THE SUCCESSFUL OPHTHALMIC ASC

Designing and Building

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AMERICAN ACADEMY OF OPHTHALMIC EXECUTIVES®
Solutions for Practice Management

THE SUCCESSFUL OPHTHALMIC ASC:

Designing and Building

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Designing and Building | an ambulatory surgery center (ASC) can increase your practice's profitability — or it can become an attractive but underutilized money pit. Careful research, planning and financial analysis can pave the way for success, but you will also need knowledge of some design and construction basics to get the facility you want. This module addresses the many decisions you will face as you plan for and prepare to design and construct your ASC. The information it contains will help you to:

- **Recognize and align your goals with your choices**
- **Decide between an on-site or a freestanding new facility**
- **Upgrade an existing facility**
- **Estimate construction costs for new or remodeled facilities**
- **Understand ASC certification and accreditation**
- **Learn the principles of design and space planning**
- **Learn about design/development methodologies**
- **Identify common mistakes to avoid**

In short, when you have reviewed the information in this module, you'll be ready for the real work!

How an ASC Benefits You and Your Patients

Today, more and more patients are requesting that their cataract surgery be done at an outpatient ASC rather than in a hospital. There are advantages to the patient — lower cost, less time spent at the surgery facility and oftentimes less risk of illness. Using an ASC is also more efficient for the surgeon because operating in a hospital requires longer blocks of time and reduces the surgeon's control over the surgical schedule. The improved ASC facility fee reimbursement rates are also advantageous for surgeons.

How Your Practice and Goals Impact Your ASC Decisions

The ownership structure of the ASC often drives the center's goals. For instance, the objectives of a physician-owned center serving only its owners and perhaps a single subspecialty (e.g., retina) will likely vary widely from those of a corporate or multi-owner center offering a variety of ophthalmic services or an ASC that makes its facilities available to other specialists. Knowing your ownership goals and aligning your management objectives accordingly is the first important step in developing an ophthalmic ASC.

Assembling the A Team

On average, you can expect that it will take about two years from the time you initially start planning the development of an ASC to the time you open your doors. Once you have defined your goals, you should assemble the team. In addition to someone who will manage the project, your team will consist of an ASC/business consultant, an attorney, an architect, an engineer, an interior designer, a banker, a realtor, an accountant, an equipment planner and contractors.

The most important pearl I can bestow on readers of this module is the importance of having an experienced and knowledgeable team helping you design/develop your new or remodeled ASC. An experienced architectural firm should have multiple experiences with all surgical-specialty ASC types. Designing an orthopedic ASC doesn't make an architectural firm expert in designing an ophthalmic ASC (or vice versa). In fact, one project doesn't make a firm an expert at all. A truly experienced architectural firm has helped develop more than 100 ASCs — not one, five or even 25. The only way to learn what works and what doesn't is to try it and study the results. Some call it evidence-based design: I call it experience-based design. Without hundreds of ASC projects behind it, an architectural firm simply doesn't have a big enough bank of experience and could cause your ASC some severe heartburn. When developing your ASC, the best money you can spend is to hire a highly experienced architectural firm that can help you successfully accomplish your goal.

In addition, don't rely solely on client testimonials in selecting an architect. Some satisfied clients may be perfectly happy with a poorly designed ASC, not knowing what they are missing.

On-site or Freestanding ASC?

A facility that offers full-service ophthalmic care (including an ASC) under one roof is convenient for both patients and surgeons. Such facilities often also offer subspecialty care, laser vision correction, facial cosmetics/medi-spa and more recently even audiology and hearing-aid services. Of course, incorporating an ASC into an ophthalmic practice assumes that the practice generates enough volume to justify such a center. For most groups with four or more surgical MDs, an ASC makes financial sense. However, you don't have to be big to operate a successful ASC. I've designed ASCs all over the United States for smaller groups and even single surgeons. Groups/surgeons performing 15 to 20-plus cataract surgeries a week can most likely justify an ASC in their facility — even if it doesn't operate a full schedule. In fact, some of my clients have profitable ASCs that operate only a couple of days a week.

Smaller practices with just enough caseload to justify an ASC have built facilities with the intent of attracting their competition, hoping that those other surgeons would fill the schedule and increase the ASC's profitability. These facilities have used nonadjacent patient entries/exits, landscaped courtyards and separate staff/surgeon entries to separate the ASC physically and visually from the rest of the practice. Some have even allowed competing surgeons to buy an ownership stake in the ASC and therefore share in the profits. The unfortunate fact is that it is impossible to attract competing surgeons to use your ASC — even in cities where the alternative to the ASC is an inefficient hospital. No matter how aggressively you try to separate the ASC from the practice, competing surgeons will almost never allow their patients to go anywhere near a competitor's awesome facility. For this reason, a freestanding ASC is an attractive option for most surgeons.

A freestanding ophthalmic-only ASC can work for a group of like-minded competing ophthalmic surgeons who individually do not have the case volume to justify their own ASC or the business acumen to operate one independently. The key to success with this approach is to place the ASC as close to an equal distance from all users as possible while at the same time not locating it too close (next door or even down the street) to any one or more of the practices. The ASC must look and feel truly independent.

In picking a site for a freestanding ASC, it is important to keep in mind that outpatient surgery, especially ophthalmic surgery, is virtually 100 percent referral based. No one drives down the street, spots a nice ASC and says, "I think I'll stop by and have my cataract removed today." Patients have surgery at a facility specified by their physician. Therefore, there is no need to select a high-exposure corner or other prime real estate for the ASC — with all due respect to realtors who emphasize "location, location, location." A good location for an ASC is a low-cost site somewhere just off the beaten path but a few easy turns from the freeway or other main road. That said, make sure that your patients, most of whom are seniors, won't need to cross three lanes of oncoming traffic without a traffic light to get to

your site. In short, make getting to your ASC as simple as possible.

There is little difference between building an ASC as part of an ophthalmic practice or as a freestanding facility. The same building, planning and zoning codes apply to either situation. When the ASC is part of an ophthalmic practice, you can typically save a few square feet by sharing the vestibule and the break, electrical and mechanical rooms among all users of the facility, but that is about it. The Centers for Medicare and Medicaid Services (CMS) has made it clear that no matter where an ASC is located, it must have its own independent reception area and waiting room as well as all the other required spaces.

Upgrading an Existing ASC

Typically 5 square feet (SF) of site are required for every 1 SF of facility. However, that ratio does not take into consideration additional space for expansion at a later time. Expanding out is easier than expanding up (adding another floor). Also, if your ASC is located in an office building, I would recommend leasing or buying another floor to allow for expansion.

More space equals more time, which equals more cases. When space limitations keep an ASC from increasing its surgical capacity, what can its owners do? There are three basic options to consider. The facility can be remodeled, expanded or replaced. This section examines issues associated with each of these options.

Remodel

Remodeling is the least likely of the three options to effectively increase surgical capacity — unless the ASC was poorly designed in the first place. For a remodel to make a real impact on surgical capacity, the existing facility would need to contain a large amount of unused or poorly used space that can be repurposed.

