visual and acoustical privacy for patients and staff

The digital age has provided not only a source of design inspiration and dental technology, but has also impacted design throughout the dental office. The affordability of flat-screen TVs has made them highly popular not only in reception areas, but also in children's play areas and special "theater" spaces. Viewing monitors are ubiquitous in treatment rooms for patient education and distraction, and in consultation rooms for case presentations. Reception area monitors may also be used in a more practice-focused manner, by incorporating vendor-provided programming or customized marketing videos.

Video alternatives to artwork, fireplaces, aquariums, and other office standbys (such as bulletin boards) are being used with increasing frequency and creativity. Digital picture frames, placed effectively, can provide a cost-effective means of displaying product information on a rotating basis. The use of technology in the dental office has reduced the need for spaces dedicated to document storage, and ownership of smart phones across generations has virtually eliminated the need to provide dedicated laptop stations for patient use in reception areas.

Shifting Demographics

Demographics can be defined as statistical characteristics of a given population. Certainly, demographic shifts can impact many sectors of the United States, including dentistry.

According to the Department of Health and Human Services Administration on Aging, persons 65 years or older numbered 39.6 million in 2009. They represented 12.9% of the US population, about one in every eight Americans. By 2030, it is projected that there will be about 72.1 million aged 65 years and older, more than twice their number in 2000. People age 65 and over represented 12.4% of the population in the year 2000 but are expected to grow to be 19% of the population by 2030.¹

FIGURE 7.6



Slip-resistant floor finishes (especially in entry areas) are imperative, as shown in Endodontic Associates of Savannah PC, Savannah, Georgia.

FIGURE 7.7



Arms on reception area seating make it much easier for someone with limited mobility to sit and to rise up out of the chair, as in the waiting area of Elite Dental in LaVista, Nebraska.

What does this mean for the design of the dental environment? It means that attention to design issues and details may need to go beyond the accessibility requirements of the Americans with Disabilities Act in order to create environments that are safe and welcoming for patients of a variety of ages and conditions. This is often referred to as “Universal Design.” According to the Institute for Human Centered Design, “Universal Design is a framework for the design of places, things, information, communication and policy to be usable by the widest range of people operating in the widest range of situations without special or separate design. Most simply, Universal Design is human-centered design of everything with everyone in mind.”²

Attention to design issues and details may need to go beyond the accessibility requirements of the Americans with Disabilities Act in order to create environments that are safe and welcoming for patients of a variety of ages and conditions.

First and foremost, safety must be considered. Slip-resistant floor finishes (especially in entry areas) can be an important component of dental office safety. Lighting conditions should be adequately bright, yet free from glare. Architectural elements which are ambiguous (such as mirrored surfaces on opposing walls, or frameless glass doors/sidelights) can be hazardous to patients who have impaired vision or cognition, and should be used with caution or avoided altogether.

Reception area furnishings must be sturdy and stable, without casters, and with a firm seat of a safe, comfortable height (typically 18 inches). Arms on reception area seating make it much easier for someone with limited mobility to sit and to rise up out of the chair. It may be beneficial to provide a guest chair in each operatory to accommodate a family member or attendant accompanying an elderly or otherwise compromised patient while they are in treatment.

Another demographic change that can impact dental office design is the growing number of individuals who are obese. A recent report from the Centers for Disease Control states that in 2009-2010 more than one-third of US adults (35.7%) were obese.³ Bariatrics is the branch of medicine that deals with the causes, prevention, and treatment of obesity. The increase in obesity has also led to the development of a new sector of the commercial furniture industry: bariatric seating. Available in varying widths, a bariatric chair will typically be structurally able to hold from 450 pounds to 650 pounds.

According to Joel Kotkin, "If recent trends continue, immigrants will play a leading role in our future economy. Between 1990 and 2005, immigrants started one out of four venture-backed public companies. Large American firms are also increasingly led by people with roots in foreign countries, including 15 of the Fortune 100 CEOs in 2007."

This steady increase in cultural diversity underscores the need for inclusiveness and sensitivity throughout the dental practice. It may take the form of bilingual signage in the facility, or lead to a conscious selection of artwork and marketing imagery which

appropriately reflects the diversity of the patient population.

Kotkin also maintains that, “Suburbia will continue to be a mainstay of American life. Despite criticisms that suburbs are culturally barren and energy-inefficient, most US metropolitan population growth has taken place in suburbia, confounding oft-repeated predictions of some aspects of suburban life — notably long-distance commuting and heavy reliance on fossil fuels — will have to change....The Internet, wireless phones, video conferencing and other communication technologies will allow more people to work from home: at least one in four or five will do so full time or part time, up from roughly one in six or seven today....Houses may be smaller — lot sizes are already shrinking as a result of land prices — but they will remain, for the most part, single-family dwellings.”

An increase in suburban population density, coupled with a decrease in commuting, could have major implications with regard to the location of dental offices in these areas.

One of the least anticipated developments in the nation’s 21st-century geography will be the resurgence of the region often thought of as “fly-over country.” For the better part of the 20th century, rural and small-town communities declined in percentage of population and in economic importance. In 1940, 43 percent of Americans lived in rural areas, steadily decreasing to less than 20 percent. Still, it is not difficult to believe that population and cost pressures may, in time, resurrect “the hinterland.” The Internet has broken the barrier of isolation surrounding rural communities, and as mass communication improves, the migration of technology companies, business services and manufacturing firms to the heartland is likely to accelerate. Midwestern cities such as Fargo, North Dakota, and Omaha, Nebraska, have experienced higher than average population and job growth over the past decade, and have been more resistant to the global recession than their more metropolitan counterparts. These communities, once depopulating, now boast complex economies based on energy, technology and agriculture.⁴

These demographic shifts have a significant impact on not only who

the dental patient population may be, but also where they will be found. The need and growth potential for dental practices in rural areas, combined with lower land and construction costs, could lead to a major paradigm shift for new dentists envisioning where to stake their claims.

Branding Through Design

The importance of creating a professional brand for your dental practice has never been greater. It begins with the practice name and logo, and continues through print materials, website, social media and your office design.

The timeless real estate axiom identifying the three most important considerations as “location, location, location” still rings true. What may not be readily apparent are the specific qualities which make a location part of your brand identity.

Viewed through the lens of your target market, your ideal location may be a freestanding building on a wooded lot, or on a highly visible site near a busy street. The key is considering the wants and needs of the members of your target market. Do they value close proximity to schools, shopping, or other health care services? Is a prestigious location important to them, or is it intimidating? Would it benefit you to locate near other peers or specialists?

Although it is often difficult to admit, it is human nature to “judge a book by its cover.” The appearance of your building (whether freestanding or leasehold space) speaks volumes about your level of professionalism and quality of care. Architecture sends a strong message to the world, both during practice hours and when the building is empty. Its character may be traditional, contemporary, or any number of regionally influenced styles. It may blend with surrounding buildings or stand out as distinctly different. Once again, let appropriateness for your individual brand act as your guide.

Don't underestimate the value of “marketing by leaving your lights on.” You can very effectively promote your practice by allowing

those who drive by your office after business hours to see inside and discover how inviting and welcoming it is.

FIGURE 7.8



The importance of creating a professional brand for your dental practice has never been greater, as shown in the integration of logo and play area of Southwest Pediatric Dentistry in Lincoln, Nebraska.

FIGURE 7.9



The appearance of your building speaks volumes about your level of professionalism and quality of care. Shown are front and side views of Southwest Pediatric Dentistry in Lincoln, Nebraska.

FIGURE 7.10



You can very effectively promote your practice by allowing those who drive by your office after business hours to see inside and discover how inviting and welcoming it is, as with New Town Dental Arts in Williamsburg, Virginia.

FIGURE 7.11



The interior layout and selection of lighting, finishes, furnishings, art, and accessories must reinforce your unique practice personality, as seen in the office of Dr. C. Roger Macias, in San Antonio, Texas.

FIGURE 7.12



There should be an inherent compatibility between the outside and inside of an office, as shown in the Prairie Style waiting area of Partners in Dental Care, Grand Rapids, Michigan

Once past the threshold of your office, patients are greeted not only by staff, but by the personality of your practice as projected by the interior environment. The fact is the walls do indeed talk to your patients; the question is, are they saying the right things?

As with the building exterior, the interior layout and selection of lighting, finishes, furnishings, art, and accessories must reinforce your unique practice personality. It must be a place which supports how you wish to practice, with the flexibility to adapt to rapidly evolving technology. Perhaps you wish to balance the concept of “high tech” with that of “high touch,” or maybe you seek to project a “spa” or “salon” atmosphere. All this must be communicated with your design professionals so that your identity is reflected in every detail, inside and out.

When examining the notion of style or theme, it is important to remember that there is not always a need to take either to an extreme level, as in the case of a theme restaurant or retail space. Instead, the style or theme becomes the underlying visual concept which guides aesthetic decisions. There are several issues which

significantly influence what may or may not be ideal when determining the stylistic direction.

First, the style and location of the building need to be considered. It is rather disconcerting to enter a building which implies “Williamsburg” on the exterior, and “Jetsons” on the interior. There should be an inherent compatibility between the outside and inside of an office, particularly when the architecture makes a strong statement, such as starkly contemporary, southwestern stucco, or perhaps “Prairie Style” a la Frank Lloyd Wright. In locations where the building exterior is fairly generic (as is often the case with strip malls or larger office buildings) you may have greater latitude with your interior design.

Just as important, one must honestly assess the practice’s image. The goal for most practices is to create an environment which presents professionalism, yet is not perceived as ostentatious. Exactly where that line lies is anything but uniform, however; it depends entirely on the perspective of the patient. What may seem appropriate for one practice may be entirely the opposite for another; the key is to understand and respond sensitively to the perceptions of your patients.

The nature of your practice plays a huge role in determining the optimal style or theme of the office. Endodontic and oral surgery offices have a particular need to address the anxiety levels of their patients through spaces which are as soothing as possible. Pediatric and orthodontic offices have an opportunity to stretch creatively, and develop themes which appeal to their patients’ youthful sensibilities. It is important to remember, however, that while these practices treat children and adolescents, they are actually marketing to their parents.

A commitment to a highly themed office can be costly. It is wise to consider:

- How long you plan to practice in the environment

- The appropriateness of the theme for the entire range of patients seen there

- If and when you desire to transition out of the practice, and the likelihood that the theme will appeal to the next owner

- The cost associated with the degree of specialty theming you desire

Using thematic elements which can be easily and cost-effectively changed (such as paint, furnishings, and artwork) or adapted to a different concept will make the most of your investment.

Essentially, if your patients enjoy you, they will appreciate an office which reflects your personality and exemplifies the practice brand. The environment might express your preferences through color choices, textures, patterns, and materials which express your likes and dislikes, or artwork which is an extension of your interests, region, or community. Every choice can be made with brand consistency in mind.

FIGURE 7.13



Endodontic and oral surgery offices have a particular need to address the anxiety levels of their patients through spaces which are as soothing as possible, as shown in the reception

area of Endodontic Associates of Savannah PC in Savannah, Georgia.

FIGURE 7.14



Color schemes which are primarily neutral (with accents of color which can be easily adapted or changed) are a good long-term choice, as shown at Smileworks, Mount Pleasant, South Carolina.

FIGURE 7.15



Using thematic elements which can be easily and cost-effectively changed or adapted to a different concept will make the most of your investment, as shown at Harre Orthodontics, Lincoln, Nebraska

Summary

When determining which design decisions will fall into the trendy (short-term) versus timeless (long-term) categories, it may be helpful to consider these thoughts:

Trendy/Short-term:

- Color combinations which use bold hues without a balance of neutral tones
- Products which are meant to mimic natural materials, but instead appear fake and cheap
- Artwork or murals depicting “of the moment” images, which place them in a specific time frame
- Overuse of hard surfaces
- Failure to consider the function of the space and each element in it
- Making choices based on appearance alone
- Disregarding the demographics of the practice’s patient population in favor of a pre-conceived aesthetic concept
- Cheaply constructed, “disposable” furnishings and accents
- Finish materials which are not durable or easily maintained
- Design which focuses on a particular “look” rather than on function
- An unwillingness to “edit” clutter
- An excess of “the latest thing”
- An imbalance of “high-tech” with “high-touch;” environments

which are too clinical or too residential in appearance

- Inconsistency between the various aspects of the practice brand (website, print materials, office environment, etc.)

Timeless/Long-term:

- Color schemes which are primarily neutral, with accents of color used in areas and materials which can be easily adapted or changed
- Finish materials which are natural, exceptionally good replicas of natural materials, or inspired by nature, rather than obvious facsimiles
- Artwork which is abstract, scenic, regional, or historic in character
- Classic proportions in architectural elements and detailing
- High-quality, commercial-grade surface materials and furnishings, which are appropriate for their specified use
- Design choices which reflect the actual use of the space, and the safety and physical needs of all those using it
- An eclectic mix which includes items which are or could be from various eras or locales
- Simplicity without starkness
- A balance of clinical realities and physical/psychological comfort through space planning, surface finishes, lighting, furnishings, art and accessories
- Cohesiveness between all aspects of the practice branding and with the personality and mission of the provider(s)

Contributor Biography

In her role as Director of Interior Design for Unthank Design Group, **Geri True** blends issues of aesthetics and ergonomics, environmental psychology, and product knowledge. A design professional for over 30 years, this award-winner's focus on the dental environment draws on extensive experience in a broad range of commercial projects, including over 500 dental offices across North America.

