OFFICE

DESIGN & CONSTRUCTION PROCESS MANUAL

A step-by-step informational manual for designing/ developing your next dental office project.

hjt

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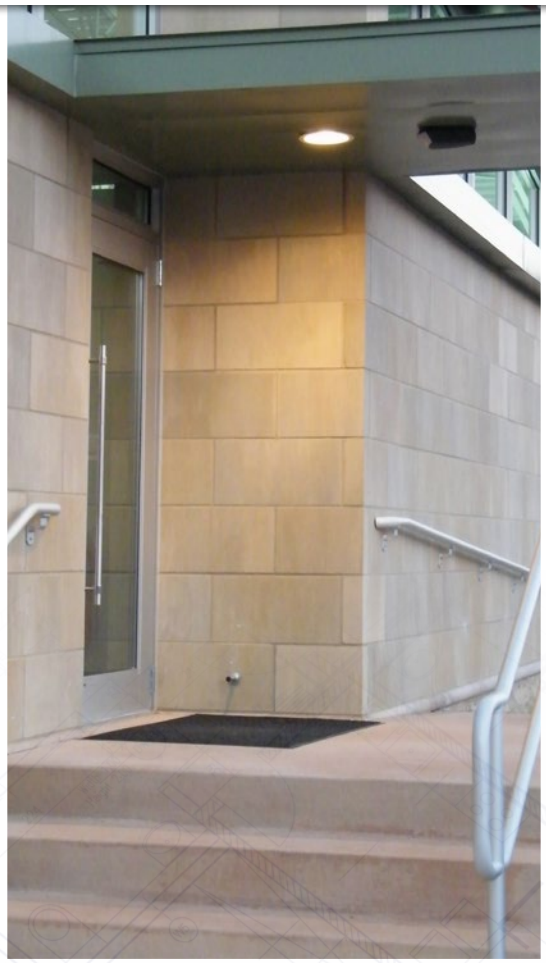
PREFACE



This **Office Design & Construction Process Manual** has been created to provide you with an overview of the process relating to the design and construction of your dental facility.

Whether you're renovating an existing office or building a new office from the ground up, the main objective of this manual is to inform and empower you with basic knowledge to enable you to make informed decisions for your upcoming design and construction project.

At HJT we believe that, when informed in the early planning stages, clients are more equipped to positively impact the direction of their project and are able to garner the most value for their time and financial investment.

WHY YOU NEED PROFESSIONAL SERVICES

Many states require, by law, the services of licensed architects (in the state where the construction project is located) to perform and/or directly supervise over the design of the project. Regardless of the size of your design/construction project, make no assumptions, confirm this requirement with your building official.

A partial list of project scope when professional services may be needed:

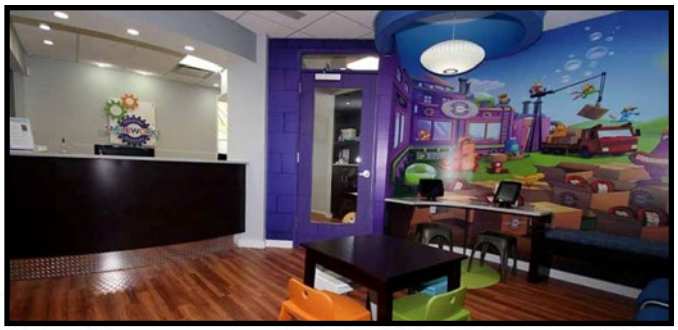
- **ALTERATION TO IMPROVE EFFICIENCY AND GAIN PRODUCTIVITY**
- **EXPANDING FOR ADDITIONAL CLINICAL SPACE**
- **UPDATING TO CURRENT BUILDING CODE AND ACCESSIBILITY GUIDELINES & REQUIREMENTS**
- **NEW LOCATION OR SECONDARY LOCATION(S)**
- **INTEGRATING NEW TECHNOLOGY**
- **CHANGES TO FACILITATE CONSOLIDATION OR TRANSITION OF PRACTICES**

WHAT IS YOUR PROJECT SCOPE?

WHAT WILL BE THE SCOPE OF YOUR PROJECT?