A major remodel can, however, allow additional specialties to use the ASC. For instance, a facility originally designed for high-volume cataract surgery likely does not have the privacy or the number of prep/recovery areas needed to accommodate tonsillectomy patients. Keep in mind that a patient receiving a 15-minute surgery with a 30-minute recovery time has very different space needs from one undergoing a 30-minute surgery with a 3-hour recovery time. A remodel can permit this type of facility transformation, which can increase facility utilization, spreading overhead over a greater number of cases. If you think that a major ASC remodel might be in your future, here are some points to keep in mind.

Code Upgrades

Over time, state and local building, fire and Medicare requirements have become stricter. In most jurisdictions a major ASC remodel triggers the need to bring the facility up to current standards. Upgrades to meet current codes can cause major obstacles in a remodel. Here are two issues to consider:

- **Americans with Disabilities Act (ADA).** The ADA mandates that facilities be accessible to those with handicaps. Everything from wheelchair ramps, door swings, toilet sizes, elevators and much more must be considered in a remodel.
- **Heating, ventilation and air conditioning (HVAC) system.** To meet current codes, existing facilities may have to increase humidity and filtration levels in the ORs or the number of air changes throughout the facility. Additionally, certain jurisdictions may require that the entire HVAC system be able to run during a power outage. This demand often jumps a facility up from a battery backup to a gas-powered generator system. Your state health and human services (HHS) department may have additional upgrade requirements as well. Generally, requirements for OR sizes, numbers of recovery beds and clearances between them, numbers of medical gas outlets and zone valves and many more issues have also become more stringent in recent years. In addition to mandating increased room dimensions, these requirements may demand a larger or modernized vacuum pump, medical gas manifold or zone valves.
- **Sprinkler systems.** The American National Standards Institute (ANSI) has guidelines for sprinkler systems.

Downtime

The biggest issue of all in a remodel is — downtime! You are most likely considering remodeling your facility to gain more surgical time. Losing access to the facility due to construction is counterproductive.

Unfortunately, even the best- planned remodels involve some downtime. To minimize it, insist that the architect work with you and the contractor to plan for phased construction — remodeling the project portion by portion while the facility remains operational. Phased construction may slightly compromise the final design, but few facilities can afford to lose several months' revenue by shutting down during remodeling. Having the contractor work 24/7 on weekends also helps expedite the process, but it can be costly.

Make no mistake: a remodel is a major project and can be quite expensive.

Expand

Hopefully your architect designed expansion capability into your existing ASC so that you can just add on to, not replace, your facility. A facility expansion is likely to involve a partial remodel of the existing facility, so the issues just mentioned for remodeling also apply to expansion. In addition, you will have other hurdles to jump through if you pick the expansion option.

Unless your existing practice areas were designed with expansion in mind, you will likely need to expand/remodel the practice. These areas might include your existing reception area, consultation rooms and staff break and locker area. You will need a separate entrance and exit from the practice (more on this later) and a distinct prep and recovery area — and surgery files must be kept in the ASC, not in the practice. Remember that with additional surgical capacity come additional patients, surgeons, staff and support space.

Another code issue that applies primarily to an expansion is the construction type and associated allowable building area of the existing facility. All facilities are classified by construction type, and each construction type has size and function requirements associated with it. If a facility is expanded, it may be necessary to upgrade its construction type due to its increased size. Adding a fire sprinkler system if the building does not have one is one way of responding to facility area expansion. Addition of sprinklers can be difficult or easy depending on how much thought went into the design of the original facility.

If the facility is designed correctly to begin with, it can be simple to expand it:

1. Build the entire clinical expansion, including the new operating/procedure rooms, sterile corridor/clean workroom/sterile storage area extension, prep/recovery area and all other ancillary spaces. These areas will, of course, have independent HVAC and electrical systems.
2. Over a long weekend, connect the existing sterile corridor/clean workroom/sterile storage area to the new one.
3. Get ready to open the next week with a fully functioning expanded facility.

Replace

If it's not feasible to remodel or expand the practice facility, then replacing it is the remaining option. Be sure that this replacement facility is designed to permit future expansion if it becomes necessary. Well-designed facilities can be expanded to add surgical capacity or, for that matter, other services (extended recovery, imaging) with minimal interruption to the existing facility. Aligning the sterile corridor, operating/procedure rooms and clean workroom/sterile storage area so that they can be extended into a new clinical area simplifies future expansion.

During the initial design process, if you think future expansion is a possibility, also consider having the architect upgrade the reception/business/medical records area, waiting room, restroom, family interview/consultation rooms and staff break and locker area to handle the potential size as well as construction type of the future facility. Although this might sound like a lot of space, the increase to each area, to allow for future capacity growth, is typically quite small. Building this extra space now will not be prohibitively expensive and will save you numerous headaches later.

Construction Costs

The single largest factor in determining the cost of constructing an ASC is whether it is a new facility or a remodel of an existing facility. Comparing these two options against each other, although complex, is a critical step in the feasibility process. It may surprise you to know that constructing a new facility will likely be more cost effective than remodeling an existing one, once you include the existing facility's cost and/or lease deal. To keep things simple, I recommend you request construction cost data for both a new and a remodeled facility.

Once you have decided whether to build a new facility or to remodel an existing one, there are two

main factors that will affect the cost of constructing your ASC: location and size. This of course assumes that build quality is equal at all locations. The build quality of an ASC can have significant construction cost implications. All estimated construction costs provided in this module represent a hypothetical middle ground that maximizes your return on investment. Remember that these cost figures are rough estimates, not hard-and-fast figures. Construction costs in certain regions can vary significantly from these estimates, for many reasons.

Impact of Location

In general, as with other costs, as a project's location moves from the southcentral United States north and to the coasts, its construction costs tend to increase. The three major headings in the "Estimated ASC Construction Costs" chart in Figure 1 — Low, Average and High — reflect this geographic methodology:

- **Low = the southcentral United States**
- **Average = the central Midwest**
- **High = the northern coastal regions**

For example, the same new ASC built in rural Oklahoma for $169 to $271/SF will cost $330 to $529/SF in New York, NY, and $245 to $393/SF averaged across the country. The cost range for each location reflects differing facility size, a subject that is discussed under "Impact of Size" below.

In addition, within regional areas, the more urban a project's setting, the higher its construction costs will be. Also, many cities in the northern Midwest — such as Chicago, Columbus, Des Moines, Detroit, Indianapolis, Milwaukee, Minneapolis and St. Louis — see a spike in construction costs due mostly to unionized labor.

Impact of Size

In general, as a project's size grows, its per-square-foot construction cost decreases. This holds true for architectural and engineering services as well: the bigger and more expensive a project becomes, the lower the percentage of construction costs you should pay for these services. It is simply less expensive, on a square-foot basis, to design/produce a large facility than a smaller one. As with any consumer product, the more of the same item you purchase, the less costly each unit becomes. This holds true for concrete, steel, drywall and most other building materials. In addition, larger facilities are easier to construct on a per-square-foot basis than smaller ones — more square footage can be finished in less time. Therefore, a contractor's overhead, profit, testing, inspection, field personnel and many other costs are all lower on a square-foot basis with a larger facility than with a smaller one. In a competitive-bid situation, the supplier should pass on these savings to you.