Ms. True is a regular contributor to publications in the dental and interior design fields, and continues to be a featured speaker for numerous regional and nation dental meetings. Ms. True has been recognized nationally for her involvement in the American Society of Interior Designers, and is a member of the Academy of Dental Management Consultants.

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- ¹ US Department of Health and Human Services Administration on Aging. Aging Statistics. Available at www.aoa.gov/AoARoot/Aging_Statistics/index.aspx. Accessed on July 3, 2012.
 - ² Institute for Human Centered Design. "What is Universal Design?" Available at www.humancentereddesign.org/universal-design. Accessed on July 3, 2012.
 - ³ Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity in the United States, 2009–2010. NCHS data brief, no 82. Hyattsville, MD: National Center for Health Statistics. 2012.

Available at www.cdc.gov/nchs/data/databriefs/db82.pdf.
Accessed on July 3, 2012.

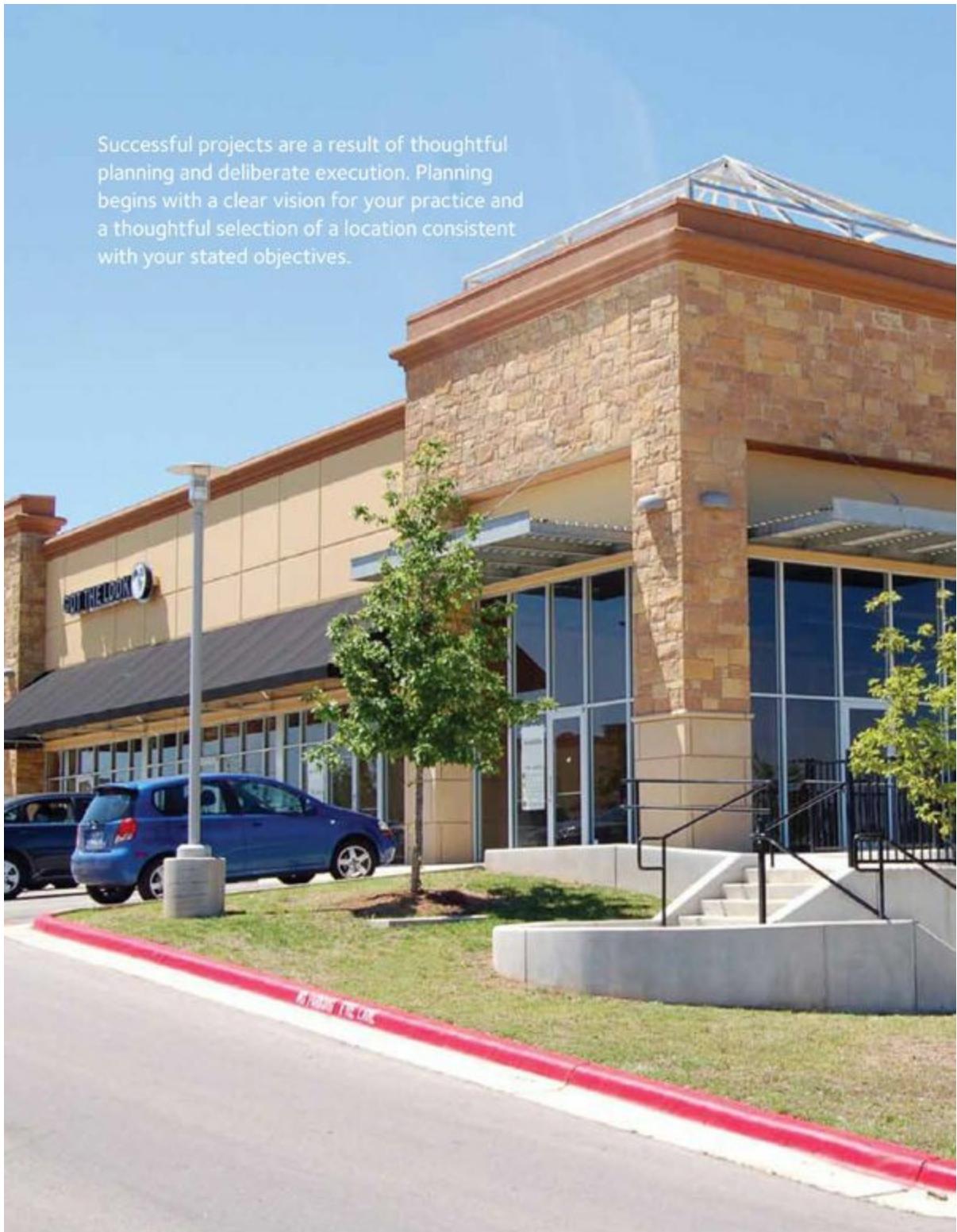
- 4 Kotkin, Joel. "The Changing Demographics of America." Smithsonian Magazine. July/August 2012. Available at www.smithsonianmag.com/specialsections/40th-anniversary/The-Changing-Demographics-of-America.html. Accessed on July 3, 2012.

Chapter 8:

EXTERIOR CONSIDERATIONS



Successful projects are a result of thoughtful planning and deliberate execution. Planning begins with a clear vision for your practice and a thoughtful selection of a location consistent with your stated objectives.



Chapter 8:

Exterior Considerations

By Jeff Carter, D.D.S. and Pat Carter, I.I.D.A.

LEARNING OBJECTIVES

- Understand the value of patient/growth demographics
- Verify optimal square footage for your lease space or your site size for a full building
- Qualify the visibility benefits to your practice
- Recognize the impact to your location by the surrounding area
- Avoid parking shortages
- Evaluate the accessibility to your location
- Understand how the orientation of the lease space / site orientation impacts your operatory
- Investigate what is included in the lease or property purchase
- Establish a due diligence period

People often assume that the exterior criteria for your dental office differs greatly when looking for land for a “ground up” building or seeking a lease space for an interior build out. In fact, there are similar considerations for both types of projects even if the level of detail and extent of verification varies between a “ground up” building as an owner purchasing property and as a

tenant occupying lease space for a “building owner.” The process of deliberation is the same with each step thoughtfully taken beginning with:

- Site selection
- Site investigation
- Verification of “buildability” prior to your purchase or lease commitment

Site Selection: Finding an Optimal Location

The word “optimal” should be defined by your specific practice objectives as they relate to a number of criteria. This significant point is based on our experience with dentists who purchased property or signed leases to be in a specific area or as a last resort, only to discover considerable shortfalls in their selections. There are many things to keep in mind when searching for your ideal location.

Demographics: Where Are Your Patients?

Verifying the demographics, including population, ratio of residential to commercial, number of other dentists in the area, etc., is a helpful first step when considering where you wish to locate. It can inform or reinforce your initial location preference based on your type of practice and your familiarity with patients in the area. Locations of choice for a first practice, start-up dentist who wants to attract families will differ from an established practitioner in the same area who wants to limit the amount of kids seen in the practice.

Strong drivers for the start-up, family oriented general practitioner who is new to the area may include:

- Locations that show new growth population trends for building a practice base
- A lower concentration of competing dentists

- Reasonable visibility for their initially limited new practice marketing budget
- Competitive rent options since he or she may consider this office as a “starter office” with the expectation of moving once established

The seasoned practitioner may have completely different reasons for moving his or her practice, such as to:

- Add production space
- Update the practice image
- Hold onto current patients
- Locate to an area of town with more potential patients

Additionally, the goals of the seasoned practitioner may not be the same as a dentist who is just starting out. Some things an experienced dentist may seek in a practice location are:

- More developed areas of quality by association
- Ease of access and appeal to the current patient base (avoiding areas where patients won't travel based on patient surveys)
- More optimal square footage
- Reasonable rental rate or land purchase costs to achieve the long term objective of this final career move

Secure this data, if only to confirm your expectations for your preferred location. Commercial realtors or lenders can supply such data to you at little to no cost. Clarifying the demographics most favorable to your practice objectives not only requires you to be clear about your practice vision and objectives, but it is statistical data that will substantiate the best area for your office location. It is

the great way to begin an informed search that will include other criteria you will use to evaluate potential sites.

PROPERTY SIZE AND SQUARE FOOTAGE: What Should I Look For?

The size of your new office is a critical feature when rebuilding or relocating. How much land do you need or how much space should you lease? Inadequate space or property to meet your functional needs would negate any benefits gained by other exterior criteria. Typically the answer to the question of size is settled by what is available. You can try and compare the space by estimating your space needs based on your current facility. But this is problematic for several reasons. Such assumptions don't acknowledge the shortcomings of your current office, such as:

- Insufficient storage space
- Insufficient business space
- No offices for dentists
- No private patient consultation space
- A nonexistent staff area
- A lack of private space for patients at the front desk

Square footage alone will not solve these issues. You should approach the problem systematically. We suggest using the following square footage guidelines to ensure your needs are met in your new facility:

Lease Space = 500 square feet per operatory chair

(Chair count for ortho would include records or exam consultation spaces.)

For example, 5 operatories x 500 square feet = 2500 net square feet

Purchased Property = 7 x the size of your office in square footage

For example, 7 x 2500 square feet = 17,500 square feet

If an acre of land is 43,500 square feet then your building will need about 1/3 acre.

As with any guidelines, there are exceptions, such as an unusually shaped lease space or property shape, which may require more square footage due to efficiencies lost to unusable space or lot. By the same token, a five-operator practice might be satisfied by a space of 2,350 square feet. Aim for what you need by using these guidelines and then verify what you need by a more thorough assessment.

Visibility: How Much Visibility Do I Really Need?

There is no argument that visibility requires special attention. If your patients can't find your office because of compromised visibility of your space, then it will persist as a negative issue for new patients and your practice's growth. It is, however, a myth to then assume your dental office should be located in a high-traffic, prime retail location with signage that would compete with McDonald's.

McDonald's, Starbucks, or other retail businesses seek locations that deliver high-traffic for spontaneous purchases and recognized branding. Such stand-out visibility is targeted to demographics consistent with their store placement objectives. We would argue that most retail ROI and selling objectives differ from those of a dental professional.

As a dental professional, "visibility" more aptly refers to locations that are easy to see from the access street, are near a familiar

landmark in the area, or within a larger professional development. And while there is merit in a location that new patients might take special notice, dentistry is not a spontaneous purchase commodity. Patients make a deliberate choice to come to you at a specified appointed time. Sites, whether property or lease spaces, “across from the high school” or “in the Layton professional business park” will translate to visibility that serves you and your patients well.

Location by Association: What Difference Does the Surrounding Area Make?

Growth patterns for business or retail development in an area are difficult criteria to predict. It becomes even more of a challenge for you if moving into a new area that is unfamiliar. The primary objective for “location association” is to assess the longevity of growth within your selection area. The significance of this issue is evidenced by dentists whose primary reason for a new location is because their current location is becoming “run down,” and has become a poor reflection on the practice.

FIGURE 8.1



Example of a highly visible retail space location

If you are uncertain or unfamiliar with the anticipated growth or

transition of your preferred location, seek the counsel of a commercial realtor who is familiar with the area. They should be able to advise you on historical and current growth patterns in an overall area and the potential impact on your area of choice specifically.

Of course, future growth, development and maintenance of an area can be difficult to anticipate, but it remains a key consideration for you as a dental practice owner if you are investing in this location for the long term. As a building owner, you want to be assured that over the years, the area around your building is well-maintained or even improves its “market value impact” on your patients and to be well-positioned for the sale of your building when you decide to stop practicing. As a dental tenant signing a 10-year lease with subsequent 5-year options, you have similar expectations for your owner’s building to carry a consistent market value over the course of your occupancy.

As a building owner, you want to be assured that over the years, the area around your building is well-maintained or even improves its “market value impact” on your patients and to be well-positioned for the sale of your building when you decide to stop practicing.

A factor in assuring longevity for your location’s “patient appeal” is understanding the context of your property or owner’s building within the surrounding areas. This applies to locations in outlying areas of growth, where nearby properties have not yet been sold or developed. It is appropriate and advisable to verify the zoning requirements designated for land areas surrounding your location. Zoning will indicate the types of businesses that are planned and will be allowed to build near you. For larger developments where a single developer may have purchased an entire area with specific planning objectives, verify what the intended growth and land use will be. In either scenario, assess if these planning objectives are conducive to attracting patients or detrimental. Some options you can pursue in mitigating detrimental development include the following:

1. Purchase your property or sign your lease with a definitive agreement as to what business types will be allowed to build on adjacent lots or occupy adjacent spaces. Reinforce the value of your practice via the patients you will attract as a benefit to the developer or building owner. This isn't always possible, but current owners anxious for your commitment may be willing to disallow future sale or lease to businesses that you both agree would be detrimental to a professional intent.
2. Purchase your property or sign your lease with a "first right of refusal" option on adjacent properties or spaces respectively. For the property owner, this would mean the land seller has agreed to offer you the purchase of the adjacent property prior to the purchase by any other buyer. As such, you can decide if you need the property for expansion, purchase the property to avoid an unseemly neighbor, or agree to forgo the option of purchase based on an agreeable neighbor. As a tenant, you would have the same options, a chance to add square footage in the future for growth, or forgo the option if the space is not needed or the neighboring tenant isn't detrimental.

