

THE TEAM ASPECT OF PLANNING A NEW Surgical Services Department

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The process of planning, designing, and constructing a new surgical services department is an important and challenging undertaking for health care institutions. Surgical services departments are the heart and soul of most hospitals, and they represent a significant portion of the hospital's revenue stream. Construction projects involving surgical services are some of the most challenging projects undertaken by architects and contractors. To add to the degree of difficulty, many such projects must be constructed while also maintaining existing surgical and support services. A successful surgical services project is a feather in everyone's cap. An unsuccessful project can have negative consequences for the individuals and firms involved for quite some time.

WHY IS IT SO DIFFICULT?

Unfortunately, it is not unusual to hear about cost overruns, schedule delays, poor quality, and other problems when you talk to someone about an expansion or renovation project. Even when the most experienced professionals are hired and the best processes and procedures are used, projects still can fail to meet an owner's expectations. What is it about the planning, design, and construction process that makes delivering successful projects so difficult?

The Project Management Institute, Newtown Square, Pa. defines a project as "a temporary endeavor undertaken to create a unique product or service."¹ The key words here are temporary and unique. Generally, every planning, design and construction project is a one-of-a-kind venture delivered by a large team composed of individuals with very different

backgrounds and expertise. To compound matters, these team members most likely have never worked together and, in fact, may have competing interests or desires with respect to project outcomes.

There are a few development projects that can be standardized to some extent. A developer who builds office buildings or warehouses has the luxury of applying some of what he or she learns from one project to the next. Every surgical services project is unique, however, so there are comparatively few standards that can be used to increase efficiency or reduce risk in the design and construction process and far fewer opportunities to apply lessons learned. It is not unlike comparing a laparoscopic cholecystectomy to a diagnostic operative laparoscopy. The former is a fairly standard and routine procedure with relatively few surprises. Surgical services staff members can standardize the process of delivering this procedure to a significant degree. Alternatively, a diagnostic operative laparoscopy may be anything but routine. There is greater uncertainty and more risk, and the case does not lend itself to standardization. If the physician and surgical staff members are performing the procedure for the first time as a team, all the risks and uncertainties are magnified. Like a diagnostic operative laparoscopy, design and construction of a surgical services department is a venture into uncharted territory with new crew members manning a new, untested boat.

IN BRIEF

△ Planning, designing, and constructing a new surgical services department is a challenge that a properly formed team can manage successfully.

△ Here is a primer on the planning, design, and construction process, each team member's role, a description of common pitfalls, and some practical advice on how to avoid them.

DEFINING A

SUCCESSFUL PROJECT

From an owner's standpoint, there are three primary areas input on cost and constructability issues and to assist in solving phasing and scheduling issues. You may

**TABLE 1: DO'S AND DON'TS OF
PLANNING, DESIGN, AND CONSTRUCTION**

Planning	Design	Construction
Do hire a planning professional (not an architect) to help you translate your needs and desires into a space program.	Do hire a design team with specific experience on your type of project and a history of satisfied clients.	Do hire a construction team with specific experience on your type of project and a history of success.
Do be prepared to provide data on existing cases and volumes to your planning professional.	Do put a great deal of emphasis on the project architect. This individual is, without question, the most important member of the design team.	Do put emphasis on the construction project manager and field superintendent. These individuals are the most important members of the construction team.
Do be prepared to provide projections of future cases and volumes for planning purposes. If you do not have them, your planning professional can help you develop them.	Do submit a plan and process to make major equipment selections no later than midway through the design process.	Do spend as much time as possible walking the construction site and asking questions. Problems that are caught early are much easier to correct.
Do visit with your colleagues to see what has worked and, perhaps more importantly, what has not worked.	Do consider building full-scale mockups of critical rooms and special conditions during the design phase.	Do begin putting together an occupancy plan three months before construction is completed.
Don't determine your space and functional program by working on floor plans with the architect.	Do consider how the project must be phased when designing it. The design documents must be prepared so critical utilities and services are not interrupted when moving from one phase to the next.	Do allow adequate time in the schedule to relocate, set up, clean, disinfect, and stock the new department.
Don't be in too big a hurry to see plans and elevations. If you cannot first write down a list of your needs and requirements, you should not start drawing.	Don't let others assume that industry design standards apply to you. Require your design professionals to review standards with you before applying them to your project.	Don't be afraid to revisit your design assumptions if something changes. It may not be easy and could lead to a change order, but this is your last chance to get it right.
	Don't assume that the drawings are correct. Take time to thoroughly review and understand them. If you are not sure about something, ask for clarification	Don't allow the construction team to try to make up delays in the last few months or weeks of the project. You will end up being disappointed with the quality of the finished product.
		Don't forget in-service training on new equipment and systems.