Because facility size has a significant impact on construction costs, the "Estimated ASC Construction Costs" chart in Figure 1 displays per-square-foot estimates for facilities of three different sizes. Below each major heading identifying geographic location (Low, Average, High) you will see a range of construction costs. The first number is for a large (35,000 SF) facility, the second number is for a facility of average (20,000 SF) size and the third number is for a small (5,000 SF) facility. The chart should enable you to estimate and compare construction costs for ASCs of various sizes, whether new or remodeled, in your particular area of the country.

It should be noted that Medicare and insurance providers take these geographic cost differentials, both in construction and in staffing, into account when calculating reimbursements. They understand that it is more costly to perform the same surgery in New York City's Manhattan than in Manhattan, Kansas. To adjust for this situation, the base reimbursement dollar amounts for procedures performed in an ASC are adjusted higher or lower based on location using the federal government's "Wage Index."

Impact of Weather and Economic Influences

Finally, natural disasters and/or material shortages can have a significant impact on construction costs as well. These construction cost escalations are generally temporary, lasting only a few months until the market has an opportunity to equalize. However, if you are unfortunate enough to be bidding a project during one of these spikes, your construction costs will undoubtedly rise. On the other hand, since the 2007–2009 development bubble popped, costs (acquisition, architecture/engineering, construction, etc.) have plummeted 25 to 35 percent in some areas. How long this downturn will last is up for debate, but any sort of real recovery earlier than 2012 is unlikely. It should be noted that this price decline is not a marketwide phenomenon: some areas of the country remain strong.

Figure 1: **Estimated ASC Construction Costs per Square Foot (2nd Quarter 2010)**

	LOW-COST AREA	AVERAGE-COST AREA	HIGH-COST AREA
NEW	$169 | 186 | 271/SF	$245 | 270 | 393/SF	$330 | 362 | 529/SF
SITE WORK*	$4 | 5 | 6/SF	$6 | 7 | 9/SF	$8 | 9 | 12/SF
REMODELED†	$113 | 125 | 182/SF	$165 | 181 | 264/SF	$222 | 243 | 355/SF

NOTE: In cost ranges, the first number is for a large (35,000 SF) facility, the second number is for a moderate (20,000 SF) facility, and the third number is for a small (5,000 SF) facility.

*Site work construction costs are for the work required to prepare the site itself (i.e., grading, paving, landscaping, etc.), not for constructing the building.

†The construction cost data for the remodeling option i ncludes only the tenant improvement cost. It does not include the existing facility cost or any needed demolition/upgrades; these should be added to create an apples-to-apples comparison with a new facility.

Certification and Accreditation

CMS does not certify ASCs for particular specialties. Any surgery, no matter the specialty, that is approved for an ASC setting can be performed in any ASC. It is your state's HHS officials who will either grant or deny your ASC state licensure (if applicable) and/or Medicare certification and who will issue your federal billing number. Without licensure and/or certification, you cannot be reimbursed for performing surgery in an ASC and thus cannot bill or collect facility fees. (For more information, see the *Complete Guide to Coding* module in this series.)

HAccreditation is performed by organizations such as the Accreditation Association for Ambulatory Health Care (AAAHC) and The Joint Commission (TJC) (see Resources at the end of this module). It is intended to improve quality of care. Accreditation is considered a step above CMS certification and state licensure and is desired, but not necessarily required, by most insurance providers. And although CMS has empowered these organizations to grant certification on its behalf, accreditation is not required for CMS payment.

Design and Space Planning

The American Institute of Architects (AIA) Academy of Architecture for Health (AAH) *Guidelines for Design and Construction of Health Care Facilities* (commonly referred to as the *Guidelines*) is an excellent source for determining the basic requirements for an ASC. Many states have adopted these guidelines as their own and expect their reviewers to adhere to them. Other states have instead created and published their own standards. Make sure you do the appropriate research and follow the applicable requirements when designing your ASC.

Space Requirements

As a rule of thumb, you will need one OR for each 3,000 cases handled per year. A one-OR ophthalmic-specific ASC should contain approximately 3,500 to 4,000 SF; each additional OR requires an additional 2,000 to 2,500 SF. A myriad of issues can affect these basic estimates. Here are just a few:

- If you plan to have a single surgeon use two ORs (fairly typical for cataract surgeons), add about 500 SF to each of the aforementioned estimates.
- If you want to be able to provide general anesthesia at your facility as well as to accommodate some other basic specialties, add about 500 SF to each of the aforementioned estimates.
- If you plan on adding one or more ORs in the future but want to size certain difficult-to-expand areas (waiting room, business office, locker rooms, general storage) now to ease expansion later, add about 500 SF for each potential OR to each of the aforementioned estimates.

To get an idea of the approximate amount of space an ASC of the type you are considering will

occupy, you can complete the chart, "Calculating ASC Square Footage," in Figure 2.

Common Areas

Another rule of thumb in determining overall space needs for your ASC is to add 40 percent of the square footage allocated to all other ASC activities to accommodate circulation within the common areas. (See V.B in Figure 2.) Gurney traffic requires an 8-foot corridor.

Laser Vision Correction Center

Unless you're planning on bringing a roll-off-roll-on (RORO) laser into your ASC for laser

Figure 2: Calculating ASC Square Footage

I. RECEPTION/BUSINESS

A. Entry Vestibule/Wheelchair Storage (65 SF + 15 SF per additional OR) . . . . . = _____ SF
B. Public Toilet (1 per 30 waiting seats (see I.C.1.), round up, @ 50 SF) . . . . . _____ @ _____ SF = _____ SF
C. Waiting
1. Chairs (2 per pre/post-anesthesia stations (see II.E & G) @ 15 SF) . . . . . _____ @ _____ SF = _____ SF
2. Nourishment/TV (15 SF + 5 SF per additional OR) . . . . . = _____ SF
D. Reception/Business
1. Reception/Scheduler (1 per every 2 ORs, round up, @ 65 SF). . . . . _____ @ _____ SF = _____ SF
2. Business (1 per every 2 ORs, round up, @ 50 SF). . . . . _____ @ _____ SF = _____ SF
3. Medical Record Storage (35 SF + 15 SF per additional OR). . . . . = _____ SF
4. Clerical Work/Storage (35 SF + 15 SF per additional OR). . . . . = _____ SF
5. Director (1 per every 2 ORs, round up, @ 100 SF) . . . . . _____ @ _____ SF = _____ SF