Parking: Do I Have Enough Parking?

If your patients can't find a parking spot easily or have to walk great distances from parking to reach your office, it can become the inconvenience that dissuades them from remaining your patient. Like it or not, convenient access to your office is an expectation for most patients and should influence your location decision.

Notably, your parking requirements as a dentist will exceed most city requirements which are typically one parking space for every 200 square feet of business occupied space whether you are the building owner or a tenant. This is a primary reason that dental offices suffer from the lack of an appropriate amount of parking. In fact, you will need **one parking space for every 133 square feet of occupied space.**

This “guideline count” has been developed as a ratio based on:

- 1 space per staff member

- 1.5 spaces per dental chair

- 2-3 handicapped spaces (depending on your local requirements)

- 2-3 vendor parking spaces

This parking count ratio typically works well for general practitioners, periodontists, endodontists and oral surgeons with reasonably comparable counts for patient seen per day. The exception to this would be orthodontists and pediatric dentists with higher patient counts per day. They should plan on **one parking space for every 110 square feet of occupied space.**

One advantage in building your own practice would be the ability to design your own parking area around the building. For example, handicapped and patient parking would be closest to the building, with staff and doctor parking further or in a separate parking area altogether. This is also an important aspect of determining the “buildability” of your site, which we will discuss later.

It can be more difficult to verify adequate parking as a tenant of a building, especially when, gazing across a “sea” of parking, which seems to be plenty. We have seen a case where parking was leased to nearby businesses that used what was assumed to be reserved for a dental practice. As a tenant concerned about parking, verify any assigned parking options that may be available to your patients nearest the building. If this is not an option, then verify the square footage to parking ratio, which will give you some sense of availability. As noted, building owners will typically not exceed city parking requirements because they wish to maximize rental space, not parking. If you are going to be a tenant within a fully occupied

building, then you should be able to visit the property at different times of the day to determine how easy it is to find a parking spot. If you are the first of many tenants to occupy a building, then be sure the ratio of parking will be sufficient so that patients can find a spot once the building is fully occupied.

Convenient access to your office is an expectation for most patients and should influence your location decision.

FIGURE 8.2



Site plan showing well configured and adequate parking for a dental facility

FIGURE 8.3



Building rendering showing optimal parking relationships to the building structure

Access to Your Location: Can Patients Reach my Practice Easily?

If you have ever turned off of a highway into a busy parking lot, you know how careful you need to be, signaling well ahead of your turn and then checking your rear view mirror to be sure someone isn't going to hit you as you slow to make the turn. If that isn't hard enough, imagine waiting to exit the same lot into speeding traffic. Highways or high traffic locations are classic examples of locations with difficult access. For all drivers, it can prove a challenge to enter a lot from highway speeds, but for young and older drivers it can be the reason they don't come to your office. Whether future property owner or future tenant, be aware of any difficulties or impediments to your location that would discourage patients.

Some other obstacles include:

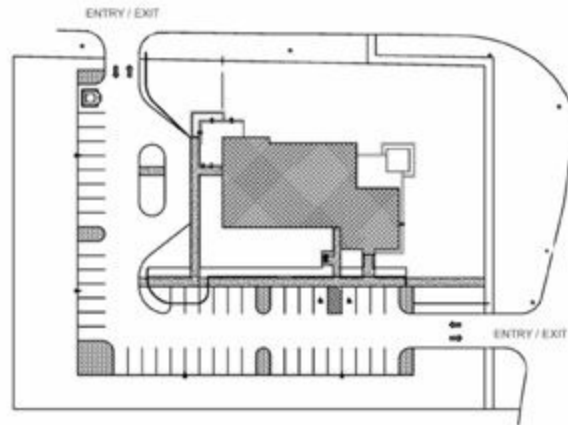
- Curb-cut placements where patients have to drive past your location and turn around on a very busy street
- Landscape or signage that blocks view of your entry until a patient has passed
- Lack of street signs or traffic signals at busy intersections

referenced in directions to your location

- Insufficient lighting that makes it hard to see an entry to your lot or feels unsafe during evening appointments

Again, a good exercise is to drive to your intended location at differing times of day and determine if you have any difficulties accessing your property.

FIGURE 8.4



Site plan showing two entry/exit points to the same facility

If possible, locations that offer several entry and exit options (e.g., from the main street and a side street, or two at opposite ends of the property) can seem more patient friendly, giving patients flexibility. The objective is to make it easy for patients to reach your location and consider it one more reason they love your office.

Orientation: Which Way is North?

Any dentist who has had west-facing operatories is keenly aware of the heat gain misery in working with west facing windows. The orientation of your future building on property or lease space is often overlooked until the first utility bill or hot summer morning in a west-facing operatory. Whether you are the building owner or the tenant, your operatories should be oriented to the north with a second best

option to the east. Northern light is optimal and mitigates heat gain at any time of year. Southern light will come in low during the winter months and the west is simply torture. If your location option does not allow you to place your treatment areas facing north or east, then keep looking.

Site Investigation: Know What You Are Buying or Leasing

Once you have found what you believe to be the best location based on the above criteria, the next step is to verify what is included in your purchase or lease.

When signing a lease, there are several considerations to include within the terms to avoid additional expenses to you. For example:

- 1. Electrical panel.** Most general use spaces require a 200 amp electrical panel to meet its electrical requirements and is therefore typically designated to a 1,800 to 2,500 square foot lease space. Your five-operator dental office at 2,500 square feet will require a 400 amp panel if that includes the HVAC (heating, ventilating and air conditioning) electrical requirements in addition to your dental equipment requirements. Most general building owners or realtors will not assume additional electrical requirements for your dental space as part of the terms of your lease. Be prepared to ask and verify that your space will, in fact, have access to these requirements as part of your lease agreement. Otherwise, adding another panel can add up to \$10,000 in costs that you were more than likely not expecting.

FIGURE 8.5



Electrical panel locations in lease space

- 2. HVAC delivery to your space.** Another assumption made in lease agreements is that the building owner will be responsible for HVAC delivery to your space. In fact, most tenants share in the cost for delivery of air to their space. Typically, the building owner is responsible for delivery of the building HVAC system including ductwork up to your space and then you as the tenant are responsible for the cost of distributing the air throughout your space (in other words, all the ductwork within the demising walls of your space). It is a rare occasion for the building owner to accept costs for ductwork in any tenant space. However, always verify that the HVAC is available at your demising wall, and, if not, include in your lease terms the cost for running ductwork up to your space as the building owner's, not yours. In addition, document that any non-performance of the building HVAC system will be at the expense of the building owner, not the tenant.

An additional consideration is the tonnage of air you will require from the building owner's system if you want to avoid disappointment in an undersized system. Dental offices will require **1 ton for every 250 square feet of interior space** which notably exceeds the general use space assumption of one ton for every 400 square feet of space. Don't be surprised if you have to argue for this requirement because it is higher than normal to most building owners, but verification that this will be afforded your space will, again, save you dollars in upgrading the building owner's system at your own expense.

As a property owner, you may assume some of the same types of specifications are included in your land purchase, only to discover they will be a cost to you. Additionally, when qualifying a property, you are investigating factors that will affect the cost for developing your site (costs that the dental tenant's land owner has already incurred and is passing along through rental rates). Verifying these costs prior to purchase will expose substantial costs you will incur to effectively develop your property. If you understand these up front, they can be included in the terms of your purchase or qualify a lower purchase price offer. We always recommend the counsel of an architect and civil engineer when verifying the following site data:

- **Utilities.** Unlike the dental tenant who is verifying whether the existing building owner's electrical service will be sufficient for his or her lease space needs, as a property owner, you want to verify that utilities are available to your site boundary. Part of your building costs will include tying into existing city utilities and delivering them to your future building on your site. This is significant to verify in order to avoid scenarios in which the utilities are "across the street." It may sound great until you discover after purchase that you are responsible for the cost to tunnel the utilities under the street to your side (which may come with \$16,000 price tag to a surprised dentist property owner). Where utilities are located on your site boundary is important to note as well. Costs will be higher if they are located at a far corner from where you will be placing your building.
- **Soil Testing.** Soil borings are investigative holes drilled on a property to verify that the soil conditions are conducive to standard foundation practices. Such studies are conducted on a site with a concluding report that informs a civil (site) and structural engineer about the conditions that are considered standard or about conditions that will require extraordinary measures to assure successful support to your building. Securing this report (\$1,500 to \$2,500) is typically a cost to the dental buyer, but can save many thousands of dollars by keeping you from purchasing a property that will require extraordinary dollars to develop, or give you data to validate a

much lower property purchase offer.

- **Environmental Testing.** Environmental “phase one” studies (\$ 1,200 to \$3,000) are typically requested by the lender who, in today’s building environment, requires assurances there are no toxic materials on site that would require abatement and removal. Phase one testing involves research on previous land use and application, and investigation of any above ground materials (e.g. asbestos in older existing buildings on your site) to assess whether more investigation is required. “Phase two” studies are more invasive and may include removal and study of site materials and soil borings to verify depth of contamination to soil. The cost for both phase one and phase two studies are typically assumed by the buyer, the results of which are another point of negotiation if abatement is indicated. Abatement costs can be estimated and depending on the extent of contamination can reach ranges of \$ 25,000 to \$100,000 or remediation, and if so, can quickly become a significant impediment to both the seller and purchaser.
- **Survey.** This is another investigative study of a property that will by its conclusion document the lay of the land (elevation rises), locate setbacks with which your building must comply, and identify any easements that must be left clear of building structure for the potential access by city or municipality (for example, to run future waterlines). For a property that is undeveloped, this study’s cost is typically the buyer’s. In some cases of properties that have been developed for sale within a larger developed area, a survey may already be on file with the city and would be available to you as the buyer with purchase of the property. The significance of obtaining this information prior to purchase is:
 - Verification of the clear land space available for you to build your building (outside of setbacks and easements)
 - Verification by a civil engineer that any slope to the lot will not significantly add to the cost of your developing the property

If it is deemed extraordinary, then you may choose not to pursue the property or factor the anticipated costs into a reduced purchase cost of the property.

Buildability of Your Site: How Do I Investigate my Locations Without Losing my Option to Purchase or Rent?

The answer is to secure a due diligence period. A due diligence request is well understood by property sellers or leasers, but not necessarily offered as a condition of your commitment. Rather, they are interested in securing your commitment as quickly as possible and on their terms. However, it is fair and advisable for you as interested buyer or tenant to ask for a due diligence period to investigate the viability of a property or space. This period of time may be 60- 90 days for a building and 30-60 days for a lease space as a fair reflection of the time it will take to retain engineers, architects, to conduct soil borings, surveys, or verify a site plan or floor plan that the property or lease space will work for your functional needs.

A seller or leaser, while agreeable, may request a letter of intent with an earnest sum of money paid and potentially forfeited as an assurance of your intent to proceed and to cover their costs to keep the property or space off the market. Within reason, this is a fair request. Such a letter of intent should outline the assurance by seller or leaser that no other offers will be considered until the conclusion of your investigation and offer within the stated time period.

A seller or leaser, while agreeable, may request a letter of intent with an earnest sum of money paid and potentially forfeited as an assurance of your intent to proceed and to cover their costs to keep the property or space off the market.

Summary

We have listed the primary investigations that should be made on property or lease spaces. In addition, we would always advise a dentist to have their design resource — architect, supplier or specialty dental designer — to develop a schematic site plan showing a building footprint and parking, or a floor plan of your lease space as confirmation that the site or space will work well, or to alert you to any compromises.

Successful projects are a result of thoughtful planning and deliberate execution. Planning begins with a clear vision for your practice and a thoughtful selection of a location consistent with your stated objectives. Add to that further investigation and verification of your optimal locations, and you can advance your project into an informed purchase or lease commitment, confident it will serve you well.

Contributor Biography

Jeff Carter, D.D.S., and **Pat Carter, I.I.D.A.**, are a husband and wife team and co-owners of the dental specialty design firm the Practice Design Group. Practice Design Group was founded in 2002 in response to dentists seeking more collaborative, informed and innovative design for the dental office. Jeff has 15 years dental design experience following many years in practice and Pat has 33 years of experience focused solely on the design of the dental office. They have witnessed the missteps by dentists trying to navigate the complicated process of pursuing a dental project. As contributing authors of *Dental Economics* and through national speaking engagements, they bring a unique level of expertise and insight, lecturing on all aspects of designing dental offices — planning, designing and constructing a successful dental project outcome. Contact the Practice Design Group at

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Chapter 9:

LEGAL ISSUES AFFECTING DENTAL OFFICE DESIGN





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.

