

## HOW TO DESIGN EFFICIENT AMBULATORY SURGERY CENTERS



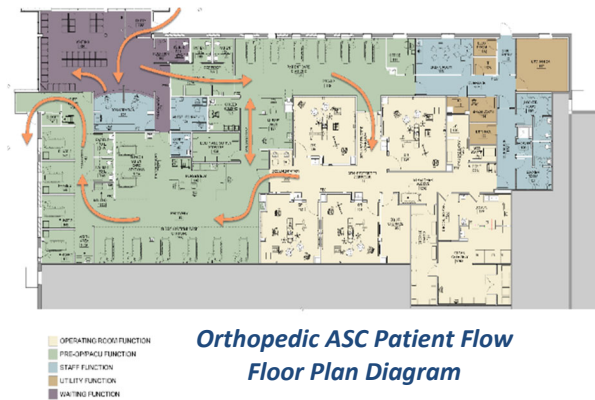
*Exterior View of Cornerstone Eye Associates  
 ASC, Rochester, NY*

A critical aspect of Ambulatory Surgery Center (ASC) design is *efficiency*. Proper planning of an ASC can maximize square footage to include all the required programs in the smallest effective footprint, saving the first cost in the center's construction.

Equally, perhaps more important, is creating a well-planned flow through the ASC. A well-designed center should minimize the time each patient needs to be there, thus maximizing the number of patients that can be treated daily.

Several factors should be considered when determining the flows through the space:

**First, how will patients move through the space?**



We start with the check-in process to define the waiting room and reception area. From there, the ideal floor plan will create a one-way traffic flow for patients to move from pre-op to their procedure or operating room, to the post-op recovery area, and then out of the center to the patient discharge/pick-up area.

A one-way flow of patient stretcher traffic is important in outpatient centers where corridors can be reduced to six feet wide outside of the semi-restricted area, and two-way stretcher traffic is difficult. The main entrance should be separate from the patient post-procedure exit door with a covered exterior patient pick-up area.



*Pre & Post Procedure Area with Convenient  
 Access to Semi-Restricted Area, Meds, Clean  
 Linen, Nutrition, Staff Corridor, etc.*



*Operating Room for Eye Surgery ASC, Binghamton, NY*

**Second, how will the staff: physicians, nurses, administrators, etc., move through the space?**

Limiting the number of steps staff will need to take to do their jobs each day is vital. For example, architects could locate ORs close together, so the physician can quickly move from one procedure to the next or locate clean linen storage within the pre and post-op space to be accessed by staff promptly to turn over beds for the next patient. To create the optimal layout, knowing the staff workflow and timing throughout their day is essential.

Understanding the procedures and recovery process is critical to envisioning staff flow. Many centers are similar in how they operate. Still, input from the clinicians who will occupy the ASC can be constructive in optimizing the floor plan for their specific workflow when possible.

Additionally, it is essential to balance staff visibility to patients with patient privacy. A centrally located nurse station with visual control of each patient bay and entry and exit doors to the semi-restricted area is typically the most efficient. However, in larger ASCs, two or more nurse stations are standard.



*ASC Nurse Station Includes View of All Pre-Op and Recovery Bays*

A separate staff entrance near locker rooms with access to the semi-restricted area, pre/post-op area, and team breakroom is ideal for keeping private employee functions away from patients while allowing staff to reach any patient area quickly and efficiently.



*Multi-Specialty ASC Materials Flow Path Diagram*

**Next, how will the materials flow through the space?**

Surgical supplies and instruments should have a one-way, clean-to-dirty flow to minimize contamination risks. In ASCs with on-site sterilization, materials will move from the OR semi-restricted core, through decontamination and sterilization, to sterile supply storage, where they can be accessed easily by the semi-restricted area. Medical waste is stored in a separate room, ideally located near the exit where trash is removed from the building.