II. CLINICAL

A. Interview/Examination/Viewing (1 per every 2 ORs @ 80 SF) . . . . . _____ @ _____ SF = _____ SF
B. Laser/Exam (120 SF) . . . . . = _____ SF
C. Patient Dressing/Toilets (1 per OR @ 50 SF) . . . . . _____ @ _____ SF = _____ SF
D. Patient Lockers (1 per pre/post-anesthesia station (see II.E & G) @ 5 SF) . . . . . _____ @ _____ SF = _____ SF
E. Pre-anesthesia Preparation Stations (1 per OR @ 80 SF — minimum of 2) . . . . . _____ @ _____ SF = _____ SF
F. Control/Nurse Station (100 SF + 50 SF per additional OR). . . . . = _____ SF
G. Post-anesthesia Recovery
1. Gurneys (1.5 per OR, round up, @ 100 SF) . . . . . _____ @ _____ SF = _____ SF
2. Lounge Chairs (3 per OR minus II.G.1 @ 65 SF) . . . . . _____ @ _____ SF = _____ SF
H. Exit Vestibule/Wheelchair Storage (65 SF) . . . . . = _____ SF
I. Receiving (50 SF) . . . . . = _____ SF
J. General Storage (150 SF + 50 SF per additional OR) . . . . . = _____ SF

III. SURGICAL

A. Scrub Sinks (1 per OR @ 15 SF) . . . . . _____ @ _____ SF = _____ SF
B. Operating Rooms (1 per 3,000 OR cases, round up, @ 400 SF) . . . . . _____ @ _____ SF = _____ SF
C. Soiled Workroom (50 SF + 15 SF per additional OR) . . . . . = _____ SF
D. Clean/Sterile Workroom (65 SF + 35 SF per additional OR) . . . . . = _____ SF
E. Clean/Sterile Storage (65 SF + 35 SF per additional OR) . . . . . = _____ SF
F. Equipment Storage (50 SF + 15 SF per additional OR). . . . . = _____ SF
G. Anesthesia Equipment/Supplies (35 SF + 15 SF per additional OR) . . . . . = _____ SF

IV. ANCILLARY

A. Soiled Holding (35 SF + 15 SF per additional OR) . . . . . = _____ SF
B. Staff Dressing/Toilets
1. Male Dressing (65 SF + 15 SF per additional OR). . . . . = _____ SF
2. Female Dressing (80 SF + 15 SF per additional OR). . . . . = _____ SF
3. Toilet w/Shower (1 male & 1 female @ 65 SF) . . . . . _____ @ _____ SF = _____ SF
C. Staff Lounge (120 SF + 35 SF per additional OR) . . . . . = _____ SF
D. Housekeeping (1 soiled & 1 clean @ 35 SF) . . . . . _____ @ _____ SF = _____ SF
E. Gas Storage (35 SF + 15 SF per additional OR). . . . . = _____ SF
F. Mechanical (35 SF + 15 SF per additional OR) . . . . . = _____ SF
G. Electrical (35 SF + 15 SF per additional OR) . . . . . = _____ SF

V. TOTAL SQUARE FOOTAGE

A. Total Net Square Footage (Total of all the above). . . . . = _____ SF
B. 40% Circulation Factor (40% of the total of all the above). . . . . = _____ SF
C. Total Gross Square Footage (Total of V.A plus V.B) . . . . . = _____ SF

vision correction (LVC) surgeries on days you are not performing Medicare surgeries, you're better off providing space outside the ASC for a Laser Vision Correction Center (LVCC). When Medicare patients are in an ASC, all other patients in that ASC must be treated with a certain level of care. That level of care is above and beyond what's needed to perform a safe LVC surgery. Therefore, if LVC surgery is performed concurrently with Medicare surgeries in an ASC, unneeded expenses are incurred. Financially you're better off building an LVCC adjacent to but not within the ASC, or even as part of or adjacent to your practice.

Design Guidelines

The 2006 *Guidelines for the Design and Construction of Health Care Facilities* contains commonly accepted industry design standards for ASCs and largely determines the spaces that are required for ASCs. The *Guidelines* gives regulations and recommendations for the number and sizes of spaces within the ASC based on the functional needs of the facility (the functional program). The functional program is basically a description of how the facility will be used, the type and volume of surgeries that will be performed, and a policies and procedures manual for the center.

OR size depends on how the OR will be used and the type of sedation the patient will receive (Figure 3). There are three OR classifications: A, B and C.

- **Class A** is for minor procedures using topical and local infiltration blocks with or without oral or intramuscular preoperative sedation. Class A ORs must have a clear area of 150 SF with a minimum clear dimension of 12 feet.
- **Class B** is for minor or major procedures using oral, parenteral or intravenous sedation and those using analgesic or dissociative drugs. Class B ORs must have a clear area of 250 SF with a minimum clear dimension of 15 feet.
- **Class C** is for major procedures that require general or regional block anesthesia and support of vital bodily functions. Class C ORs must have a clear area of 400 SF and a minimum clear dimension of 18 feet.

Although most ophthalmologists are currently using topical anesthesia on cataract patients, that does not mean that a Class A 150 SF OR will be adequate. To accommodate the needed equipment and staff, a Class B 250 SF OR is the minimum. Experience has shown us that anything smaller

FIGURE 3: The ASC's functional programs determine decisions on OR size and equipment. Many owners build larger ORs now to accommodate future growth, technological change and facility resale.

does not provide enough space for everybody and everything required. That being said, many practices I have worked with have opted to build a larger Class C 400 SF OR even though they don't need it themselves — they are planning now for growth later. Some retina, pediatric and cosmetic ophthalmic patients require general anesthesia, not to mention the potential for adding other specialties down the road. Adding medical gases and 150 SF to a Class B OR later is simply not cost effective. I recommend that you prepare your ASC now for additional surgeries, surgeons and resale potential.

With increases in technology and surgical complexity comes the need for larger ORs. What has traditionally been considered an inpatient case is now being done in an outpatient setting. Surgical complexity has come a long way in the past decade and shows no signs of stopping. I've noted that the minimum requirement for a Class C operating room in the current Guidelines is 400 SF — typically designed as a 20- by 20-foot room. Although this size works well for some specialties such as ophthalmology, otolaryngology and plastic surgery, our experience has shown that it is entirely too small for most of today's complex surgeries. With all the anesthesia, equipment, lighting and monitoring booms as well as specialty equipment towers and even robotics, a 22- by 22-foot (484 SF) OR is a much more appropriate minimum, with a 24- by 24-foot (576 SF) or even a 25- by 25-foot (625 SF) OR being desirable. Designing your ASC to meet actual needs rather than simply to satisfy your jurisdiction's minimum requirements is paramount to its success.

For ophthalmology cases (primarily cataracts), where several patients are blocked at once prior

to entering the operating room, additional prep stations should be provided. Allotting a little extra space initially could save you a lot of headaches later.

We also recommend that all Class B (250 SF; primarily used for minor cases like gastroenterology and pain management) and Class C operating rooms be at least piped (stubbed in) with nitrous oxide anesthesia capabilities. Although general anesthesia is not common in ophthalmic-only ASCs, other specialties require it. Having it ready to go will help in both ongoing utilization levels and resale.

All of these issues are relatively inexpensive to address during the initial design process. Taking care of them at the outset can save you a lot of future stress and potentially make your ASC more profitable.

Special Design Solutions

The floor plans in Figures 4 through 6 and the text that follows illustrate some unique design solutions we employ in laying out functional ASCs. Most ASC owners and their architects will face decisions about issues such as these during facility planning.