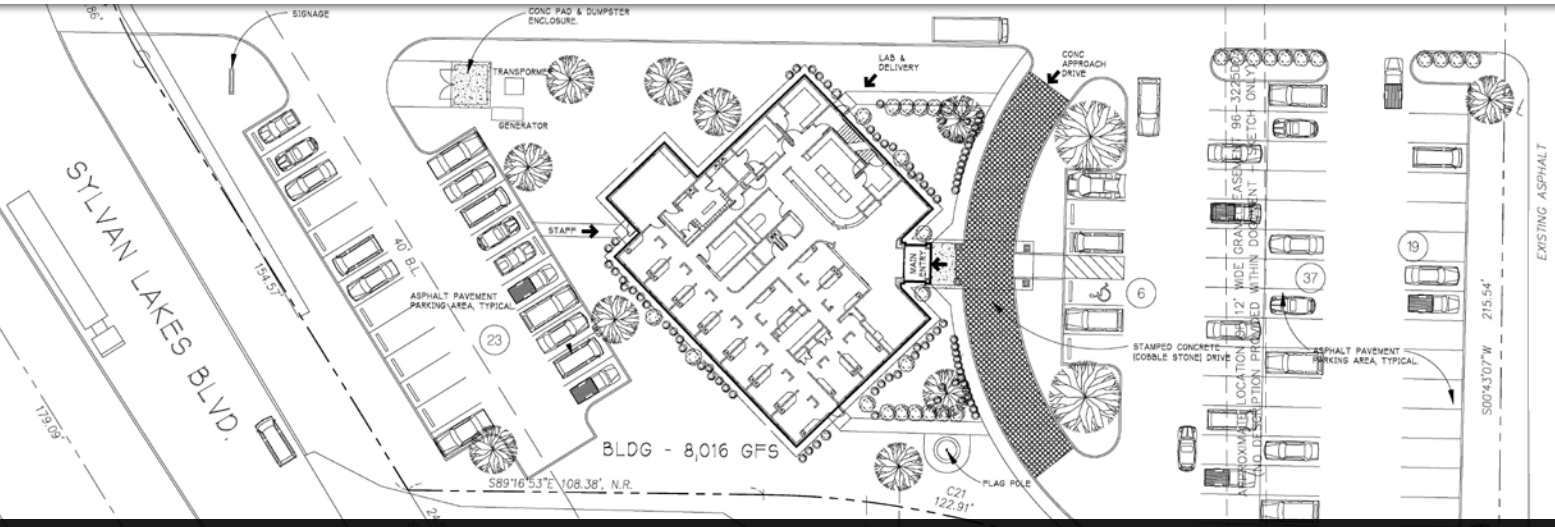
This is the written language outlining the general requirements and/or intent involving the renovation, modification, addition to, or a brand new construction of your building project. Ultimately, it must answer these three key questions:

- **WHAT ARE YOUR NEEDS?**
- **WHAT ARE YOUR WANTS?**
- **WHAT ARE YOUR WISHES?**



The complexity of the project can vary greatly between two projects of similar size; however, the steps and processes from start to completion are very similar in nature. With a defined project scope, the project team will have clear directives relating to their expertise, and the design process can be put into motion toward the end goal.

THE PROCESS: BRINGING IT ALL TOGETHER



JUST AS PROPER TREATMENT PLANNING IS THE MOST IMPORTANT STEP IN DENTISTRY; IN OFFICE DESIGN AND CONSTRUCTION, THERE IS THE PROCESS

THE PROCESS

The process is a project road map with steps and phases laid out in chronological order. If it is followed in a systematic fashion your project will have the highest possible chance of success.

STEP 1. TEAM BUILDING

STEP 2. DESIGN PROGRAMMING/PRE-DESIGN

STEP 3. PROJECT PHASES:

- ***PHASE 1 - SCHEMATIC DESIGN***
- ***PHASE 2 - DESIGN DEVELOPMENT***
- ***PHASE 3 - CONSTRUCTION DOCUMENTS***
- ***PHASE 4 - BIDDING AND NEGOTIATION***
- ***PHASE 5 - CONSTRUCTION***

STEP 4. MOVE IN/OCCUPANCY

STEP 1: TEAM BUILDING

Depending on the scope and the project delivery method, team members required for one project can vary significantly from one to the next. The design and construction process can be very complex and time consuming and would require an individual with vision and knowledge to oversee the process from start to finish, facilitating the entire team toward a common goal. In most cases, the individual best suited to lead the project team is the project architect. Your time and focus should be on dentistry and seeing patients.

It is the architect's task to assist in identifying your spatial needs, wants and wishes and bring forth how these spatial requirements can efficiently and cohesively function as a whole within the build environment.