In two OR centers, it can be convenient to position the decontamination and sterilization between the ORs with some sterile storage within the clean workroom. In this case, sterilized supplies can move directly back into the OR rather than being moved to a sterile storage room, and decontamination is only a few steps from each OR, so used items can be transferred directly there. In this case, the sterilized items will never cross paths with the flow of these 'dirty' supplies.



*Clean Workroom for Instrument*

Deliveries of new materials should arrive through a designated entrance large enough to allow a pallet to move through, which is then broken down in a receiving area and moved into storage. Ideally, the movement of this material stays out of the way of patients and staff, though deliveries may happen outside of the center's clinical hours. In any case, it is essential to right-size storage within each ASC for maximum efficiency.

Each ASC specialty will have unique storage needs, and it is vital to get feedback about procedure types and storage requirements from the end users



*Ambulatory Surgery Center Lobby  
Cornerstone Eye Associates ASC  
Rochester, NY*

These three considerations – **patients, staff, materials** - are the main flows in the design of an efficient ASC.

Other flows that should be evaluated for each center are – **patient families, medication, information, and equipment.** These will have less impact on the layout of the ASC but are nevertheless crucial to the overall design of each center.

With all these factors in mind, creating a beautiful ASC that conveys the message of comfort and cutting-edge care to patients is exciting and satisfying

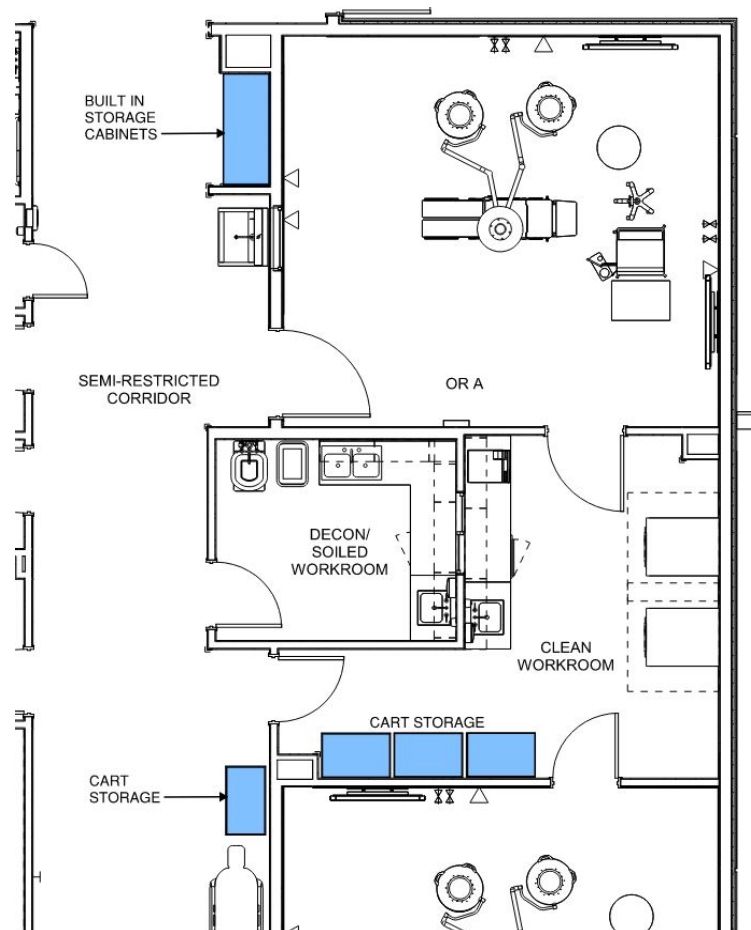
## AMBULATORY SURGERY CENTER DESIGN

### PART 2: ITEMS TO CONSIDER FOR COST-EFFICIENT DESIGN

Designing for the expansion of services is a strategic approach to maximizing the value of Ambulatory Surgery Centers (ASCs). ASCs are most often licensed as single-specialty centers, but there is potential for added value in transitioning to a multi-specialty model. However, incorporating additional specialties can increase space requirements for storage, decontamination, sterilization, and, possibly, larger operating rooms. The challenge here lies in the construction costs associated with expanding the space, making it essential to plan for expansion economically.