Covered Patient Drop-off Area

CMS mandates a covered area for ASC patient pickup, but not for patient drop-off. However, I recommend covered areas for both pickup and drop-off (see Figure 4, area IA) because many ophthalmic ASC patients and their family members are elderly and potentially frail. A covered, calm and dry area where patients can exit their vehicle and enter the ASC is a nice feature that will lessen everyone's concerns.

Front-Desk Privacy for Patients

Even with the best pre-arrival procedures, additional personal information sometimes needs to be gathered from patients before their surgery. Discussing such information with the patient at the front desk, where others in the nearby waiting room can overhear, is inappropriate. We often design a private alcove to one side of the front desk to accommodate such encounters (see Figure 4, area IB). Our design allows the same receptionist to greet an incoming patient and to have a private sit-down conversation with a second patient, maximizing the receptionist's efficiency and the patient's privacy.

Access to Postop Recovery for Family

Most ASCs encourage a family member or other caregiver to join the patient once he or she has been moved out of the post-anesthesia care unit (PACU)

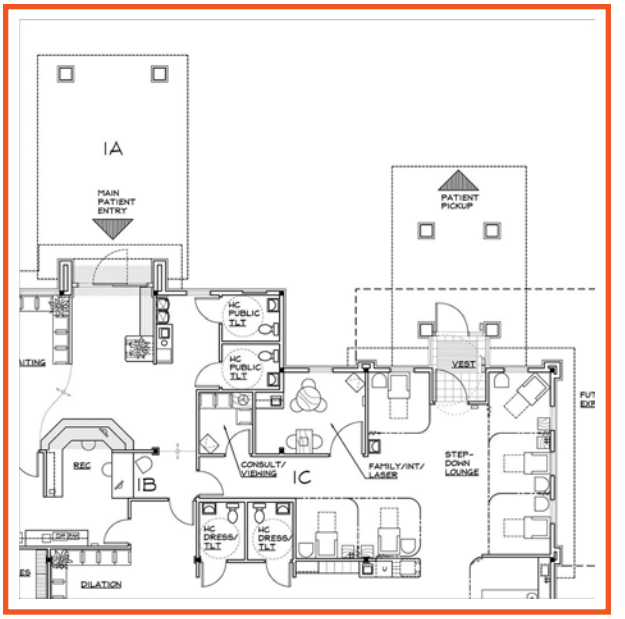

FIGURE 4: ASC Example Floor Plan I. *These drawings and the intellectual property contained within are the sole property of Marasco & Associates, Inc. Use or duplication of these drawings is strictly prohibited without the express written consent of Marasco & Associates, Inc. and is punishable under the law.*

into step-down recovery. Because postop instructions are typically given at this time, it is important that both the patient and the patient's caregiver be present. Many architects design flow patterns that require the caregiver to walk adjacent to the prep/PACU areas to reach the step-down recovery area. However, this gives caregivers visual access to other pre- and postoperative patients, which is neither dignified for those patients nor necessary with a good design. The best ASC layouts allow caregivers easy, private access between the waiting room and step-down recovery without exposing other patients to view (see Figure 4, area IC). Access to the consultation and laser room(s) can occur privately along this corridor as well.

Centralized Nursing Station

Although CMS requires that ASCs have separate prep and recovery areas, that doesn't mean that these areas must be designed so as to isolate the staff of each area. Although architects often design physically separated prep and recovery areas, each with their own nursing station, doing so prevents staff from helping one another out if the patient load at a particular time calls for it. It is a certainty that mornings will be more prep oriented, whereas afternoons will be more recovery oriented. In addition, during the day there tends to be a natural ebb and flow through the prep and recovery areas. A design that centralizes the only nursing station between the

prep and recovery areas meets CMS requirement while at the same time maximizing staff efficiency (see Figure 5, area IIA). Such a design allows staff to move back and forth between prep and recovery effortlessly, depending on where they are needed the most. Physically separated prep and recovery areas lock staff to a particular nursing station and are inherently inefficient.

Private Recovery Room

Even though ophthalmic procedures are relatively non-acute, some patients react adversely. The patient having difficulty is embarrassed, while the other patients in recovery are uncomfortable seeing another patient doing poorly. Such a situation increases patient anxiety levels. Having a private recovery room (see Figure 5, area IIB) to accommodate these patients is a wise decision. Such a room can also be used by VIPs or cosmetic patients who desire privacy. Placing the recovery room adjacent to the nurse's station, for optimum viewing, is critical. Notice the window between it and the nurse's station in Figure 5.

Placement of ASC Director's Office

Many architects place the ASC director's office up front in the business area, ignoring the multiple functions of the director, who is typically an RN. Although the director spends a significant amount of time managing the ASC, she or he generally also works in it as an RN. The director can jump in at a moment's notice and help out when things get backed up or if another RN is late or sick. This flexibility is paramount to a smooth-running ASC — and isolating the director from the clinical flow is a huge mistake. Our typical design places the nurse director right in the middle of the flow (see Figure 5, area IIC) so that she or he can pop in and out as needed.

Storage Area Access

Unfortunately, many architects take the hospital approach to ASC design and create isolated soiled, clean, sterilization and sterile storage areas in the ASCs they design. Because ASCs are generally smaller than their hospital counterparts and therefore have fewer instruments, equipment and supplies, this isolating design methodology drastically limits potential ASC efficiencies. These areas, whether for processing instruments or accessing equipment or sterile supplies, should be close at hand to every OR in the ASC. This is especially true with ophthalmology because its cases tend to be very clean, and easy access to sterile instruments and supplies is critical to an efficient flow. Because the staff constantly moves back and forth between these areas and the ORs, making them difficult to access is counterproductive. We therefore sandwich the soiled, clean, sterilization and sterile storage areas between all of the ORs, providing direct access among all these spaces to maximize efficiency (see Figure 6, area IIIA).

"Upsized" ORs

Many of the ophthalmic ASCs we have helped design include a large "Class C" (400 SF) OR (see Figure 6, area IIIB). Although CMS and most states allow cataract surgery to be performed in a smaller "Class B" (250 SF) OR, you never know what the future holds. Having an OR large enough to accommodate ophthalmic general anesthesia cases like cosmetic, pediatric and retina or a LASIK/IntraLase setup isn't a bad idea. And of course, it isn't as if you can't perform cataract surgery in a Class C OR — it's just larger than it needs to be. A larger OR also opens up an ophthalmic ASC for use by other specialties if downtime permits. Our clients have seen that for a little extra cost, they can get a lot more potential with a Class C OR.

Gurney Storage

When a patient is transferred from a gurney to a specialized OR table, the gurney can get lost — and searching for an available gurney postoperatively wastes staff time. To rectify this situation, we design a gurney storage alcove just outside all large ORs (see Figure 6, area IIIC). The transport gurney is stored in the alcove during the case — for efficient postop access. Since a gurney is only about 36 inches high, we typically place cabinets above the alcove, starting at about 42 inches above the floor. We typically design them as pass-through cabinets that can be accessed from either the sterile corridor or the OR. This arrangement allows them to be stocked from the corridor side without interrupting the ongoing OR case. You can see in Figure 6 that each small "Class B" OR has a pass-through cabinet as well.