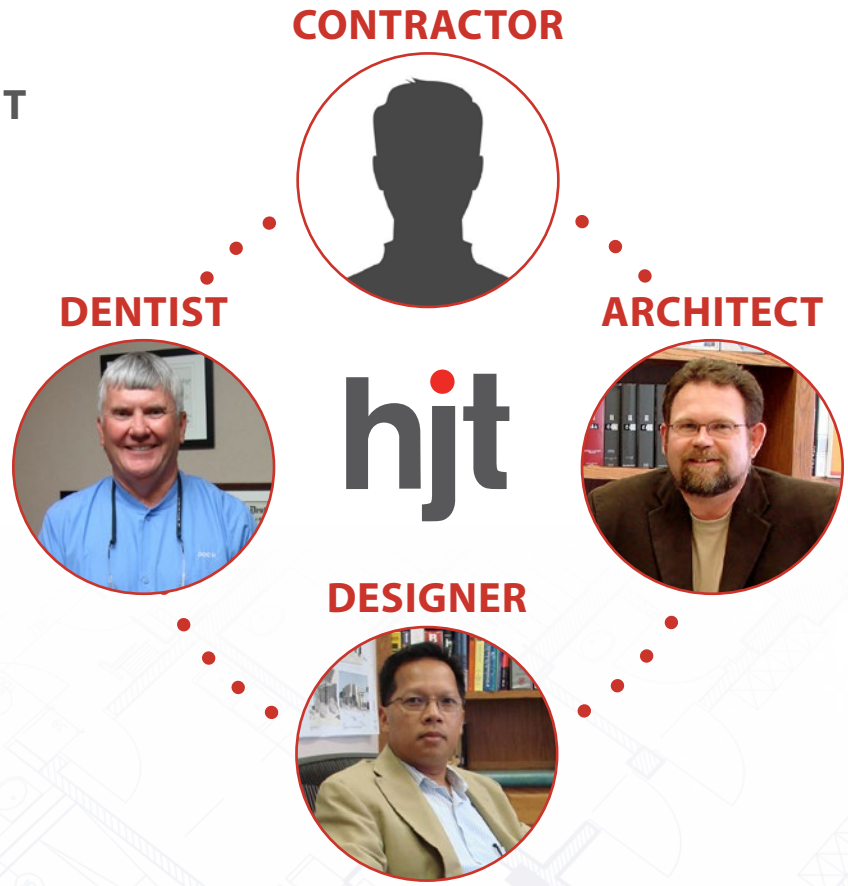
The project team will be comprised of many skilled professionals. However, the team's core members may consists of some or all of the following members:

- **OWNER**
- **ACCOUNTANT**
- **BANKER/LENDER**
- **ATTORNEY**
- **ARCHITECT**
- **DENTAL EQUIPMENT SPECIALIST**
- **CONSTRUCTION PARTNER**

The remaining team members are built around this core group. There are numerous possible members, though not all will be necessary for each project.

Here is a partial list of potential additional team members:

- DENTAL STAFF
- MANAGEMENT CONSULTANT
- CLINICAL CONSULTANT
- CIVIL ENGINEER
- MECHANICAL ENGINEER
- PLUMBING ENGINEER
- ELECTRICAL ENGINEER
- STRUCTURAL ENGINEER
- INTERIOR DESIGNER
- DATA ENGINEER
- TECHNOLOGY IT ENGINEER
- GEO-TECHNICAL ENGINEER
- LAND SURVEYOR
- CONTRACTOR/CONSTRUCTION TEAM



Each project team member serves an important function in the process. A skilled team that collaborates together well can position you for the best possible results when it comes to designing and building a facility that will serve your practice needs now and well into the future.

It's difficult to determine which team members you will need prior to having a defined project scope. Your core advisor group can be a great resource in determining your specific project requirements and what team members you'll potentially need to complete your project.

STEP 2: DESIGN PROGRAMMING/PRE-DESIGN

The design program is a written compilation of the project owner's needs, wants and wishes. It is much like sitting down with a patient and reviewing the options relating to their treatment plan. Typically, this step is not within the normal scope of standard architectural services and could cost several thousand dollars. Most architects expect a finished design program be given to them to start their work.

We include design programming as a part of our standard service because we believe it is extremely crucial and, when properly performed, becomes the foundation from which the project is built upon.

At the conclusion of this step you should expect a complete written report that covers all major aspects of your future plans. These are not final plans and they may include concept sketches of key areas. The following are just a few items that should be addressed in the program:

1. PHYSICAL BUILDING TYPE

Free-standing, condo/storefront, existing or new construction site

2. PROJECT LOCATION

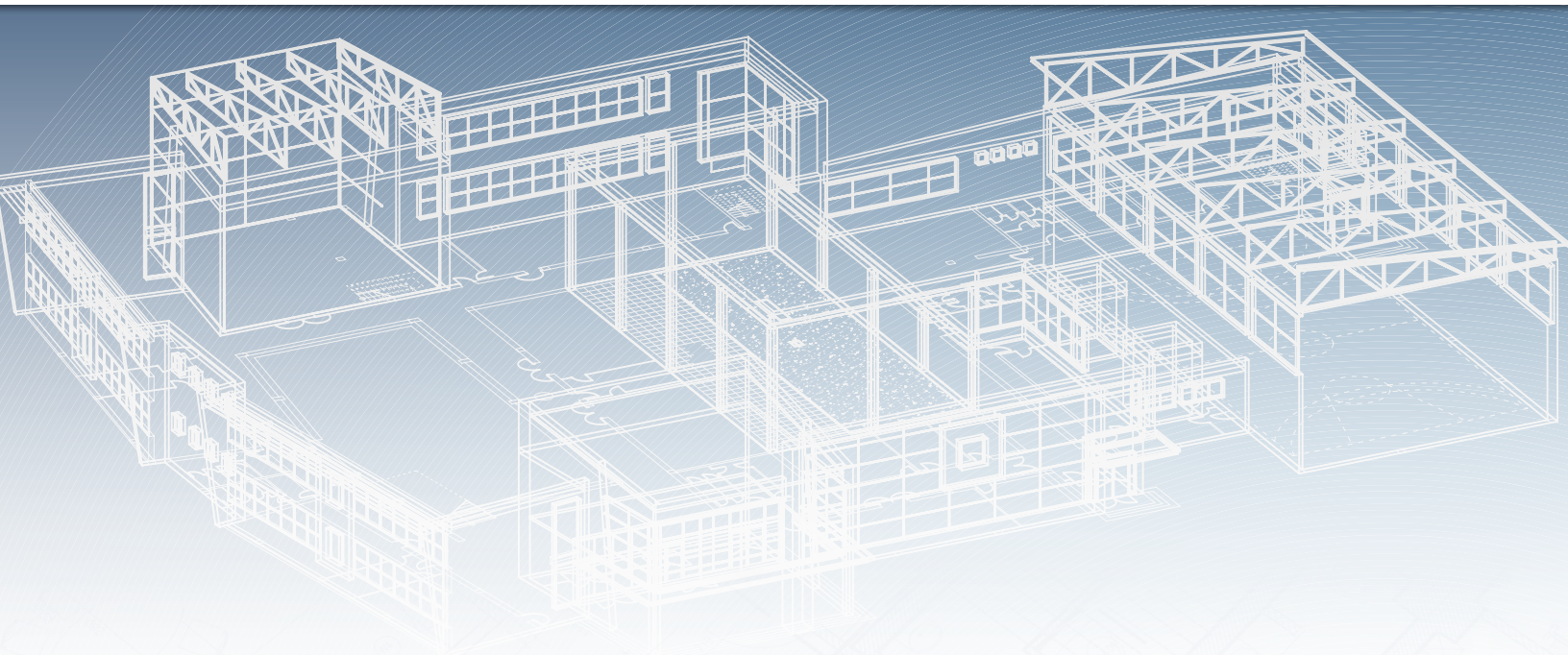
Existing, new or satellite facility, etc.

3. FACILITY NEEDS

a. Number of doctor operatories
b. Number of hygiene operatories
c. Reception and business areas
d. Lab, sterilization & storage
e. Staff lounge
f. Doctor's office and consultation room
g. Mechanical, imaging & gas
h. Parking and landscaping

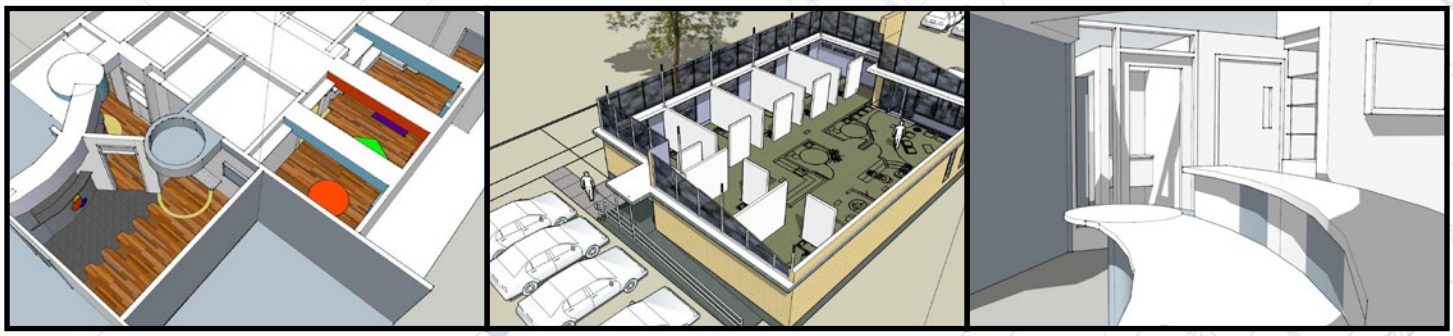
4. FINANCIAL REQUIREMENTS FOR THE PROJECT
5. REVIEW OF BUDGET REQUIREMENTS FOR THE NEW FACILITY
6. REVIEW OF NEEDED DENTAL EQUIPMENT
7. REVIEW OF COMPUTERS AND NETWORKING
8. SITE REVIEW AND ACQUISITION