#### Items to consider when designing for future conversion to multi-specialty:

**Operating room size.** For specialties like pain management or eye surgery, smaller operating rooms are allowed and may be functionally sufficient, while others may require larger operating rooms. If the initial specialty of the ASC does not require larger operating rooms, we recommend building at least one at 400 square feet to accommodate surgeries that require more space in the future. In our experience, this approach is prevalent in eye centers where all operating rooms are often standardized at 400 square feet.

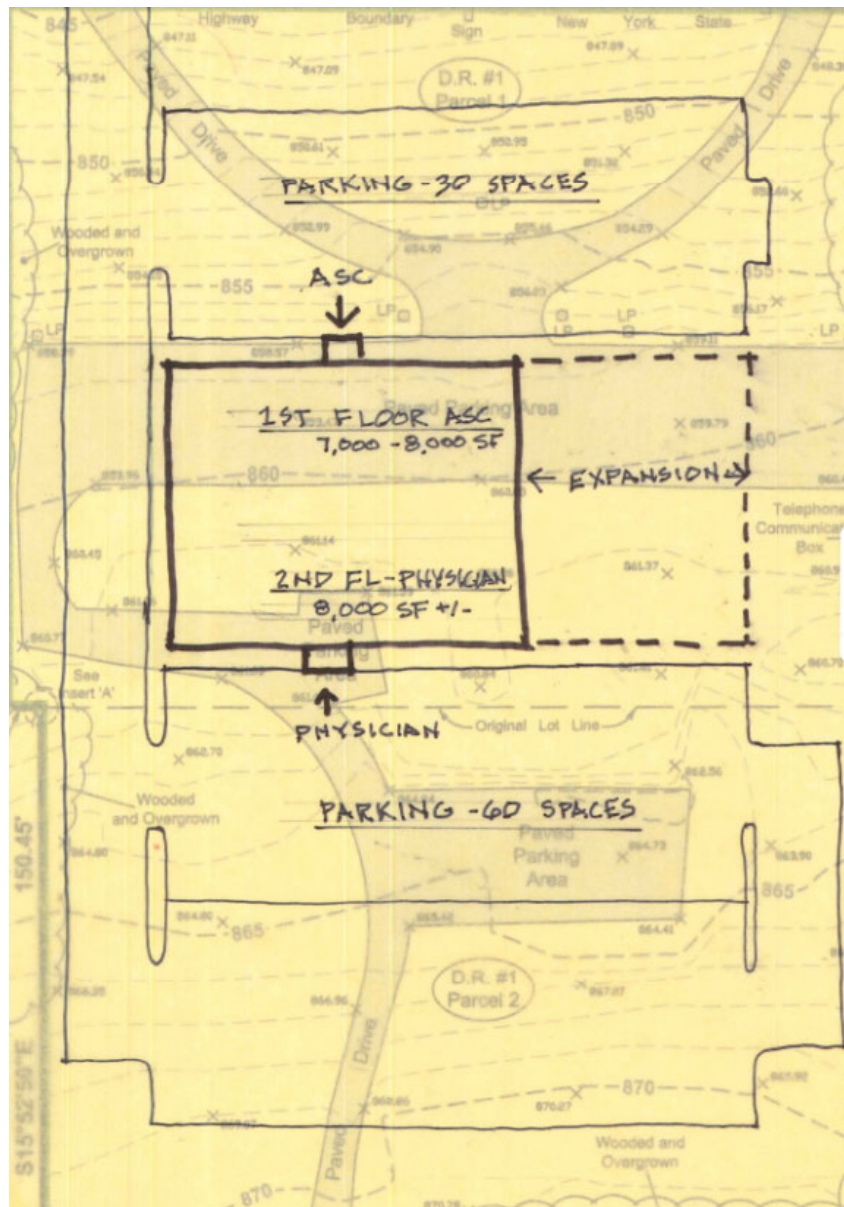


*Alcoves in the Semi Restricted Corridor & Additional Room for Cart Storage in the Clean Workroom*



**Incorporate additional usable space into the footprint.** All added space should be purposefully usable, such as niches branching off semi-restricted corridors or more expansive passages leading to sterilization rooms, allowing for efficient storage of sterile supplies on carts. If the center later becomes multi-specialty, these spaces can then be used to accommodate new required uses.