Additional Design Considerations

Swing Operating Room

A swing operating or procedure room is a simple design method that adds flexibility to an ASC. For example, gastroenterology and pain management physicians do not need to deal with the sterility issues associated with a full-fledged Class C operating room, but in many situations the caseload of such specialties does not justify a dedicated procedure room. These cases are nonsterile in nature,

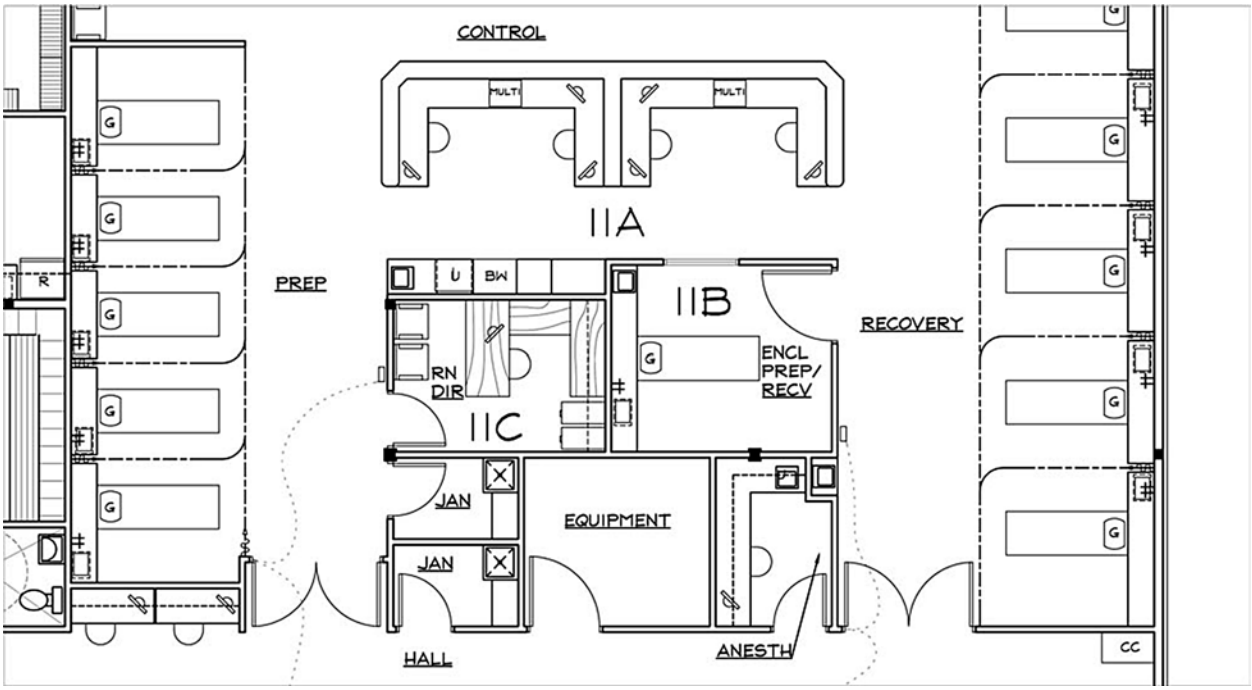

FIGURE 5: ASC Example Floor Plan II. *These drawings and the intellectual property contained within are the sole property of Marasco & Associates, Inc. Use or duplication of these drawings is strictly prohibited without the express written consent of Marasco & Associates, Inc. and is punishable under the law.*

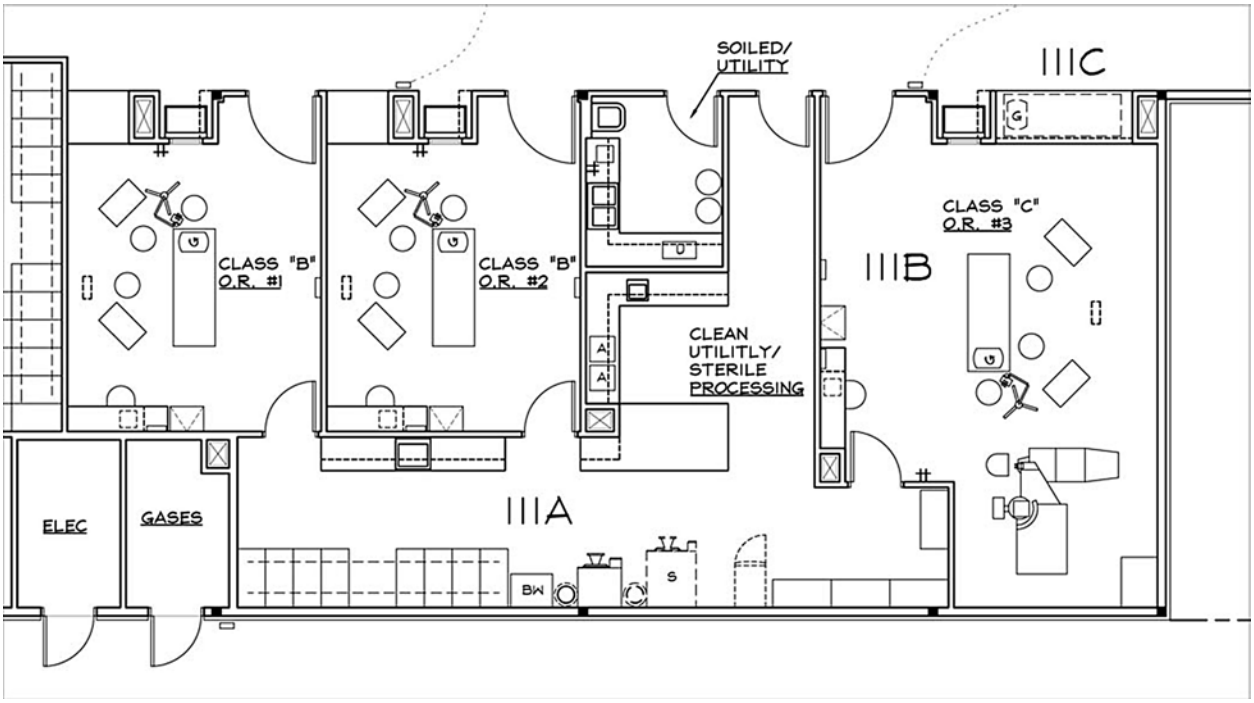

FIGURE 6: ASC Example Floor Plan III. *These drawings and the intellectual property contained within are the sole property of Marasco & Associates, Inc. Use or duplication of these drawings is strictly prohibited without the express written consent of Marasco & Associates, Inc. and is punishable under the law.*

but treating them as sterile cases only slows down the physician and staff in the throughput process. In a multispecialty ASC, accessibility to the ORs should therefore **not** be from the sterile corridor but instead directly from the prep/recovery area. This can easily be accomplished simply by placing the OR(s) between the prep/recovery area and the sterile corridor — not on the other side of the sterile corridor as is often done. Placing doors into the OR(s) from both the sterile and the nonsterile sides allows the OR(s) to "swing" back and forth from sterile to nonsterile depending on the cases that are being performed and which access door is unlocked. Of course, this transition (or "swing") does not take place case by case but instead per surgical block period. For instance, an ophthalmologist may use an OR in the morning as a sterile environment, and then the OR may "swing" in the afternoon to be used by a gastroenterologist as a nonsterile environment. Because this design technique requires no additional space, it allows your ASC to be much more flexible without a surcharge — a win-win situation. It should be noted, however, that not all states allow this type of flow pattern. Be sure to check your state's requirements before incorporating this approach into the design of your ASC.