STEP 3: PROJECT PHASES

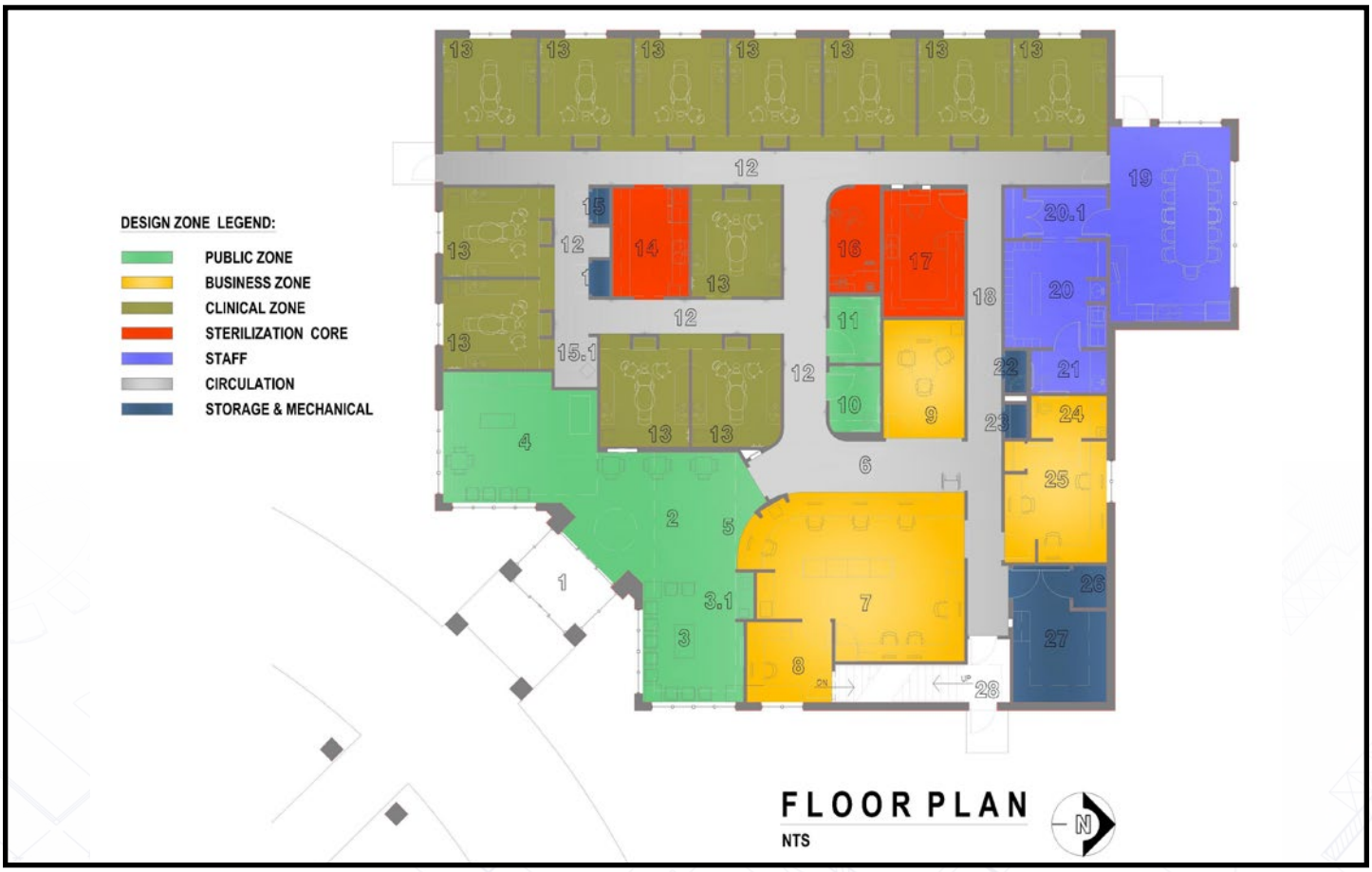


PHASE 1: SCHEMATIC DESIGN

This phase is when the team, facilitated by the architect, establishes the general scope and conceptual design of the project and also the scale and relationships among the building components. The primary objective is to arrive at a clearly defined, feasible concept that you understand and accept. At this point, the program will be analyzed against multiple solutions taking into account the anticipated project cost. These solutions could be presented in the form of a conceptual site plan, preliminary floor plans with elevations and sections, perspective sketches, study models or even computer electronic renderings, all with the intent of conveying the solution to you.



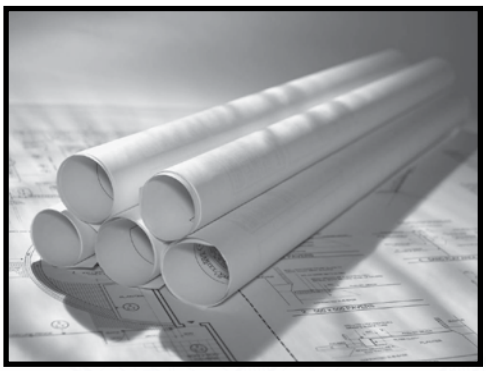
PHASE 2: DESIGN DEVELOPMENT



During this phase, the schematic design is refined as it is coordinated with the other relevant information related to your project. Decisions are worked out at a detailed level to minimize the possibility of major changes during the production of the construction documents. Our goal is to create a clear, coordinated description of all aspects of the design solution. This includes architectural, mechanical, structural, plumbing, electrical and fire protection systems. All of these are presented in the form of more detailed documents, as well as a preliminary specification, cost estimate and construction schedule.