Chapter 9:

Legal Issues Affecting Dental Office Design

By the ADA Legal Division

LEARNING OBJECTIVES

- Become familiar with various laws that 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 payment card industry standards 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's configuration, 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 considerations may be involved, including: civil rights laws; zoning and building codes; laws and standards regulating privacy and data security; contracts with

architects and contractors; and many more.

The point of this chapter is not to turn dentists into lawyers, but simply to alert you to a number of legal issues. The information can help educate you as you prepare for your discussions with qualified legal counsel on various legal issues that can arise in connection with such a dental office design project. 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. This 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.

The first law that many dentists think about regarding office design 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 people with disabilities, and similar state and local laws may impose more stringent requirements. The AwDA is a federal civil rights law, and

state or 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. So, too, many other applicable laws on emerging issues such as ergonomics, data security, and waste management have the potential to shape dental office design requirements. 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 come into play.

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.

Examples of Design Issues Affected by Federal, State and/or Local Laws

It is important for your design planning to take into account that there are a 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. For purposes of the Act (and many similar state laws), most dental practices qualify as places of public accommodation, and therefore must comply with the part of the Act related to accessibility. A public accommodation is a private entity that owns, operates, and/or leases or leases to, a place of public accommodation. In other words, the AwDA is not specific to dental offices. It does, however, cover all dental offices that qualify as places of public accommodations, including home offices. Places of public accommodation include a wide range of entities, such as:

- Restaurants
- Hotels
- Doctors' offices
- Retail stores
- Day care centers

Before addressing what the Act means for dental office design, a word about why it is important to comply. The Act allows private individuals to bring lawsuits in which they can obtain court orders to stop disability discrimination. 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 cases of general public importance or where a pattern or practice of discrimination is alleged. In these cases, the Justice Department may seek monetary damages and civil penalties up to \$55,000 for a first violation, or \$110,000 for any subsequent violation. Remedies can be severe, and can include a court order to implement expensive alternations to bring a facility into compliance. It should be noted that in addition to complying simply 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 Act are clear, let's talk about what you need to do. The Act 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, 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.

For purposes of the Act (and many similar state laws), most dental practices qualify as places of public accommodation, and therefore must comply with the part of the Act related to accessibility.

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 US 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 — 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 AwDA requirements for alterations to an existing facility, so is it prudent to consult a qualified attorney and/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 interpretive guidelines. The guidelines are very specific regarding many requirements, such as those pertaining to parking lots, entrances, doors, operatory size, counter heights, restrooms, elevators and more.

You will want to be able to rely on your architect and/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:

Once you've identified barriers to access, the focus becomes what types of barrier removal are readily achievable.

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 new construction standard for accessibility.
- When alterations are made to a primary function area, such as the lobby of a bank or the dining area of a cafeteria, an accessible path of travel to the altered area must also be provided. 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% 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% of the cost of remodeling a private office.

- 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 for normal maintenance such as reroofing or changes to mechanical and electrical systems. 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.

New Construction

- All new construction of places of public accommodation, as well as “commercial facilities” such as office buildings, 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, must 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. (Elevators are generally not required in facilities under three stories or with fewer than 3,000 square feet per floor, subject to certain exceptions, one of which is the professional office of a health care provider.)

- Certain nonoccupiable 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.

All alterations that could affect the usability of a facility must be made in an accessible manner to the maximum extent feasible.

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 Act 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 Act. 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 Act. Of course, the landlord may ask for your indemnification in return. You should make the attorney you hire to review the lease aware that you intend to use the space as a dental office, and you should discuss with this attorney the lease allocation of responsibility for AwDA compliance.

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 deduction.** Section 190 of the Internal Revenue Code allows a deduction of up to \$15,000 per year for expenses associated with the removal of qualified architectural barriers.
- **Tax credit.** An eligible small business whose gross receipts do not exceed \$1,000,000 or whose workforce consists of fewer than 30 full-time workers may use the Disabled Access Credit (Internal Revenue Code, Section 44). Qualifying businesses may claim a credit of up to 50% of eligible access expenditures that exceed \$250 but do not exceed \$10,250 (for a maximum credit of \$5,000). Examples of eligible access expenditures include the necessary and reasonable costs of removing or altering architectural, physical, communications, and transportation barriers to improve accessibility; providing readers, interpreters, and other auxiliary aids; and acquiring or modifying equipment or devices. Of course, items not eligible for the credit may be deducted as a business expense to the extent allowed by law.

All barrier removal must comply with applicable Federal accessibility standards. The incentives may be applied to a variety of expenditures, but they may not be applied to the costs of new construction. For more information, visit the IRS website at www.irs.gov or consult your accountant.

Technical Assistance

Listed below are some resources to help you understand the Americans with Disabilities Act. Again, it is important to emphasize that these resources focus on the Act, and will not have information about other more stringent federal, state, or local law requirements that may apply:

The US Department of Justice ADA Information Line
800.514.0301
800.514.0383 (TTY)
www.usdoj.gov/crt/ada/adahom1.htm

ADA Technical Assistance Centers

800.949.4ADA
www.adata.org

The US Architectural and Transportation Barriers
Compliance Board
800.USA.ABLE
TTY 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
- ADA Guide for Small Businesses
- A Guide to Disability Rights Laws
- ADA Technical Assistance Updates from the Department of Justice
- Current text of the Americans with Disabilities Act of 1990 incorporating the changes made by the ADA Amendments Act of 2008
- Revised Final ADA Regulation for Title III, as printed in the Federal Register on September 15, 2010, and effective on March 15, 2011.

State and Local Laws

In addition to the federal law requirements imposed by the AwDA, you will also need to comply with applicable state and local civil rights 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 place restrictions in a number of ways that can

affect the dental office. For example, plumbing codes generally 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 and/or will ensure AwDA compliance, that official usually has 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. To date, few certifications have been given.

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 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 one day 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? On the one hand, the system will have space needs; on the other, it may free you up 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.

If your practice is a HIPAA covered entity, you must also consider HIPAA compliance when building or remodeling a dental office.

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 facility 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 natural disasters such as tornados or floods, as well as unexpected incidents like power failures. Contingency operations may need to include procedures that allow facility access in support of restoration of lost data in the event of an emergency.

Examples of facility design decisions that can affect HIPAA Security compliance include:

- Where to locate 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 the confidentiality, integrity, and availability of electronic files 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:

- have in place appropriate administrative, technical, and physical safeguards to protect the privacy of PHI
- reasonably safeguard PHI from any intentional or unintentional use or disclosure that is in violation of HIPAA privacy
- reasonably safeguard PHI to limit incidental uses or disclosures made pursuant to an otherwise permitted or required use or disclosure

A poorly-designed dental office may put PHI at risk. It can also increase the likelihood of a breach of unsecured PHI that would require notification under the HIPAA Breach Notification Rule (in the event of a breach of unsecured PHI, HIPAA requires notification to affected individuals, the US Department of Health and Human Services, and, in some cases, the media, even if the breach was not the covered entity's fault). The cost of investigating and analyzing a suspected data breach and sending any required notification can be devastating, 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?

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 protected health information. 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?

Another HIPAA concern is the storage of confidential files, both physical and electronic. In an ideal world, files would have their own separate storage room and would be kept constantly under lock and key. Unfortunately, few practices have the financial or spatial resources to devote an entire room to file storage. Physical files should be stored in locked file cabinets that can be visibly monitored when unlocked.

The ADA Practical Guide to HIPAA Compliance Privacy and Security Kit 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. It includes security and privacy requirements that may be appropriate to integrate into the design plan. Both are available through the ADA e-Catalog at adacatalog.org or by calling 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/or disposal of certain kinds of sensitive personally identifiable information (“PII”), such as an individual’s name and social security number, credit or debit card number, account 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 an enormous burden on staff time and financial resources. If your dental office accepts credit and/or debit card payment and is required to comply with PCI DSS, your practice is likely required 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 facilitate compliance with applicable data security laws and industry standards.

HIPAA and data security considerations 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 photocopy machines, and data disposal (e.g., a shredder or a locked bin for materials awaiting shredding or incineration). Although the majority of 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

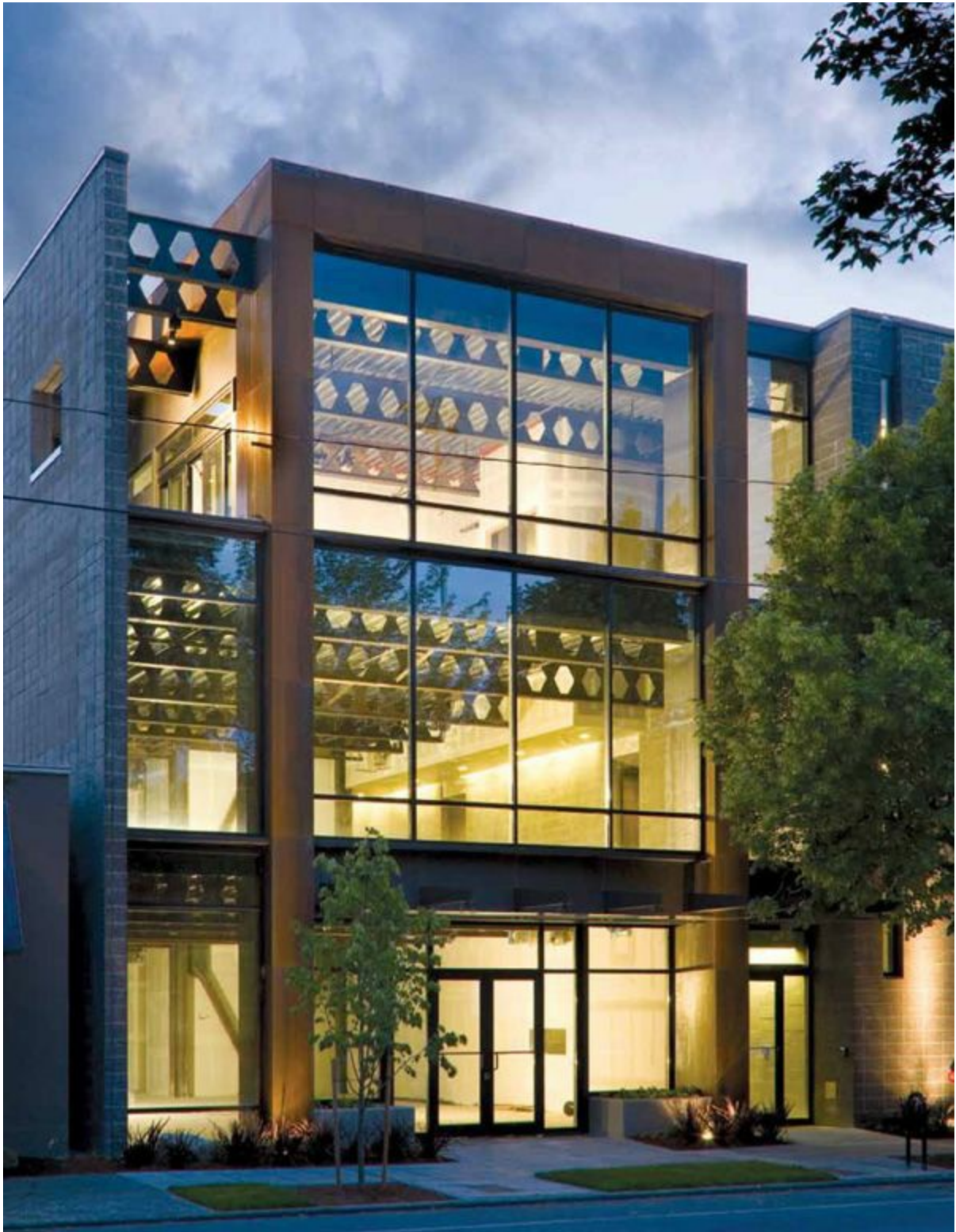
As any seasoned dentist knows, the days of dentistry being relatively unregulated are long past. A short while ago, it was OSHA and the AwDA. Today regulations also include HIPAA and other privacy and security laws as well as waste management. Tomorrow, who knows? The importance of keeping up with regulatory 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 your best way for you to proactively address this important aspect of dental office design.

The interplay of federal, state, and local laws varies from city to city. 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 10:

CREATING A GREEN OFFICE





Chapter 10:

Creating a Green Office

By Stuart Silk, A.I.A. and John Adams, A.I.A.

LEARNING OBJECTIVES

- Understand how green design has evolved into a global imperative as well as a marketplace reality for any construction project

- Recognize the advantages of green design to your staff, patients and your bottom line

- Leverage your green design message

- Identify key green design strategies for your practice

- Evaluate return of investment for green design strategies

- Understand certification programs for sustainability and green design

In the design and construction industry the concepts of sustainability and green techniques have made great strides in the last two decades and have moved beyond the theoretical to the practical. While this movement is young and still years away from a truly sustainable model, it is clear that a different awareness has taken hold, spurred by a clearer understanding of the limits of the earth's resources.