hear this referred to as a negotiated arrangement as opposed to a competitive bid approach. In the competitive bid scenario, a general contractor becomes involved in the project only after the design documents are completed. In this instance, responsibility for estimating costs and planning how the facility will be phased

and constructed falls to the owner's team members and design professionals.

**PROJECT TEAM
ORGANIZATION AND ROLES**

The capabilities of individual members of the team assembled for a surgical services

department project and the manner in which the team is organized and engaged will directly influence the success of any endeavor. As previously mentioned, these team members are unlikely to have worked together before. They are charged with designing and construction something that is unique and extremely complicated, usually within an aggressive time frame (Table 2).

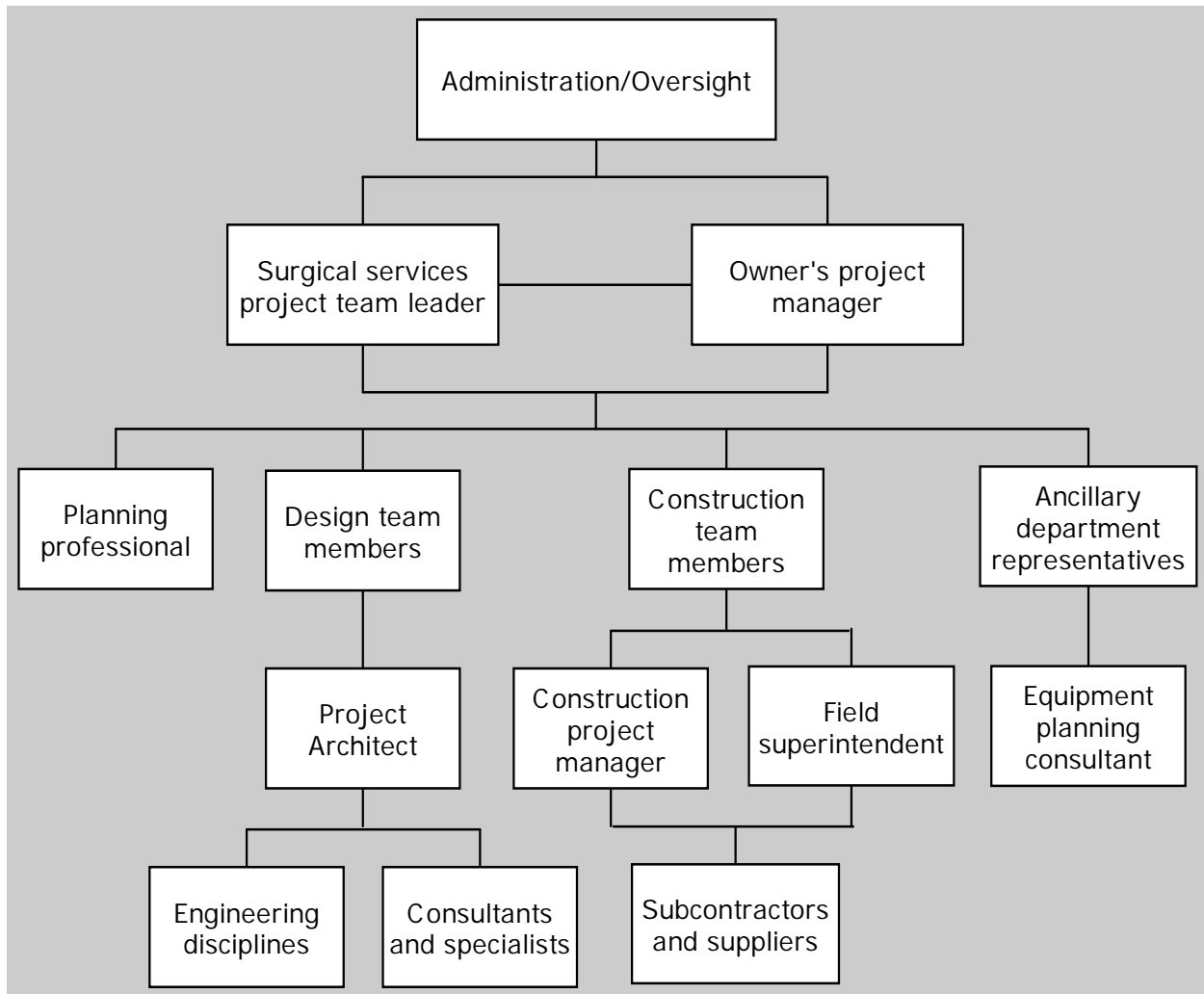
The owner first must assemble an internal team that will oversee and guide the entire project team. Perhaps the most important member of the entire team is the person designated as the surgical services project team leader. This individual is the owner's clinical or surgical services specialist, and he or she interacts with team member during every phase of the project. The surgical services project