PHASE 3: CONSTRUCTION DOCUMENTS

The deliverables at the end of this phase are referred to as "The Construction Documents," aka "The Blueprints". The Construction Documents, once approved for construction permits, will be the instrument which will be used by the entire construction project team, including the building official to ensure that everything will be built in accordance with the design intent and the regulatory requirements.



Food for thought:

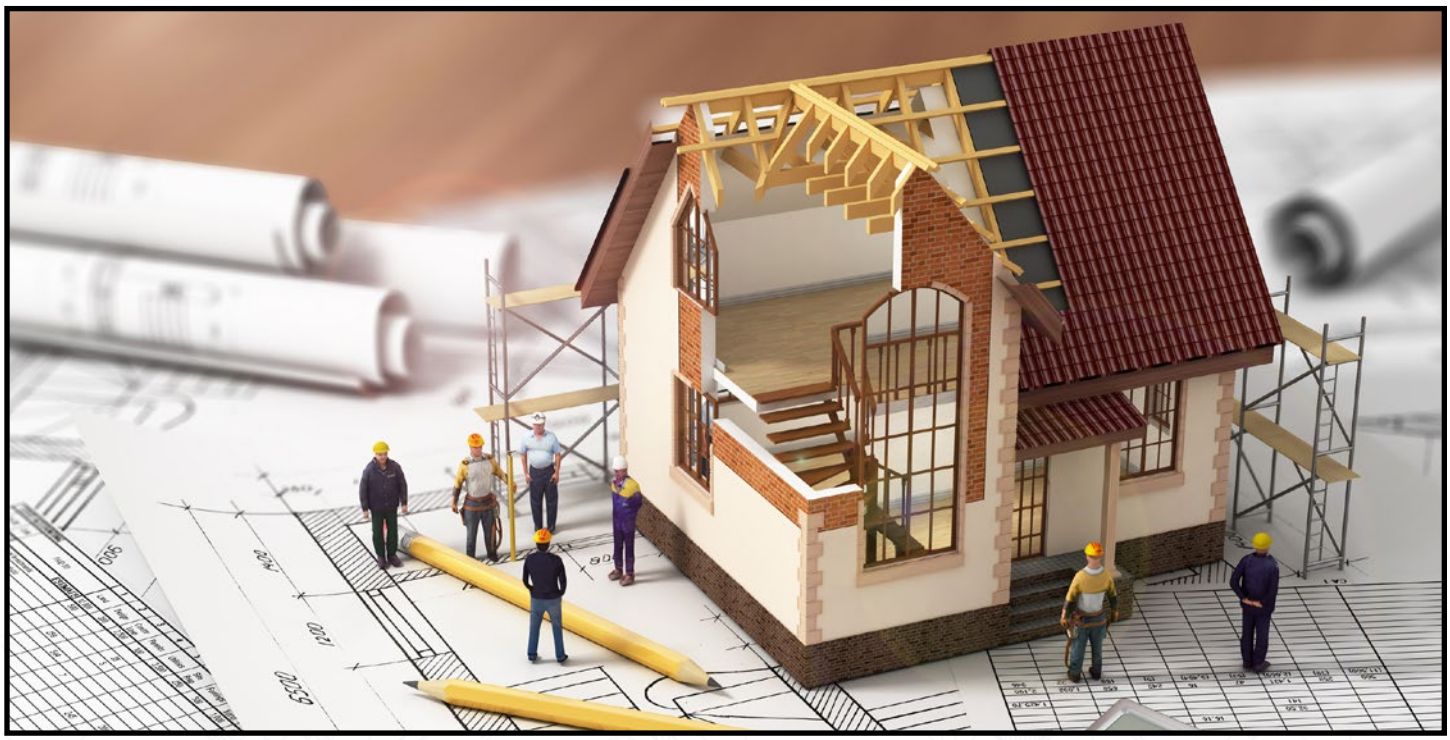
YOUR EXPECTATIONS - You should expect Construction Documents, including specifications, to communicate the components and level of quality of the project as clearly as possible. In doing this, the detail of the Construction Documents should be at a level that will allow the contractor to price and ultimately build the facility with a reasonable degree of confidence. Although we would prefer an ironclad set of Construction Documents, there may be unforeseen conditions or events that may create the need for revisions.

YOUR USE OF THE DOCUMENTS - The Construction Documents, regardless of the medium in which they exist, are and remain the property of the architect. Contractually they are considered the *Instrument of Service*, which means they are among the many products the architect may prepare in conjunction with services for a given building project.

YOUR NEED FOR CONSTRUCTION DOCUMENTS - The Construction Documents are created for use on a one-time basis for a single building project. In certain cases you might create a prototypical design and build it in multiple locations. In that case, each location will always have unique aspects that will necessitate minor adjustments to the documents.

This step will be comprised of a set of construction documents and written specifications that are thoroughly detailed and explain the complete design concepts so that the contractor and subs can construct the project.