Today there are many measurable benefits to sustainable design. First there are the environmental benefits of reducing the impact of

natural resource consumption. But there are also economic benefits that can be realized by improving a building's energy use, operation and maintenance performance. Improved health, comfort and safety benefits, such as greater thermal comfort, better visual quality, and cleaner indoor air can lead to enhanced productivity and morale. Today, green buildings can be more than 10% more energy and resource efficient than conventional buildings.

Why Green Design?

In the grand scheme of things, the construction and operation of buildings have a significant impact on the environment. The moral and social imperatives that surround discussions on the environment including global warming, dwindling energy resources, destruction of the ozone layer, and biodiversity have to include the effects of buildings and their operations.

Buildings account for:

- 65% of total US electricity consumption
- 30% of total US greenhouse gas emissions
- more than 30% (136,000,000 tons) of US waste
- 12% of potable water use
- 40% (3,000,000,000 tons) of raw materials used globally

Creating a Healthy Workplace for Your Patients and Staff

Today the dental industry is being transformed by the principles surrounding green practice. New technologies are already available. Some dentists may not be aware of just how green progress has already been incorporated their practice. Features like low energy use displays, LED operatory lights, recycling programs, paper-reducing record-keeping practices, non-toxic disinfectants, etc. may

already be part of the office. To a large degree, this is being driven by a growing number of patients who are concerned for their health, as well as their family. Patients' desires for healthier places to receive treatment also apply to the people in your workplace who are becoming more and more conscious of health issues. These people want to be certain that the air they breathe, the water they drink, and the chemicals that they are exposed to are as clean and safe as possible.

Indoor air quality is an important issue because most people spend as much as 90% of their time indoors, either at home, work, or school. Poor indoor air quality can be caused by a number of factors, including inadequate ventilation, poor cleaning, and excessive emissions of volatile organic compounds (VOCs). Within dental offices, furniture systems, seating and components; hard surface flooring; paint and wall coverings; casework; and insulation can all contain VOCs which, if not properly ventilated, may lead to headaches and even nausea, as well as potential long term health risks.

Proper air filtration, either through High-Efficiency Particulate Arresting (HEPA) or Minimum Efficiency Reporting Value (MERV) filtering systems, can make your indoor air much cleaner and freer from irritating or harmful particulates than outside air. For people with allergies or asthma this can make a huge difference. Today, particulates can be efficiently screened down to all but the smallest of sizes.

We can see a transformation in the latest generations of dental equipment and systems, such as LED lighting, which uses a fraction of the energy of conventional lighting and lasts for years. Another breakthrough is digital X-ray equipment that doesn't require harsh chemicals or emit potentially harmful particles.

Dental offices in the United States flush an estimated 100 million liters of clean drinking water down the drain every day. Fresh water is a precious resource which needs to be conserved. Dual flush toilets are an important water saver requiring only a fraction of the

water of a conventional toilet and have been used in Europe for years, only recently taking hold in the United States.

Transformations are also occurring in the materials available to furnish buildings, including dental offices. Today, one can find a near infinite array of flooring, carpeting, glues, paints, fabrics, and cabinetry products that do not emit harmful gases into the atmosphere. There are also exotic woods available that are grown sustainably and certified by the Forest Stewardship Council (FSC), an organization whose mission is to ensure that the harvest of timber products is done in such a way as to maintain the forest's biodiversity, productivity and ecological processes.

Here is a list of things you can do right now to reduce the environmental impact of your practice:

- Choose earth friendly materials, products and equipment

- Recycle whenever possible

- Educate your team and patients about environmentally-sound practices

- Support suppliers who offer environmentally-sound products and services

Leveraging Your Green Message

There are a growing number of people who believe that there is a moral and social imperative to do what is best for the environment. These people will support those who share their values and the importance they place on their overall well-being and the environment.

Every dentist wants to convey a message of professionalism and quality of care for patients and employees alike. By giving

consideration to the use of ecologically sensitive products, a doctor can also build a message that is not only responsible, but says something about his or her concerns for the planet, as well as the safety and welfare of their patients and staff.

The message that one conveys begins with the first impression when walking through the door. The choices one makes in the finishes, furnishings, and décor all contribute to that message. Every year there is a greater selection of green materials because manufacturers are seeing what their customers want and that the sustainability movement is not going to go away. Choices are no longer confined to a few overtly green products.

New equipment such as digital X-ray systems not only improves the performance of your business, but they are also healthier and your patients deserve to know that. Communicating a message that speaks to your concern for patients' health in addition to being professional and attractive will support and reinforce a dentist's overall mission and has been shown to attract people with similar views. Information about specific choices you make can be included in handouts available at the reception counter along with collateral regarding your range of services.

We have found that patients often express how they feel about the "greening" of a building. In a recent building that we designed, our clients upgraded their original level of certification from LEED Certified all the way to LEED Gold when patients responded positively to their efforts to create a green building.

Green buildings are energy- and resource-efficient, comfortable and flooded with daylight, with indoor environments that may promote improved health and productivity and decreased pollution. Patients and staff are likely to appreciate these features.

Identify and Evaluate Green Design Strategies for Your Project

Identifying and evaluating your green design options can be a daunting prospect. In our architecture firm we are often asked by clients to help them sort through the myriad of green options available to them.

Your “Green Team”

If you followed the advice of [Chapter 1: Build a Team You Can Trust](#), you already have a design team in place. Now you need a “Green Team,” your go-to advisors for the green design process. Your design professional, architect or interior designer should be your first step in identifying green strategies for your project. Ideally, your project architect or designer will understand all the aspects of your project, from your goals for your dental practice to the systems and structure of the building to the municipal requirements. A good design professional will have the most holistic picture of your entire project and he or she can best leverage that knowledge to identify green strategies for your particular needs.

Depending on your particular circumstances, an energy consultant or a sustainability consultant may be a good second phone call. This is a relatively new field so these terms mean different things to different people, but generally speaking energy consultants are mechanical engineers trained to understand how buildings utilize (and waste) energy through lighting, heating, and air conditioning systems. They also look at the materials used to construct the building and the environment to determine how the building performs in maintaining the interior temperature and air quality. Sustainability consultants may also provide this service or they may offer a more holistic approach by identifying water saving options, green roof designs or even public transportation integration solutions. A sustainability consultant may also help you certify for a green building certification program as discussed below.

The more traditional engineering disciplines like building mechanical engineering or even civil engineering are now embracing green design principals. If you are working with that type of engineer already it behooves you to inquire about green solutions with them.

If you are more in the “do-it-yourself” camp, then do not discount the advice of product vendors. While all the usual caveats apply when dealing with salespeople instead of paid consultants, vendors who are selling a particular product or system that interests you can tell you a lot about how the system works, the benefits, and the cost. Re-carpeting your office? A good carpet salesperson can come to your office and show you a broad range of sustainable, non-toxic and non-off gassing carpets at a variety of price levels with no engineering required.

Finally, if you are not already surrounded by a group of professionals that can lead the way then contact the US Green Building Council (www.usgbc.org) for references and recommendations. While the USGBC will not be able to identify specific strategies for your particular needs, it can connect you with professionals in your area that can help you.

Identifying Green Strategies: Who to Contact

- Your Architect or Design Professional

- Energy Consultant

- Sustainability Consultant

- Mechanical (Heating and Cooling) Engineer

- Civil Engineer

- Product Vendors

- The US Green Building Council

Evaluating Your Options - Easy or Hard?

In our architecture practice, when we begin to assemble a green building strategy for our clients, we find it helps to think of green

design options in three broad categories:

- Low-hanging Fruit
- Reasonable Return
- Pioneering Techniques

Easy

“Low-hanging fruit” options are easy to implement and have low or mitigated cost impacts. There are many areas where we have been able to identify options and strategies that fall into this category of implementation. Often these are not very glamorous or observably green but each helps push the building towards a sustainably responsible project.

One example is properly sized walk-off mats at each building entrance. Walk-off mats can reduce not just visible dirt and grime but airborne contaminants that compromise interior air quality. Other examples include low flow water fixtures and low VOC carpets. These have become so common in the marketplace that they can be purchased at prices comparable to higher VOC alternatives. Because of their environmental benefit combined with low cost, they should represent the de facto green building standard at the most basic level.

Medium

“Reasonable return” items are typical techniques or technologies that have a higher cost but have a proven track record of success or a demonstrable advantage that justifies any up-front expense. High efficiency mechanical systems often fall into this category. Simply stated, the system costs more up front but has a higher efficiency rating that can be used to calculate a payback time. Sometimes municipal requirements come into play. In many municipalities owners are required to install extensive landscaping to mitigate the effect of covering so much land area with construction.

Challenging

“Pioneering techniques” are not for everyone, as they represent the vanguard of green building research and innovation. We have been fortunate to have experience with some of these techniques, such as thin film photovoltaic cells and geothermal mechanical systems, which rely on the earth’s natural heat for energy needs. Both of these technologies have since become more commonplace. Some systems are not new per se but have just recently been employed in new applications within the dental industry.

In reality, the three categories are largely tied to cost and ease of implementation, with low- hanging fruit options tending to be relatively inexpensive and easy to execute. But sometimes the scale or the particulars of the project mitigate the cost so be sure you are not just looking at cost in isolation. If you have to install a toilet in the public bathroom, a water saving unit is more expensive, but only incrementally so over the regular toilet. If paying the utility bill and maintaining the bathroom is your responsibility, then this is definitely a low-hanging fruit. If you are not paying the utility bill or you have to convince the building that your toilet selection is a good choice, then perhaps this slips into the “reasonable return” category.

Evaluating Your Options — Other Dimensions

Once you have categorized and ranked your options from low-hanging fruit to pioneering technologies (easy to challenging) it is time to consider other factors:

- Does the municipality require it?
- Do your clients prefer it?
- Do your tenants or employees prefer it?
- Are there other benefits to your practice?
- How great is the benefit to the environment?

Some strategies that were once pioneering techniques have been mandated to some degree, making them effectively no-cost items in that they do not represent an additional cost over the basic requirements for constructing the building in that municipality. Examples include high efficiency lighting and water-saving plumbing fixtures.

Do your patients know that you are doing your part to conserve and be sensitive to the environment? We have found that many people select their service providers in part based on their “green” credentials. We had one doctor tell us that a patient was so excited that the new office was applying for a green certification that his demeanor changed from an angry mood to one of wanting to tell his friends about the doctor’s new office. The patient was receiving a root canal.

What about other benefits? Highly efficient heating and cooling systems can condition small areas on demand. So if you are in the office doing record keeping on days when the office is closed, you can condition your room only on demand without the need to turn on the entire system for all your operations. Some practices are structured with quasi-independent services, like learning areas or specialized imaging services. Heating or cooling those areas on demand can be a considerable benefit to businesses that have this type of situations.

Environmental considerations should not be lost in this evaluation. Practical considerations such as those listed above should be the basis for any decision, although weighing global or local environmental benefits should not be overlooked. As discussed at the beginning of this chapter, stewardship of our environment is important. Bringing that consideration into the evaluation can help you select solutions that benefit both your practice and the environment.

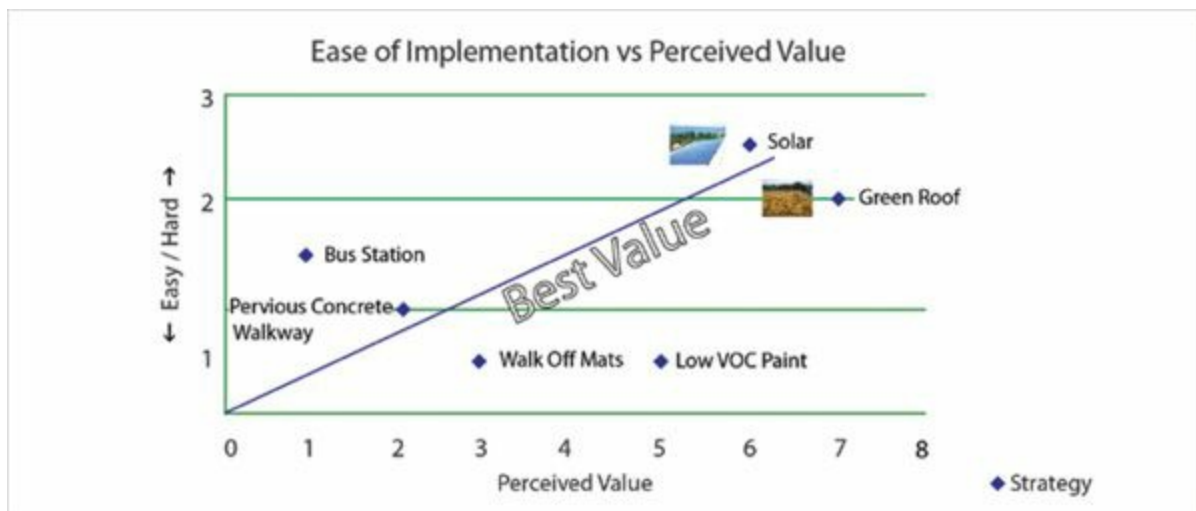
Putting It Together

If you are following the approach suggested in this chapter, you

would assign a rank of 1 (easy) to 3 (challenging) to each strategy option. This would give you the first dimension of a scatter chart plotting “ease” against “value” or, more colloquially, “your bang for your buck.”