team leader leads the effort to define and develop the concept for the plan, prepares financial models and justification for approval by upper-level managers, and works with design and construction team members to see the project through to completion. He or she also must coordinate planning and design efforts with ancillary and support functions within the organization.

The surgical services project team leader works hand-in-hand with the owner's project manager. The project manager should be knowledgeable about all aspects of the design and construction process. He or she is charged with developing and organizing the project team and facilitating communication with the design and construction professionals.

Together, the surgical services project team

TABLE 2: THE PLANNING, DESIGN, AND CONSTRUCTION TEAM



leader and the project manager report to an individual or a group that has organizational responsibility for approving and monitoring the project. In some organizations, this may be simply a direct reporting relationship to an upper-level manager. In other organizations, the team leader and project manager may report to a facilities committee or another group that is given these responsibilities.

The surgical services team project leader and the project manager also must coordinate with other departments and individuals within the organization. Departments that support the new project must be included in the planning, design, and construction process. A surgical services project is equipment intensive, and the organization must carefully consider how equipment planning and procurement will be handled. At times, it is necessary to involve a professional equipment planning consultant to help with some or all of these activities.

The project architect leads the design team. The architectural firm typically will have several consulting firms as a part of its team to provide expertise and design services in engineered systems (ie, mechanical and electrical systems and structures). A typical design team for a surgical services department project may include from five to 15 consulting firms and from 30 to 50 individuals; the project architect must be skilled in the art of coordinating and facilitating the efforts of a large team, in addition to his or her assumed expertise and knowledge in the surgical services specialty.

The construction project manager and the field superintendent are the two key members of the construction team. Specific roles and duties may vary among construction companies, but the construction project manager typically is the business manager for the construction team.

The field superintendent is the field general. He or she typically is on-site full time during all construction operations and is responsible for day-to-day construction coordination, safety, and quality control.

In the end, it is the surgical services project team leader and the owner's project manager who must set the pace and lead the project team. Recognizing that such a complex and difficult project will result in numerous challenges and opportunities, they also must be skilled in building teams, resolving conflicts, and coordinating and communicating the organization's goals and desires.

COMMON PROBLEMS AND HOW TO AVOID THEM

There are a number of problems typical in surgical services department projects, but there also are methods and procedures that can help alleviate such problems on a project. These problems include:

- Δ inadequate or inaccurate budgeting,
- Δ poor schedule planning and execution,
- Δ inadequate



- quality, and
- Δ unmet expectations.

INADEQUATE OR INACCURATE BUDGETING. No matter how wonderful a new project is when it is complete, it will forever be known for busting the budget if the approved amount is exceeded. The most common errors occur when assembling the original budget for approval. An accurate and comprehensive budget must do the following:

- Δ Account for all associated costs beyond design fees and construction costs. These costs can account for 30% to 40% of a total project budget.
- Δ Consider the impact of multiple phases on the cost to design, construct, and occupy

the new facility.