Entries and Exits

When possible, we design separate and distinct patient/family entry (Figure 7) and patient exit areas on every project. The goal of an ASC is to reduce patient anxiety, not increase it. Even with ophthalmology's relatively easy surgeries, patients don't always feel or look great after a procedure. It makes no sense to force patients to exit through the waiting room on their way out of the facility. This only serves to increase the anxiety of patients awaiting their own surgeries. When planning the location of separate entries/exits, keep in mind that placing access and egress points adjacent to one another can confuse family and patients. No matter how large the sign on the patient exit door, family/patients will try to enter through it if it is next to the facility's front door — you can't fight human nature.

Also make sure that vehicle traffic on the site is designed so that the passenger door is on the same side as the patient exit in the patient pickup area. Having to maneuver patients around the car for every discharge will frustrate your staff. Given the high traffic, a wind lock or vestibule should be included at both the entry and the exit to every ASC. These will save headaches and money in the long run.

It's also a good idea to designate a delivery entrance (apart from your front entrance) as well as an area to break down boxes that contain equipment and supplies. This keeps dust and dirt from the boxes out of the ASC and away from the supply room.

FIGURE 7: This ASC boasts a well-lit, covered patient entry.

Storage Space

Although such units are expensive and therefore often overlooked, cabinetry (base, wall or full-height) is often your best bet for equipment and supply storage. Having a true storage room is ideal, but finding 65-plus SF for one in the ASC design often is not that easy. Making a required space a couple of feet wider to accommodate cabinetry may be much simpler. Getting a grip on storing today's technology is easy, but don't forget about tomorrow. Ophthalmologists are constantly adding new arrows to their quivers and often don't plan for these potential changes in their ASC storage areas.

Also make sure your design accommodates sedentary pieces of equipment like a crash cart. These are often arbitrarily placed in the sterile corridor because no plan was made for their storage. However, patients are still awake as they cross this area to the OR, so it should be clean and presentable. Spotting a big red tool chest with medical devices hanging off it doesn't reduce patients' anxiety levels as they approach the OR.

Green Architecture/Building

Green architecture is all the rage right now — and for good reason. It is extremely important to consider the initial and long-term environmental quality and energy/water conservation effects of your ASC's design and materials on the sustainability of the world we all live in. Just as the services provided at an ASC are dedicated to making patients feel better, the building itself should share that goal.

The *Green Guide for Health Care* (**www.gghc.org**) defines a comprehensive, voluntary self-certification

system for the design, construction and operation of high-performance health care buildings. This sustainable-design tool kit is the first green-building best-practices guide created specifically for the health care industry and should be followed whenever possible. The principles contained in this guide can be implemented with a minimal (5 to 10 percent) increase in initial building cost over traditional, non-green methods. The Green Guide draws on information from such distinguished sources as the Green Healthcare Construction Guidance Statement by the American Society for Healthcare Engineering (ASHE), the Leadership in Energy and Environmental Design (LEED) Green Building Rating System by the U.S. Green Building Council, the Energy Star Rating System by the U.S. Environmental Protection Agency (EPA) and the Environmental Performance System by the Center for Health Design/International Organization for Standardization (ISO). Although building green probably won't attract additional patients to your ASC, the public relations benefits and long-term savings should be worth the extra initial price.

Design Aesthetics

Natural brick, stone, tile and wood textures as well as abundant amounts of natural light make for an appealing ASC environment (Figure 8). A smattering of local artwork, water sculptures and even sounds of nature throughout the facility go a long way to creating happier surgeons, staff and patients. The goal is to design an attractive ASC that boasts state-of-the-art equipment — but one that does not look too opulent. Otherwise, patients will equate the facility's charges with its appearance.

Design/Development Methodologies

Although every project is unique, in the 35 years I have been designing ASCs I have learned firsthand the pros and cons of a variety of design/development methodologies. Whether you are building a new facility or looking to improve your current space, understanding these design/development methodologies will help you to achieve the best return on your ASC investment.

FIGURE 8: The natural materials, plants, comfortable seating and abundant light in this ASC waiting area welcome patients and their caregivers.

Design/Bid/Build

The most common design and construction method is called **design/bid/build**. In this approach, the client selects an architect, who completes a detailed design/construction document set based on the client's needs, provides this set to several experienced general contractors to bid and then helps the client select the appropriate contractor to construct the building. The competitive nature of this approach typically results in the lowest construction costs. However, because this approach eliminates (until it's too late) any contractor input as to how better to construct the building for less cost without sacrificing quality, you must place your trust solely in the architect's expertise.

Contractor input for cost savings is called **value engineering** and relies heavily on the contractor's experience with local construction systems/techniques and access to materials/equipment. A building typically is not value engineered until the design/construction documents are complete, the building is bid out and the general contractor is selected. Any changes that are suggested by the contractor at that time and agreed to by the client must be redrawn into the design/construction set — unfortunately, at an additional cost to the client. Much of the potential building-cost savings resulting from the contractor's suggestions may be consumed in additional architecture/engineering fees. On the plus side for the design/bid/build approach, during the construction process the architect acts as your quality assurance agent, guaranteeing that the contractor remains honest and that you receive exactly what you are paying for.

Design/Build

Another common design and construction method is called **design/build**. In this approach a general contractor and an architect form a team at the inception of the project, and the client selects them as such. Because the team is established up front and work can commence even while the design/construction document set is being finalized, this approach theoretically makes it possible to shorten the typical construction timeline. However, because of fixed lead times for various building materials, the time savings generally don't materialize. Because the contractor is on board from the beginning in this method, however, his or her input can be included in the design/construction document set from inception, giving you a value-engineered building from the start — at no extra architecture/engineering cost. But because the contractor typically employs the architect, you lose the architect's oversight for quality assurance during construction. If you choose this approach, you must be completely comfortable with the collective ethical levels of contractor and architect. This is not to imply that the design/build process is flawed — just that it reduces client control. In fact, I frequently work with contractors under the design/build method with excellent results.