Assigning a grade ranging from 1 to 5 to each option for all of the dimensions above can help you sort through your choices. An architect who is knowledgeable in green technologies can be invaluable to guide you in making sensible choices for your specific set of needs and circumstances. Averaging the grades gives you a composite picture of the value of each strategy.

FIGURE 10.1: GREEN STRATEGY SCATTER CHART



By creating a scatter chart of ease of implementation vs. value, you can quickly pick out the strategies that fall within or nearest to the quadrant of “easy and valuable” and finding the “best bang for the buck.”

Evaluate Your Return on Investment

While it would be nice to spend money just to do the right thing for the environment, the simple reality is that investing in your practice needs to be seen as just that: an investment. Therefore, like any other investment, you should expect a positive return. Typically, looking at the payback time for any strategy will be your first metric.

Heating and cooling systems can usually be easily evaluated in this manner. You may have gone through this exercise with your home water heater. If you swap out an old 80% efficient unit for a 95% efficient unit the annual saving in energy usage can be quickly calculated (15% less energy use) and multiplied forward some number of years until you pay back the cost of the new unit.

If the payback starts to look too long, add in some additional detail. Would you have to replace the unit anyway? If so, only consider the up-charge from going to a basic replacement to a more sustainable option. What about life span? Buying the higher quality, high efficiency option may mean a longer expected life span as the entry level equipment will often fail or require more maintenance over a shorter period of time. Green roofs are an interesting example of this. The layers of dirt and planting material protect the roof membrane from exposure to UV and mechanical damage from bird, branches and maintenance workers. The properly designed addition of soil and plants on roof can easily double the expected lifespan of a traditional roof system. All of a sudden a green roof doesn't seem as expensive when compared to two traditional roofs.

The knee jerk reaction is to look at "first costs" to the exclusion of all other considerations, and in fact there will usually be a higher first cost associated with a green strategy. Before throwing in the towel, check to see if tax rebates, municipal incentives and savvy design can mitigate or eliminate these costs. Also, take a look at long term benefits, including:

- Lower energy bills
- Increased property value
- Longer system lifespan
- Lower maintenance costs

These aspects can be projected and accounted for in a hard-nosed quantitative fashion. For example, in building a new building for one

dentist, we constructed an exterior structural wall out of a high performing insulated masonry. The cost increase over tradition masonry was nearly \$100,000.00. But one of the fringe benefits of this insulated wall, other than energy efficiency, was that it was four inches thinner. When the four inches was multiplied out over the length of the building and on each story, the dentist gained a significant amount of additional square footage inside his building. The added cost of the high performing insulated masonry was almost entirely offset by the gain in usable square footage. Along with more space, the dentist now had a higher performing, lower maintenance building.

While it would be nice to spend money just to do the right thing for the environment, the simple reality is that investing in your practice needs to be seen as just that: an investment.

Other Examples

As noted above, green roofs can have a longer lifespan. But there are other advantages. Effectively stacking the landscaping on top of the building, there is not the loss of building area (revenue) that comes with setting aside a portion of land for landscaping. The roof can become an unexpected amenity for your employees. With a carefully placed waiting room window, the roof garden can become a design feature, creating a relaxing environment for your patients as they wait for treatment. Green roofs also very effectively insulate buildings saving costs on heating and cooling bill. And the roof garden can become a credential in certifying your project for a green building program.

Variable Refrigerant Flow (VRF) mechanical systems are really just a more advanced version of the common household split systems that occupy residential side yards all over the US. These systems have been improved and now can supply heat or cooling to the different parts of a building at the same time. They even use undesired heat from the sunny side of the building to warm up to cooler part of the office. While split systems have significant upfront

cost and a return on investment is currently a longer term prospect, they are becoming increasingly common and so prices may begin to drop. Also if energy costs go up dramatically over the next decade, as many believe they will, then the length of time to realize a positive return may be reduced.

Green roofs also very effectively insulate buildings saving costs on heating and cooling bill. And the roof garden can become a credential in certifying your project for a green building program.

Certifying Your Green Design

It won't take long before someone asks you if you intend to certify your green project. In short, certification entails documenting the green strategies used in your project and comparing them to a set of "sustainability standards" developed by a certification organization. The term "sustainability standards" refers to a voluntary set of prepared guidelines and norms relating to environmental concerns. Recognizing that the world needs strategies that safeguard our health and resources, the design and construction industry has developed numerous sustainability standards. There are a variety of certification programs in place. Some emphasize energy efficiency such as the Federal Energy Star program. Other programs take a broader approach and include issues such as siting and air quality. Green Globes environmental assessment and certification program and Leadership in Energy and Environmental Design (LEED) are two examples.

Why Certify?

A green certification program can help you demonstrate all of the good things you have done in designing your practice. As discussed early, your patients will respond to your practice's commitment to bettering the environment and our health. With a plaque on the wall, there is not any question about your having done your part. Both LEED and Energy Star are now widely recognized "brands" of

sustainable design. Ask your patients; tell them you are considering building a green office and see what they say. In our experience the public's awareness of green design has increased exponentially over the last five years.

The real estate market has begun to reflect this trend as well. A report by Colliers International showed that LEED certified green buildings were actually more valuable than buildings that were not LEED certified in the market. Another study went so far to state that a LEED building can command an additional 50 cents per square foot in annual rent. A third study did not find a bump for a LEED certification but did find a 3.3% bump in rents for Energy Star rated properties. If you plan on owning your office building or suite, green certification can really add to your bottom line.

Another factor to consider is your building permit. Many municipalities are now offering preferred treatment for projects that pursue green certification. If your city expedites your permit, it can translate into real savings as the carrying costs of paying mortgage, rent and or construction loan interest can really add up. Saving weeks and months of time is a big deal, especially in larger cities where permit processing times are notoriously long.

Designing for Certification

There are really three parts of the certification process: designing for certification, monitoring the project and documenting the project.

As there are a variety of programs in place aimed at different building types and technology sectors; any particular program will only give credit for certain specific design techniques and green technologies. So if you develop your green program in a vacuum, there is a chance you will not be able to certify what you have done because your chosen program does not recognize your approach. A commitment to accomplishing your green goals, including your certification goals, is best established early in the project design process.

Monitoring Your Project

One consequence of choosing to certify is the building contractor, subcontractors and consultants tend to be more conscientious overall and especially as it relates to the items that are on the checklist and likely to be tested or bear greater scrutiny. But there are still all sorts of horror stories of people that tried to do the right thing only to find out that the product was shipped from the wrong plant, installed with a compromising material or not actually intended to perform the necessary task.

We have our own story of specifying doors made from sustainably harvested wood. The doors were beautiful, installed perfectly and, of course, an expensive line item in the budget. We were banking on getting a valuable LEED credit for the use of these doors. The problem arose when we requested the chain of custody documents showing the doors were in fact made from sustainably harvested wood. The manufacturer balked and claimed that between the time we selected the doors and the time they were actually ordered the manufacturer could no longer provide documents. They did not properly notify us of this change in their product. The kicker was that the doors were probably made from sustainably harvested wood but nobody could prove it. In the end we negotiated a settlement with the manufacture for the lost value of the LEED credit.

So this is not a “set it and forget it” proposition. The wrong stuff gets delivered, people make mistakes, etc. Monitoring your construction project is an essential part of any green strategy.

Documenting the Project

The story above about doors not having chain of custody certificates also goes to show how important paperwork is in certifying your project. The certifying organizations typically do not visit your projects to see how it is going, so you need to prove to them what you have done. The paper trail here is vital. And honestly many of these programs are fairly bureaucratic. Some of the smaller non-government certifying organizations are a little better about the paperwork; while programs sponsored by the government are ...

well, you probably get the point. Unless you love paper work and have the desire to learn to the minutia of a particular certifying program's standards, you will need someone to take care of the documentation.

The Sustainability Consultant and Consulting Cost

Once certification is on your list of goals, it is time to begin the conversation with your design professional and sustainability consultant. In our firm we largely fill the role of both, but this is not always the case. Complex projects may require both services, while simpler projects may be handled entirely by your design professional.

But regardless of who helps you with the certification process, you will in all likelihood need someone. Keep in mind you are likely "investing" in green design, not just spending money. You are planning on some sort of return on your investment. A good sustainability consultant will help protect your investment.

In the beginning when you are planning your project, a ballpark number of one percent (1.0%) of the construction costs should be anticipated for your consultant's fee. The cost for a sustainability consultant is just their fee; it does not include the certification program's fees or any of the systems or material used in your project. Your consultant should be able to give you a firm number for their fees, as well as the certification program's fees, after they have reviewed the design and proposed the best certification path for your needs.

Your Building Certification Program

This is a rapidly changing area. As of this writing, the US Green Building Association has nine different LEED certification programs. Of particular note are programs for healthcare, new construction and commercial interiors. Green Globes offer five discrete programs. Energy Star focuses on building energy use but has a myriad of building types that are used as "models" to design against.

So picking a program that is right for you depends on your goals. If energy consumption is a top priority, look at Energy Star. If patient perception is important, LEED might be more recognizable.

Also, looking at which programs may result in governmental incentives, such as faster permit reviews times or tax rebates for your situation, is a key step.

Talking to your design professional, your sustainability consultant, your patients and even the municipality will likely point you to right certifying organization. Do some homework early and make sure your team understands your goals.

Talking to your design professional, your sustainability consultant, your patients and even the municipality will likely point you to right certifying organization. Do some homework early and make sure your team understands your goals.

Case Study — The Orion Dental Building

The project site presented several attractive features that convinced PE Investments to purchase the property and give Stuart Silk Architects an opportunity to design something unique. The site was underdeveloped with a duplex rental property set at the rear of the long narrow lot.

The building's location on California Ave SW is within West Seattle's Admiral Residential Urban Village which is a pedestrian, street, and small business oriented neighborhood. The site is across the street from Hiawatha Park providing park views to the east with views of Puget Sound and the Olympic Mountains to the west from the upper stories.

Despite the advantages of a great neighborhood location and views in two directions, the site was a narrow infill lot requiring ingenuity and creativity on the part of both the design team and the contracting team at Constantine Builders Inc.

With a small lot tightly confined by lot line buildings, a high performing party wall was desired. The team selected a concrete form masonry unit (CFMU) system by Pentstar. The innovative CFMU system was able to deliver an insulated and watertight construction by virtue of a built-in layer of foam which insulates the wall and creates an exterior airspace that sheds water. Reinforced concrete provides the structure when poured into the block cavity.

The faces of the block are exposed and the team selected an attractive ground face block in a warm charcoal color. Not only is CFMU an attractive wall with superior performance, but the thinness of the system increased the usable floor area in the building by over 400 square feet. The Orion Dental Building was the first commercial building in the Pacific Northwest to use this system.

FIGURE 10.2



Orion Dental Building at dusk

FIGURE 10.3



Orion Dental Building street view

FIGURE 10.4



Access to fresh air and natural light is provided at the third floor deck for staff use.

FIGURE 10.5



Solar shades over the rear windows help minimize heat gain and glare, and help maintain comfortable interior.

FIGURE 10.6



Interior was designed with minimal columns to maximize views of the park and provide flexibility for the dental office.

FIGURE 10.7



Reception desk with accent lighting

FIGURE 10.8



Natural light is provided on the right to supplement and reduce the need for artificial lighting.

FIGURE 10.9



Work station provides a comfortable place for staff to work with natural lighting from the left.

FIGURE 10.10



Not necessarily a green feature but every office needs some beauty to create an inviting environment for patients.

FIGURE 10.11



Comfortable and relaxing lobby with variety of seating options

FIGURE 10.12



Art niche to provide interest in corridor

FIGURE 10.13



Flexible and useable lunch room with access to the exterior deck. Access to natural light and air is an important sustainable strategy for the betterment of staff health and well-being.

FIGURE 10.14



Lobby refreshment center

The lot width is fifty feet; smart beams were used to span the full width of the building to free up the spaces of interior structural columns. The voids in the beams provide the pathways for horizontal distribution of infrastructure and utilities.

KPFF structural engineering team worked with the team to overcome the logistics of sizing and installing fifty-foot long beams in a fifty-foot wide building with a remote staging area and limited access.

The design team at McDonald Miller and the construction team at Merit Mechanical designed and installed a mechanical and plumbing package that maximizes the building's usable square footage. An efficient variable refrigerant flow split system is used in the building. The system does not require large supply and return shafts, maximizing usable square footage, and can heat and cool different

zones simultaneously. The roof top units are screened from view and are very quiet.