- △ Include accurate cost projections for equipment, furnishings, and accessories. This cost category probably is the most often underestimated.
- △ Allow for cost inflation in all categories if the project is to be delivered during a lengthy time period.
- △ Include adequate contingencies for all major cost categories. It is unrealistic to expect all costs to be predictable before a project even is designed.

POOR SCHEDULE PLANNING AND EXECUTION.

The old adage “time is money” certainly applies to surgical services department projects. All owners want and deserve a project that is delivered to an aggressive timeline; however, knowledgeable owners understand that overly optimistic or aggressive schedules expose them to additional risk. There are a few problems that seem to occur more regularly than they ought to, including the following:

- △ Selection and procurement of major equipment does not keep pace with the design and construction process. On a typical project, the design team needs to know no later than halfway through the design process what equipment the owner has selected to plan and provide adequate space and services.
- △ The contractor’s construction schedules are unrealistic or are not updated adequately. Demand that schedules be updated in a timely fashion, and give this issue extra attention if the first few milestones are missed. Front-end schedule delays cannot be made up at the end of a project without compromising the quality of the project or costing more money.
- △ Allow adequate time contingency in schedule planning for unforeseen and unanticipated events that no one could have predicted.
- △ Understand and plan for tasks that need to happen after construction ends but before the facility is used. Too often, owners advertise the opening of a new project based on the date the contractor is due to be finished, when there may be several weeks of work that must take place internally

before new patients can be seen. Begin planning the opening of a new department three months before construction is due to be complete. Trying to overlap construction and occupancy activities leads to poor construction quality and additional schedule delays.

INADEQUATE QUALITY. Nothing is more bothersome than spending large sums of money for a new, state-of-the-art surgical services department only to find that construction quality has suffered for some reason. Aside from selecting a contractor who has a demonstrated track record of delivering quality products, an owner can influence the quality of construction in several other ways:

- △ Develop a quality control plan that incorporates both the architect’s and contractor’s own internal plans, but which addresses the owner’s specific expectations and desire for quality.
- △ Make regular, routine walk-throughs during construction with the architect and contractor. It is much easier and more cost-effective to address a quality problem early in the process.
- △ Participate in preconstruction conferences with each construction trade as part of a quality control program. Each new subcontractor that comes to work on the project probably knows little or nothing about the owner’s goals and desires, so it can be extremely valuable to discuss these before subcontractors actually begin work on the site.

UNMET EXPECTATIONS. Even after devoting a significant portion of time to the project, there still are going to be some unexpected problems. Here are some to ponder:

- △ Understanding a design on paper in two dimensions and relating it to a three-dimensional product is extremely difficult. Consider construction full-scale mock-ups of critical or typical rooms or conditions to work out any problems before it is too late or before it costs money to do so. Assemble team members to walk through and review the product at several key stages of construction, including when rooms first are laid out to review room dimensions and

layout and when rough-in of electrical and mechanical systems is complete to review specific locations of devices (eg, outlets, light switches, telephones, data ports, lighting). This helps when visualizing the final product, and design problems caught at this stage of the project will be much less costly to fix.

- Δ Architects and engineers use industry or design standards that many times are not as stringent as a facility's standards. For example, there is a standard for the lowest temperature in an OR, but individual facilities may have certain types of procedures or internal requirements that require ORs be cooled below this temperature. Ask the design professionals to be sure to review any standards they are using, and have them get approval before they are used.
- Δ Many design criteria and assumptions are made one to two years before the facility is actually up and operating. Perform interim reviews of these assumptions and decisions and put a contingency in the budget to allow for changing technologies, procedures, and requirements.

A SUCCESSFUL CONCLUSION

The real key to realizing a successful result is found in the individuals who are selected to be part of the team. Surgical services professionals know about teams, both effective and ineffective, and the same principles that apply to planning and executing surgical services apply to the design and construction process. Successful teams are made up of qualified and experienced professionals who understand the overall goals to be achieved and who are committed fully to attaining them. Select the right professionals, set out clear and achievable goals, and monitor and manage the process as it unfolds to ensure a successful project. Δ

1. W R Duncan, *A Guide to the Project Management Body of Knowledge* (Upper Darby, Pa: Project Management Institute, 1996).

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