PHASE 4: BIDDING AND NEGOTIATION



At the completion of the construction document phase begins the bidding and negotiation phase. During this phase, the construction documents are distributed to qualified contractors (typically 3-4) solicited to bid on the project. Bidding is a fluid process which can be influenced by events and conditions, many of which are out of the control of the project team. Events and conditions such as inclement weather, high fuel costs, material shortage or price increases, union issues, labor resources and/or long product lead times can have impact on the overall project cost and schedule.

It is best that the project owner, you, can determine which Project Delivery Method will be employed to construct the project during the early stages of the project planning. Depending on which Project Delivery Method you use, the dynamic of the team can greatly vary as well as the contractual arrangements amongst the team members.

The 3 most common Project Delivery Methods used are:

1. GENERAL CONTRACTOR METHOD (GC)
2. CONSTRUCTION MANAGEMENT METHOD (CM)
3. DESIGN BUILD METHOD (DB)

Any of the three Project Delivery Methods will work, but each have their respective pros and cons. It's a question of "Which method is the best fit for your specific project?"

If you select the General Contractor Method or the Construction Management Method, the architect (a key member of the team) is chosen during the early stage of project planning. If you choose the Design Build Method, the Contractor become the key member and main decision-maker on your team. Rather than choosing the architect yourself the contractor will select them for you. The architect will not be part of the project's core group. The most common project delivery method used is the general contractor method. The second is the construction management method. Both methods offer the project owner the advantages of competitive bidding and oversight for the owner's interests.

The following table, utilizing 19 comparison tools, will assist you in evaluating the three delivery methods.

TOOLS	GC (TRADITIONAL)	CM (CONTEMPORARY)	DB (SPEED)
Contractual Relationship	One w/ architect, one with contractor	One w/ architect, one with CM, several w/ contractors	One w/ contractor
Risk Compensation	Savings to GC	Savings to owner	Savings to contractor
Design/Cost Relationship	Design first, cost much later	Design/cost is sequential	Cost first, design later
Team Learning Curve	Steep - new relationships	Steep - new relationships	Not as steep - some established relationships
Design Entity	Professional architect	Professional architect	"Designer"
Owner Design Involvement	Depends on architect	Depends on architect	Minimized
Professional Services Contract	AIA standard contract	AIA standard contract	Trade or proprietary "Letter Contract"
Professional Design & Construction Fees	Percentage is known, total cost unknown until after bidding	Percentage is known, total cost known part-way through process	Variable, unknown
Professional Liability Insurance Coverage	Usually	Usually	Rarely
Project Budget	Defined eventually	Defined early on	Defined first thing
Cost Analysis	Estimate of probable cost/bidding	Estimate based upon design drawings, start early on in process	Allowances based upon experience of DB
Cost Control	GC driven after bidding	CM driven from the start	DB driven
Cost Accessibility	Closed book	Open book	Closed book
Owner Review/Input	Yes, w/ limited input	Yes, w/ most input	Yes, w/ brief input
Construction Documents	Thorough, detailed; no input from contractor	Thorough, detailed; input from contractor from start	Loose, minimal
Submittals	Yes, detailed	Yes, detailed	Not usually, loose
Construction Change Orders	Usually major source of fee revenue for architect and GC	Controlled somewhat, but still may result in additional fees	Uncontrolled, many items "not included" in original allowances
Construction Payments	Reviewed by architect, payment 60 days to GC	Reviewed by architect, CM and owner, payment 45-90 days to Trade Contractor	Reviewed by owner only, payment loose process
Punch List	Yes, defined	Yes, defined	Loosely defined

PHASE 5: CONSTRUCTION

The team will work in different fashions as the project is built depending on which delivery method is selected.

GC and **CM** are similar in that the role of the:

Architects are to interpret regulatory codes, clarify Construction Document issues and provide project observation periodically to ensure your design intent and quality of workmanship is being followed and up to standard. The architect also reviews necessary technical submittals and certifies requests for payments.

General Contractors will utilize either their own crew or subcontractors to construct every aspect of the project, as designed and specified, as well as manage and maintain the project construction schedule and budget.

Construction Managers will manage the construction activities that will be done by various "Trade Contractors", manage and maintain the project construction schedule and budget and as well as assist you in areas of decision-making during the construction phase.

With the **DB** method, the architect is hired by and works for the contractor and does not have a relationship or allegiance to the owner. Contractually, DB contractors advocate for their client's interests as opposed to the owner, as is standard practice with the GC or CM methods.

STEP 4: MOVE IN/OCCUPANCY

No matter what delivery methods you've selected or how your team has been contractually tied together the day will finally arrive when your project is complete. What happens then?

During this step there are quite a few things that need to be completed.

01 HOUSE CLEANING

Hopefully the specifications have covered this aspect and the project is to be delivered in a new and clean fashion with all construction debris and dirt removed.