The commitment to sustainability demanded the selection of durable and energy efficient products. Those products and systems are anticipated to reduce building energy needs and water consumption by more than 20%. All of the on-site parking is below the building which helps reduce heat island effects, and over 95% of the wood used in the project was sustainably harvested and is FSC certified wood.

Beyond the visible components, there is a greater commitment to reducing the impacts on the neighborhood and the region.

The green roof was designed and implemented to provide habitat and a better insulated roof. Over 20% of the building is constructed of recycled or regionally produced materials. The building operates with 35% of the energy provided from sustainable sources. Finally, the construction team was able to divert more than 80% of the construction waste to a recycling and reuse yard. The goals of the project required overarching effort to work closely as a team and maximize every opportunity to create a healthier and more efficient building. As a result, the project was registered with the US Green Building Council in anticipation of receiving a LEED Gold certification for a Core and Shell building.

In the end, a combination of all of these features generated value for the project. Large expanses of glass invigorate both the interiors and the streetscape sidewalk and the building's users will enjoy dynamic views of the street, the park and across Puget Sound. Each square foot of space is considered and carefully crafted. The individual innovations and features contribute to the efficiency and distinctiveness of the building. This project is unique in its vision of how a building can engage and contribute to neighborhood's quality and character and create a desirable workplace for its users.

FIGURE 10.15



Orion Dental Building Green Roof — the green roof at the Orion Building was one of our primary sustainable strategies to create a more energy efficient, environmentally beneficial, and longer lasting roof assembly for the dental building.

Summary

Buildings demand considerable amounts of energy as well as much of the world's available resources. Today the technology is available for dentists to create a greener, more sustainable workplace for your patients and staff alike, whether you are building from the ground up or within an existing space. Many of these technologies are measurable and can be looked at from the standpoint of an ROI perspective, while others are more likely to appeal on the basis of your personal beliefs surrounding the imperatives of the environmental movement. For those who are interested third party certification, organizations, such as LEED, have a number of programs available to help guide and define the process with more quantifiable objectives.

If your goal is to create a more sustainable office, be certain to hire a design professional who has experience with the latest green building techniques and whose values are aligned with yours to guide you through process.

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 served as a juror for the American Institute of Architects awards programs, lectured at several universities, and written a number of articles on the built environment. Under Stuart's direction, the firm has grown to 20 full time employees and received regional and national recognition for its innovatively designed buildings.

John Adams, A.I.A., is a Principal in the firm Stuart Silk Architects and leads the commercial studio which specializes in medical/dental office design and commercial office design. John has worked on several medical/dental projects, including new offices for a general dental practice in Centralia, WA.

Stuart Silk Architects is committed to creating multi-generational buildings that are energy efficient, healthy, and sustainably constructed. The firm is a leader in sustainable architecture and has designed approximately twenty buildings that have received or are in line to receive LEED or Built Green certification.

Contact Stuart Silk Architects at info@stuartsilks.com or 206.728.9500 or visit their website at www.stuartsilks.com.

Note from the ADA

Dental practices developing messages, promotional materials, and advertising that make environmental claims or that refer to environmental seals of approval or certification must keep in mind that legal restrictions such as truth in advertising laws apply to environmental claims, and must be careful to avoid potentially deceptive and misleading claims, which could violate

state and federal laws such as Section 5 of the Federal Trade Commission (FTC) Act. Violating such laws can lead to enforcement actions and fines.

In October 1, 2012 the FTC issued revised “Green Guides,” which describe the types of environmental claims the FTC may or may not find deceptive under Section 5 of the Act. For example, the Green Guides caution against making broad, unqualified general environmental benefit claims like ‘green’ or ‘eco-friendly.’ Such claims should be qualified with specific environmental benefits, and such qualifications should be clear, prominent, and specific. The Green Guides also include restrictions on the use of terms such as “degradable,” “free of,” and “non-toxic.” For information about the FTC Green Guides, visit www.ftc.gov/opa/2012/10/greenguides.shtm.

Keep in mind that environmental certificates and seals of approval can be deemed “endorsements” that must comply with the FTC Endorsement Guides. On October 5, 2012, the FTC announced that it had approved final revisions to this guidance on how to keep endorsements and testimonials in compliance with the FTC Act. (see www.ftc.gov/opa/2009/10/endortest.shtm). A summary of the FTC Green Guides that discusses the Endorsement Guides is available at www.ftc.gov/os/2012/10/greenguidessummary.pdf.

Chapter 11:

CASE STUDIES





Chapter 11:

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 so you can gain recognition for your own practice design

By now you probably have many concepts and ideas for your new dental office design — but how do you turn your ideas into a practical, affordable, and functioning office? It's useful to review what others have done for helpful insights and inspiration, and one of the best resources for viewing well-designed dental practices is the Dental Office Design Competition (DODC). Brought to you 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 Session and online at www.practicefinance.wellsfargo.com/dentists/dental-office-design.

Learning how the design competition works and reviewing case studies of previous winners is an excellent way to gain valuable insights into how to focus your design objectives, overcome challenges and make your vision a reality. Who knows — perhaps the knowledge you gain will help your dental practice 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 seeking practice purchase or start-up financing, Matsco discovered that many new practitioners were unsure where to turn for help in defining their practice vision. An office design competition proved to be a good way to showcase well-designed offices as an inspiration and learning tool for dentists planning to build or remodel their own 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, a practicing dentist who has experienced the office design-and-build process, an ergonomic consultant specializing in the dental field, and

a dental practice management consultant.

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 practitioners 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. How many of these criteria have you included in your practice design?

An office design competition proved to be a good way to showcase well-designed offices as an inspiration and learning tool for dentists planning to build or remodel their own practices.

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 Dentistry, expresses it this way: “A winning practice needs to incorporate all the principles of architectural design, clinical design and function, and ergonomic issues, and needs to take into

account the budgeting of the project and integration of technology. They have to be able to have all of the parts come together in a well-designed project.”

And 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 Mike 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.”

John Jameson, D.D.S., Jameson Management Inc., says, “The first thing I look at is the floor plan so I can make sure we have an adequate design that is going to be effective in a long-term utilized facility and will be correct in terms of patient flow and access to necessary equipment and services inside the practice.”

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.

According to DODC judge Mary Govoni, dental hygienist and speaker/consultant on dental ergonomics, the most significant improvement in equipment design she has seen over the years is related to patient care. For instance, patient chairs traditionally addressed the patient’s comfort alone. Today’s chairs are comfortable for the doctor and clinical team as well. “In the last several years, more and more practices entering the competition really looked at the best chair design for the entire team rather than just the patient. Everybody’s comfortable now, which means the patient is actually getting better care because the team is less fatigued and more focused.”

Dr. Unthank adds, “The technology functions and treatment

settings should all be integrated. Does the practice have the clinical ability to access information, use technology for patient education, entertainment, 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 they’re receiving. 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 assure 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 (1-2 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 (3+

practitioners working regularly in the practice)

- Excels at the five key design parameters for determining a winner
- Successfully meets the challenge of designing more complex work spaces while managing patient and staff flow patterns

“With a large facility we’re looking more closely at patient flow patterns than with a single doctor practice.” (DODC judge Dr. John Jameson)

“We look very carefully at whether or not an appropriate amount of space was used. More space does not necessarily mean a more efficient office.” (DODC judge Geri True, Director of Interior Design, Unthank Design Group)

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 they 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 in 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)

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)

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

“This category emphasizes maximizing efficiency in terms of square footage and creating a space that is as effective as possible for all providers within it.” (DODC judge Geri True)

Outstanding Environmental Considerations

- Gives practices an opportunity to highlight the green initiatives, products and materials used in designing and building the practice with energy conservation and air quality in mind

“More practices are now taking the environment into consideration in designing their work space, using green materials and systems. This category will become more competitive, and the role that LEED certification plays in determining winning practices is something we’ll be looking at.” (DODC judge Mary Govoni)

DODC Case Studies

To help understand how these design principles are applied in the dental office, below are case studies of two 2011 Dental Office Design Competition winners who received awards in the Dental Office Design of the Year, Outstanding New Dentist Practice, Outstanding Specialty Practice, and Outstanding Environmental Considerations 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.

Case Study #1: Amber M. Allen, D.D.S.

Amber M. Allen, D.D.S., opened her first private dental practice in Omaha, Nebraska, in November 2009, submitted her practice design to the DODC, and won the 2011 Dental Office Design of the Year — Small Practice award, as well as an award for Outstanding New Dentist Practice.

- The Dental Office Design of the Year — Small Practice 2011 award was given for the best overall facility as evidenced by functional design, efficient interior space planning and appropriate integration of dental equipment and technology.
- The Outstanding New Dentist Practice 2011 award recognized the best new, remodeled or expanded facility for the first practice owned by a doctor or group of doctors who have graduated from dental school since 2001.

Practice Information	
Owner	Amber M. Allen, D.D.S.
Practice Type	General Practice
Location	Omaha, NE

Number of Operatories	4
Number of FT Staff	4
Practice Philosophy	My practice is designed to be welcoming, by caring thoroughly for patients and their teeth in a nonjudgmental manner, while exceeding their expectations. I never want my patients to feel embarrassed about the condition of their mouths. I am here to help, not to judge.

Practice Design Challenges

In designing her practice, Dr. Allen wanted to align the ambience of the office with her practice philosophy. She states, “I strive to give friendly, gentle, individualized care in an ‘un-dental-like’ atmosphere, from office appearance to persona of the dentist.” To help patients feel more relaxed in her office, particularly those who are anxious about dental procedures, Dr. Allen wanted to create a friendly and comfortable practice environment.

The practice is located in a ground-level, corner space of a “strip center,” which presented both benefits and challenges. While the office has excellent visibility from the street, convenient parking and a great deal of natural daylight, the space needed to be “humanized” through the use of color, finishes and furnishings. Dr. Allen chose to stay away from cool neutral tones that can contribute to a sterile feeling in many dental offices, instead choosing warm colors and soft chairs and textures to help relax the patient.

Design Project Overview

Project Overview	
Building Type & Construction	Leasehold
Total Square	

Footage	2,012 square feet
Completion Date	November 2009
Project Objectives	<ul style="list-style-type: none"> • Create an office that looks professional but not “clinical” in appearance. • Develop a relaxing, warm environment that feels friendly and comfortable to patients. • Maximize space efficiency and privacy.
Design Solutions	<ul style="list-style-type: none"> • The “storefront” nature of the strip center was counteracted by using warm, nature-inspired colors, rich textures and interesting lighting. • Two monitors were placed in each operatory, providing patients with distraction and entertainment while allowing private chart information to remain out of their line of sight. In addition, intraoral cameras for documentation, patient education, and lab communication were also installed. • Double rear-entry treatment rooms (with flexible rear delivery) are designed with optimal work surface placement and dimensions, providing ergonomic comfort and efficiency for all providers. Marus carts used for rear delivery system ensures patients don’t see the “scary” instruments. • Smooth traffic flow and a private consultation room help consistently provide the best in professional and private dental care for patients.

	<ul style="list-style-type: none">• Sound is controlled with the use of full-height walls between treatment rooms and a sound-trapping bulkhead.
Advice	<ul style="list-style-type: none">• Plan, plan, plan!• Pay attention to dentist-population ratios in your planned location and do not underestimate the value of visibility when starting a new practice.• When money is involved, using a supply company as practice designer may not always be in the best interest of your practice operation and patients.

FIGURE 11.1: AMBER M. ALLEN, D.D.S. FLOOR PLAN



The floor plan for Amber M. Allen, D.D.S. of Omaha, Nebraska, ensures smooth traffic flow and privacy.

FIGURE 11.2



Warm colors and unique lighting are key design features of Amber M. Allen, D.D.S. of Omaha, Nebraska.

FIGURE 11.3



The Amber M. Allen, D.D.S. practice is designed to feel friendly and comfortable to help relax patients.

FIGURE 11.4



Monitors placed in each operatory provide distraction and entertainment.

FIGURE 11.5



Sound is controlled using full-height walls between treatment rooms and a sound-trapping bulkhead.

FIGURE 11.6



The sterilization lab at Amber M. Allen, D.D.S. is centrally located for convenience.

Case Study #2: Gila C. Dorostkar, D.D.S.

Gila C. Dorostkar, D.D.S., relocated her pediatric dental practice in May 2010 in order to expand her space while creating a welcoming and playful environment for her young patients. She won two DODC awards for her efforts:

- The Outstanding Specialty Practice 2011 award recognized the best new, remodeled or expanded facility for a specialty practice.
- The Outstanding Environmental Considerations 2011 award was given for successfully incorporating environmentally friendly materials, decorative applications, equipment and practices into the facility design.

Practice Information

Owner	Gila C. Dorostkar, D.D.S.
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Practice Type	Pediatric Dentistry
Location	Greenbrae, CA
Number of Operatories	4
Number of FT Staff	7
Practice Philosophy	Our pediatric dental team is committed to establishing the cornerstone for a lifetime of good oral health by creating a playful, engaging dental home for our patients. We strive to provide compassionate, personalized dental care with outstanding customer service and integrity.