Design/Bid/Design/Bid/Build

I have developed and used a new design and construction strategy with hundreds of clients, with excellent results. This strategy combines the pluses of both design/build and design/bid/build into one integrated package. I call my approach **design/bid/design/bid/build**. In this approach the client selects an architect, who completes a preliminary design/construction document set, bids this set to several experienced general contractors and helps the client preliminarily select the appropriate contractor. Input from the architect, engineers, general contractors, subcontractors and client is gathered, value engineered and then incorporated into the final construction document set. Because the value engineering is completed before the construction document set is finalized, there are no additional architecture/engineering costs. Next, only the preliminary general contractor rebids the project to account for changes made during value engineering. If that general contractor meets the original bid, minus any predetermined value-engineered savings, the contractor is issued the final contract. If the contractor exceeds the bid, the client reserves the right to request bids from the other general contractors to reduce construction costs.

This method gives the client maximum budgetary control. The client has the opportunity to adjust the budget or building quality before the construction document set is finalized. By moving the value-engineering process to the middle, as opposed to the end, of the design/construction documentation process, extra architecture/engineering redrawing fees are no longer incurred. This approach also allows the client to use the architect as an independent quality assurance agent during the construction process.

Regardless of the method chosen, any changes should be made during the design phase, not during construction.

Common Mistakes in ASC Development

This section addresses issues that are commonly completed incorrectly or with minimal knowledge during development of an ASC. Knowing what potential pitfalls to watch for should help you to avoid costly errors and delays.

Failing to Establish Regular State HHS Contact

Neglecting to consult one's state department of HHS until construction of the ASC is complete is a major pitfall. Depending on how you treat them, these officials can be your friend or your foe. Make sure that your architect consults with state HHS personnel early and often during the design/construction process and follows their recommendations strictly — even if those recommendations don't make much sense to you. Keep in mind that it's not what you think that matters, it's what the state HHS officials think. Make sure your architect follows up any meetings, telephone conversations or design changes with signed memos to and from your state HHS officials. Simply put, without your state HHS officials' approval, you will have a very expensive office procedure environment, not an ASC. Make sure that the state HHS officials are familiar with your project by the time they perform their on-site licensure/certification visit. This familiarity should ensure that the outcome of the licensure/certification inspection is positive.

Failing to Consider Other Specialties During Design

Another important facility complaint we hear often concerns failure to design the ASC so that it can accommodate other specialties. Although your facility may begin life as an ophthalmic-only ASC, from a resale and/or optimum-utilization perspective, designing it to meet multispecialty needs upfront can save you a lot of headaches down the road. What if, five years after you develop your ophthalmic-only ASC, your group becomes so successful that it outstrips the facility's capacity and your only option is to move to a new, larger-capacity location. If your ASC was designed for ophthalmology cases only, and thus does not meet the needs of many other specialties, your pool of potential buyers is significantly limited, and it may be difficult to sell your facility as an ASC. As we've explained in this module, constructing an ASC is much more expensive than constructing basic medical office space. If you are forced to sell your ASC as something other than an ASC, you will lose your investment in the increased construction cost.

In addition to resale issues, many single-specialty ASCs have considerable downtime that could be used by other surgeons if the facility were designed appropriately. Because attracting your competition to use your ASC is difficult at best, other specialty surgeons are your best potential caseload fillers. Spreading the fixed costs (primarily rent and equipment) over as many cases as possible makes each case more profitable. Therefore, maximizing your OR utilization should be one of your goals.

These potential surgeons have special needs that must be addressed in the initial design process. Other surgeons' patients may be more acute than those you treat, so you may need additional waiting room seats and prep/recovery stations as well as anesthesia (medical gases) capability.

Specialties that integrate well with ophthalmology are podiatry and dentistry. (Keep in mind that dentistry will require general anesthesia.) Orthopedics is more challenging given the equipment requirements. ENT can work well, but you need to remember that many ENT patients are children. Children will be coming to the ASC with their parents, and you will likely want to provide books, toys, DVDs and others items to entertain young patients. It's best to avoid scheduling children and adults during the same time period. You will also need to evaluate the Medicaid payment if you decide to bring in ENT cases. If you are considering inviting gastroenterology surgeons to share your ASC, specialized sterilization (scope cleaning) equipment will need a place to live. Also, gastroenterology and pain management physicians and staff don't want to deal with the sterility issues associated with a full-fledged Class C operating room, so the swing operating room discussed earlier would be a good design choice. Accommodating these additional needs may add up to slightly more space than a single-specialty ASC would require, but in the long run it will be well worth it.

And no matter what other specialties are involved, your storage needs, for surgical instruments and supplies, will definitely increase.

Failing to Evaluate HVAC Needs During Design

Control of temperature and humidity in the OR is another common area that may be overlooked in design. Although Medicare and state departments of HHS requirements allow for a 68°F minimum temperature in ORs, most surgeons consider this unacceptably high. They typically like to have their ORs at 65°F or even 63°F. Depending on the geographic location of your ASC, these lower temperatures can be difficult to achieve with a standard rooftop HVAC mechanical unit while maintaining the required humidity level. Explore upgrading the HVAC system before the construction documents are completed so that this sort of control can be integrated into your ASC. Do not let your architect and/or engineer design around the minimum requirements, which is typically their inclination. Instead use an experienced team that understands what temperature and humidity levels your facility should meet.

Failing to Design for Maximum Surgeon Efficiency

The fewer steps staff and surgeons need to take to accomplish their jobs, the more efficient and financially viable your ASC will be. At 25 to 35 percent of an ASC's overhead, staffing costs are by far the component most easily controlled in design. (Facility costs account for just 10 to 15 percent of overhead.) In the long run, maximizing staff and surgeon efficiency is a much more effective way to reduce costs than minimizing facility size.

Other Mistakes

ASCs too often lack soundproofing. Not only is this shortcoming a HIPAA privacy concern, but it can

create anxiety in other patients, such as in the case of a crying child.

Automatic doors alleviate the need for staff to push open doors when wheeling a patient on a gurney. Don't forget to specify these during the planning phase.

Some ASCs lack sufficient exterior safety lighting. Adequate illumination is important for the safety of both staff and patients entering and exiting the facility.

Conclusion

The steps outlined in this module can help you develop an ASC that will provide a sizable return on investment for your practice today and in the years to come, improve the efficiency of your surgeons and reduce the cost of surgery for your patients.

Resources

Architecture, Design and Space Planning Resources

AAOE Consultant Directory is a searchable directory of ophthalmic space planning and other practice management consultants. Inclusion in the directory requires two letters of recommendation. **http://www.aao.org/aaoesite/consultant/**

American Institute of Architects (AIA) Academy of Architecture for Health (AAH) *Guidelines for Design and Construction of Health Care Facilities* (commonly referred to as the Guidelines) is an excellent source for determining the basic requirements for an ASC. Facility Guidelines Institute, **http://www.fgiguidelines.org**

Green Guide for Health Care defines a comprehensive, voluntary self-certification system for the green design, construction and operation of high-performance health care buildings. **http://www.gghc.org**

ASC Certification and Accreditation Entities

Accreditation Association for Ambulatory Health Care (AAAHC): **http://www.aaahc.org**

American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF): **http://www.aaaasf.org**

Centers for Medicare and Medicaid Services (CMS): **http://www.cms.gov**

Healthcare Facilities Accreditation Program (HFAP): **http://www.hfap.org**

The Joint Commission (TJC): **http://www.jointcommission.org/**