02 FINAL PUNCH LIST

If you selected the GC or CM method then the architect will walk through the project with you and the contractor to identify any areas that do not meet the minimum level of quality and needs to be rectified before the Payment Request is approved for payment. If you utilized the DB method then you will get to walk through with only the contractor in an effort to do the same.

03 PROJECT CLOSE-OUT DOCUMENTS

You should receive a complete packet of documents that contain the operational procedure, maintenance requirements and warranty manuals for all of the materials and equipment that were used and installed to construct your new facility, as well as training on the operation of the equipment contained within.

04 AS-BUILT DOCUMENTS

As part of the construction documents, it should be a requirement that the contractor is to generate a complete and thorough set of as-built drawings that detail exactly how and where things are to be located. Items like piping, electrical lines, as well as changes to the original documents need to be shown. Your lending institution may want a copy of these as well as a survey of the exterior property that locates the facility in relation to the property lines and adjacent buildings.

05 INSTALLATION OF EQUIPMENT BY OTHERS

There may be items that need to be installed separate from the contractor's requirements. The installation of these items will have to be scheduled and coordinated with the contractor to ensure that there are no conflicts and/or delays resulting from the equipment installation.

FINAL OCCUPANCY INSPECTION

06

This is when the governing agencies inspect the finished facility and if everything is done within the permitted construction parameters and satisfies all of the regulatory requirements then a "Certificate of Occupancy" permit will be granted. Without the Certificate of Occupancy you will not be allowed to occupy the facility and open your door for business. Typically, the contractor is responsible for coordinating this item with the building officials and should be scheduled and done well in advance so as not to hinder or delay the move-in.

MOVE–IN

07

The moment has arrived when everything changes. You have to make sure you allow enough time to move everything into the new facility and make sure it works properly. This might be as short as a long weekend or several days.

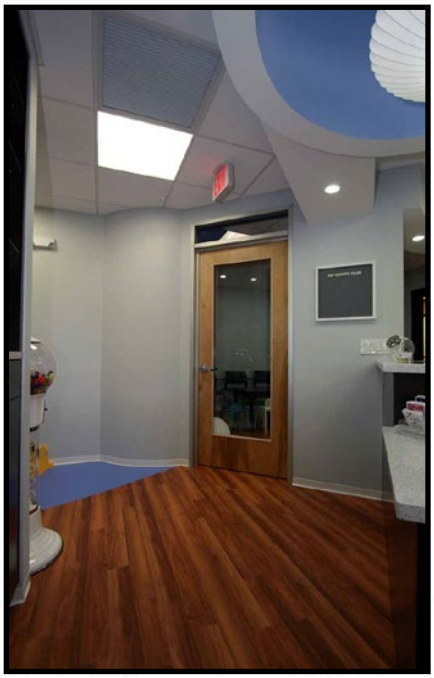
MARK YOUR CALENDAR

08

Typically, the warranty on construction from the contractor is one year. During this time if there any items that were not discovered during the Punch-List process or do not work correctly you'll have a chance to have them rectified. Don't let this date pass by without contacting the contractor and walking through with them to identify any outstanding issues. If they are not identified within that one-year period you will be responsible for any and all costs. Some items have longer warranties, like roofing and HVAC equipment, all of which should be in your project close-out manual.

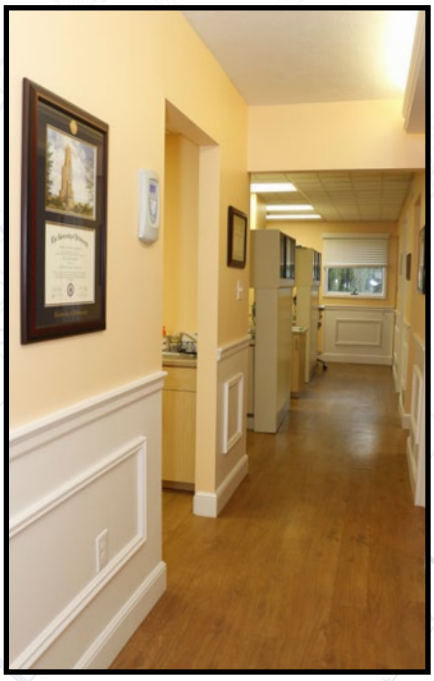
FINAL THOUGHT...

Only you can define what your needs are and determine when the time is right to move forward with fulfilling the visions of your dream practice. We at HJT hope that you found this "Office Design & Construction Manual" informative and that it has provided you with valuable insight, preparing you for the designing and constructing of your first or next office project.



HJT welcomes the opportunity to discuss your project needs and apply our expertise and experience in assisting you achieve your practice objectives.

Regardless of the magnitude and complexity of your project, our staff of experienced professionals are poised and ready to help navigate you through the process and fulfill your specific needs. If you're not too sure where or how to start with the process, contact HJT to schedule a free consultation for answers and knowledge to prepare and empower you in moving forward with confidence.



We welcome your call.

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