Practice Design Challenges

In her new practice environment, Dr. Dorostkar sought to engage children “of all ages” while catering to the needs of parents, staff and the community. The office layout was carefully designed around the workflow needs of a pediatric practice, with visibility to children in play areas while managing patient site lines to operatory areas.

The practice intentionally planned a design that would minimize the traditional feel of a medical facility by incorporating high ceilings, open areas and fluid wall structures. Dr. Dorostkar also established LEED Certification as a project objective, in keeping with the Practice Philosophy and thrust of the local community.

The most significant obstacle was finding a suitable location in central Marin County that could provide the necessary square footage and be easily accessed by people with strollers and wheelchairs. The space would need to be zoned for medical use and adapted to meet LEED criteria. After an extensive search Dr. Dorostkar identified an appropriately zoned building in the hospital district of the county that had sufficient square footage available, but which required substantial structural changes to meet design objectives including moving a public

restroom and revising support structures.

Design Project Overview

Project Overview	
Building Type & Construction	Leasehold
Total Square Footage	2,395 square feet
Completion Date	May 2010
Project Objectives	<ul style="list-style-type: none">• Enhance the quality of patient care by building an inviting, engaging dental suite that takes advantage of cutting-edge dental technology, allows a move to a paperless office, and creates a comfortable, positive, and happy dental experience for our patients and their parents.• Increase the square footage available to our existing practice to offer more treatment options for our patients, improve the working environment for our team, and enable us to meet the growing needs of our community by adding pediatric specialists to our staff.• Minimize environmental impact by designing an efficient, environmentally responsible pediatric dental facility.
	<ul style="list-style-type: none">• Two private doctor's offices and a separate consultation room allow multiple doctors to work concurrently, and add privacy to comply with HIPAA guidelines.• Customized cabinetry was designed throughout the office to accommodate

Design Solutions

chairside LED monitors and CPUs, a bottled water delivery system, medical gas delivery, and an integrated office-wide patient entertainment system.

- Under-the-floor plumbing keeps the area around the chair clear for doctors and staff, and improves the overall aesthetics of the operatory.
- A dry vacuum system, amalgam separator, and water distiller all serve to reduce waste and minimize our environmental impact. All systems are remotely operated to allow on-call doctors to easily re-start the systems in the event of an emergency office visit.
- A built-in automated water distiller provides water for the x-ray equipment and purified water for use in the closed-bottle delivery system, eliminating the waste of water purchased in plastic jugs.

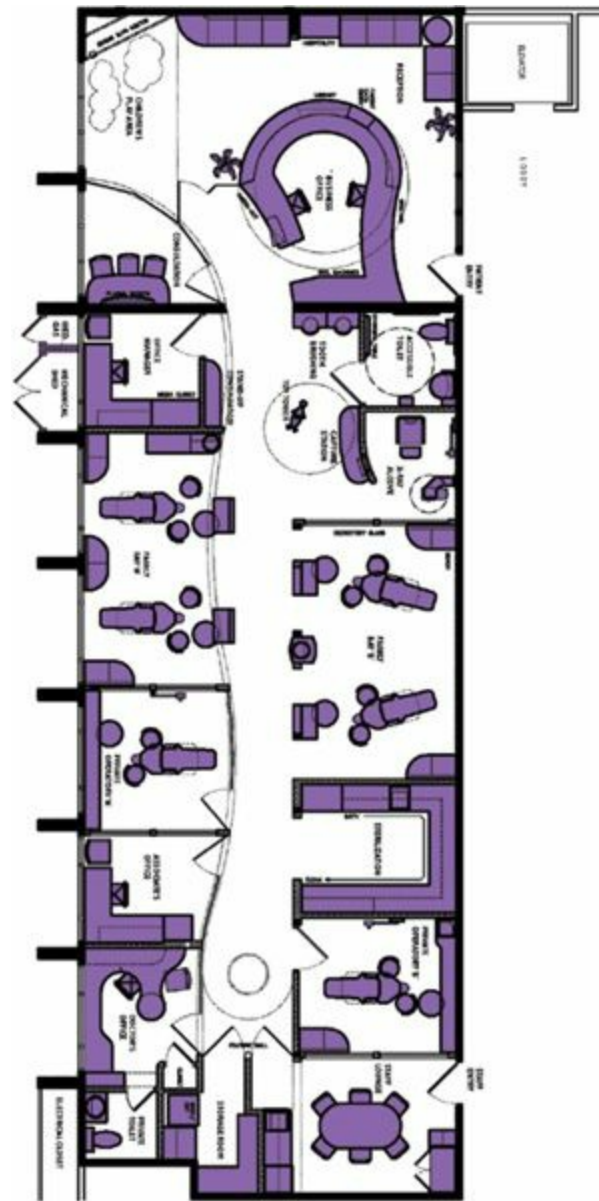
Advice

- Identify and engage with your entire design team from the onset, including an architect, designer, contractor, project manager and related consultants. Having their participation early will help them integrate ideas and resolve issues before construction begins.
- Select and design around your proposed technology and dental equipment. Don't wait until the project is underway.
- Outline your objectives before the project begins, and push to make sure your

design team meets those objectives.

- Don't cut corners. Minor price differences are not worth the difficulty of working with second-class equipment, particularly when amortized over the life of your practice.

FIGURE 11.7: GILA C. DOROSTKAR, D.D.S. FLOOR PLAN



The floor plan for Gila C. Dorostkar, D.D.S. in Greenbrae, California, increases square footage to incorporate more treatment options and pediatric specialists.

FIGURE 11.8



The reception area of Gila C. Dorotskar, D.D.S. caters to the needs of young patients and their parents.

FIGURE 11.9



The reception area engages children “of all ages” with its playful seal ball dispenser.

FIGURE 11.10



Gila C. Dorotskar, D.D.S. minimizes the traditional feel of a medical practice with high ceilings, open areas and fluid wall structures.

FIGURE 11.11



Photo of Doctor's Office at Gila C. Dorostkar, D.D.S., Greenbrae, California.

FIGURE 11.12



Under-the-floor plumbing keeps the area around chairs clear for doctors and staff at Gila C. Dorotskar, D.D.S.

FIGURE 11.13



Customized cabinetry was designed throughout the office of Gila C. Dorotskar, D.D.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. And as you articulate your vision on your entry form and realize your accomplishments in meeting your goals, you'll find the entry process itself can be rewarding.

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 an explanation of the mission of your practice, 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."

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."

So 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 greater impact.
- Make sure your descriptions are congruent with the photos you submit — there should be no conflicts between what you're saying and what you're showing.
- Include people photos that show the functionality of the practice,

particularly chair-side photos with the clinical staff and patient.

- Be sure photos are well executed and of professional quality. Winning practices are showcased to your colleagues, so it's important that images be publishable.
- Be sure your application is complete and reflects the level of thoughtfulness you put into your project.

Summary

The Dental Office Design Competition awards those practices that exemplify a well-thought-out balance of efficiency, function and design aesthetics while accurately reflecting the doctor's personal vision for his or her practice. In addition, the competition provides a showcase of outstanding designs so that those considering a practice remodel, expansion or build-out can learn from the competition winners and better maximize their investment.

Consider entering your own practice in the Dental Office Design Competition! It takes time and dedication to complete the application process — but whether you win or not, you'll have a better understanding of how well you did in defining and achieving your 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!"

And 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 work very seriously, and find it a genuine pleasure to participate in honoring all your hard work in planning and executing the vision for your practice.

To learn more, visit

www.practicefinance.wellsfargo.com/dentists/dental-office-design.

Contributor Biographies

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 888.937.2321 or www.practicefinance.wellsfargo.com.

Dental Office Design

Photo Credits

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Cover, p.1	Photo courtesy of Henry Schein
p.2	Photo of Reception Desk at Gila C. Dorostkar, D.D.S., Greenbrae, California. Photos submitted by Drew Altizer Photography, San Francisco, CA, www.drewaltizerphotography.com .

Chapter 2

Cover, p.17	Photo of practice of Dr. Gila C. Dorostkar, D.D.S., Greenbrae, California. Photos submitted by Drew Altizer Photography, San Francisco, CA, www.drewaltizerphotography.com .
p.18	Photo of the office of Dr. C. Roger Macias, San Antonio, Texas. Photo by Ron Smith, San Antonio, Texas, www.ronsmithphoto.com

Chapter 3

Photos courtesy of Henry Schein Dental

Chapter 4

Photos courtesy of Michael Unthank, D.D.S., Architect

Chapter 5

Figure 5.1	Photo of Riverside Dental, Littleton, Colorado. Photo submitted by JoeArchitect, 1422 Delgany St., Suite LL1, Denver, Colorado 80202,
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- Figure 5.8

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- Figure 5.19 Photo of Lotus Family Dental, Aurora, Colorado. Photo submitted by JoeArchitect, 1422 Delgany St., Suite LL1, Denver, Colorado 80202, www.joearchitect.com. © Photography by Bob Soman Photography, www.bobsoman.com.
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Chapter 6

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Chapter 7

- Figure 7.1 Photo of Glenn OMS, Lincoln, Nebraska submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.2 Photo of the office of Amber Allen, D.D.S., Omaha, Nebraska, submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.3 Photo of the office of Dr. Dominik Dubravec, Frankfort, Illinois. Photo by Bill Jurevich, Bourbonnais, Illinois, Image Group Photography, www.imagegroupphotography.com

- Figure 7.4 Photo of Dr. Monte Zysset's oral surgery office, Lincoln, Nebraska submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.5 Photo of Owen Dental Care, Chadron, Nebraska. Photo credit: Sydney True Photography, 6323 Skylark Lane, Lincoln, Nebraska.
- Figure 7.6 Photo of Endodontic Associates of Savannah PC, Savannah, Georgia, by Lauren Miles, 316 Stephenson Avenue, Savannah, Georgia
- Figure 7.7 Photo of Elite Dental, LaVista, Nebraska submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.8 Photos of Southwest Pediatric Dentistry, Lincoln, Nebraska submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.9 Photos of Southwest Pediatric Dentistry, Lincoln, Nebraska submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, Nebraska, www.unthankdesigngroup.com
- Figure 7.10 Photo provided by New Town Dental Arts, Williamsburg, Virginia
- Figure 7.11 Photo of the office of Dr. C. Roger Macias, San Antonio, Texas. Photo by Ron Smith, San Antonio, Texas, www.ronsmithphoto.com
- Figure 7.12 Photo of Partners in Dental Care, Grand Rapids, Michigan. Photo by Paul Brokering, Denver, Colorado, www.paulbrokering.com
- Figure 7.13 Photo of Endodontic Associates of Savannah PC, Savannah, Georgia, submitted by Lauren Miles, 316 Stephenson Avenue, Savannah, Georgia
- Figure 7.14 Photo of Harre Orthodontics, Lincoln, Nebraska submitted by Unthank Design Group, 5930

Figure 7.15 VanDervoort Drive, Lincoln, Nebraska,
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Photo of Smileworks, Mount Pleasant, South
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- Figure 11.2 Omaha, Nebraska. Photo submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, NE 68516, www.unthankdesigngroup.com, Photo of Reception Area at Amber M. Allen,
- Figure 11.3 D.D.S., Omaha, Nebraska. Photo submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, NE 68516, www.unthankdesigngroup.com. Photo of Operatory at Amber M. Allen, D.D.S.,
- Figure 11.4 Omaha, Nebraska. Photo submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, NE 68516, www.unthankdesigngroup.com. Photo of Sterilization Lab at Amber M. Allen,
- Figure 11.5 D.D.S., Omaha, Nebraska. Photo submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, NE 68516, www.unthankdesigngroup.com. Photo of Treatment Corridor at Amber M. Allen,
- Figure 11.6 D.D.S., Omaha, Nebraska. Photo submitted by Unthank Design Group, 5930 VanDervoort Drive, Lincoln, NE 68516, www.unthankdesigngroup.com. Floor Plan of Gila C. Dorostkar, D.D.S.,
- Figure 11.7 Greenbrae, California. Floor plan design submitted by Michael Goldstein, Design for Health, 250 Dufour Street, Santa Cruz, CA 95060, architect@designforhealth.com.
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- Figure 11.10 Photo of Family Bay B at Gila C. Dorostkar, D.D.S., Greenbrae, California. Photos submitted by Drew Altizer Photography, San Francisco, CA, www.drewaltizerphotography.com.

- Figure 11.11 Photos submitted by Drew Altizer Photography, San Francisco, CA,
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- Figure 11.12 Photo of Operatory at Gila C. Dorostkar, D.D.S., Greenbrae, California. Photos submitted by Drew Altizer Photography, San Francisco, CA,
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- Figure 11.13 Photo of Sterilization Lab at Gila C. Dorostkar, D.D.S., Greenbrae, California. Photos submitted by Drew Altizer Photography, San Francisco, CA,
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