We always recommend designing for future expansion. Many ASCs find they can accommodate growth within the first few years of operation, either due to growing demand, the option to add more physicians to the practice, regulatory agencies allowing for more complex procedures in ASCs that were previously done only in the hospital, or other factors. With this in mind, it is wise to plan for additional operating rooms and support space during the initial design of the facility.



*Planning for Future Expansion  
with the Initial Concept Sketches of a New ASC*

## Items to consider when designing for future expansion:

**Consider the future layout of the space.** When designing for future expansion, ensure that the facility's layout can accommodate additional space while maintaining operational flow. Also, reflect on the future construction process and design so an addition can be built with minimal effect on the operation of the ASC.

**Design the MEP systems to accommodate expansion easily.** These systems are often the most expensive part of construction, so carefully considering them first vs. expansion costs is essential. For example, design the fire alarm system so that it can be expanded without requiring new main panels. Another example is the generator; installing a more significant capacity generator that can accommodate expansion is much more cost-efficient than installing a second generator at the time of expansion.

**Another cost item to consider in ASC design is the use of glass.** In our experience, natural light is a highly requested item in healthcare spaces. Both patients and medical staff appreciate natural light and views to the outdoors, both of which have been shown to improve patient outcomes. However, the use of glass can be expensive and can reduce the energy efficiency of a building if not designed carefully. In areas of high humidity, such as operating rooms and recovery areas, condensation can be an issue when windows are introduced on exterior walls. It is important to strategically locate glass to get the optimal positive impact while avoiding potential issues.

## Items to consider when incorporating the use of glass in your ASC:



*Use of Glass in the Waiting Room  
at an Orthopedic ASC in Clifton Park, NY*

**Maximize windows in the entry and waiting area.** These portions of the building do not have the strict environmental requirements for temperature and humidity that some clinical spaces have and will not have the same risks of condensation and heat gain or loss concerns that other areas in the ASC have. Natural light and views to the outside can create a calming and pleasant environment in these areas.



*Skylights above the Nurses' Station Provide Natural Light for Staff*



**Strategically locate glass in clinical areas.** Maintain patient privacy while letting in light and providing views where possible. Both patients and staff appreciate this effort. For example, one ASC client of ours prioritized staff well-being and requested a skylight above the nurse station in the recovery area. Another doctor requested glass in the semi restricted corridor, so he could see outdoors between surgeries. In response, we designed windows at each end of the corridor, creating a space with beautiful natural light and abundant views.



*Windows at the Physician Dictation Area in the Semi-Restricted Corridor  
Provide Natural Light and Views to Nature Between Procedures*

Making decisions early about where to allocate money for appearance: fixtures, finishes, and design details, allows for cost efficiency along with elevated patient experience, and gives visual cues to the cutting-edge procedures being offered in the ASC.

### **Items to consider for cost efficient aesthetic design:**

**With proper research and implementation, interior finishes can be upgraded for minimal cost.**

Of course, some finishes are dictated by regulatory guidelines like FGI, but simple things like adding floor patterns and painted accent walls can provide visual interest and impact in clinical areas.





*Providing Visual Impact at the front Entry of the ASC While Keeping the Remaining Exterior Walls Simple Can Be a Wise Allocation of Resources*

**Make a good first impression.** The front approach and entry to a building are typically the first thing a patient sees at the facility. With that in mind, spending more to provide modern design elements and finishes can give the appeal of a state-of-the-art facility to arriving patients and families. The rest of the building façade can be more standard with less expensive materials to save cost. In one example, we used low-cost corrugated metal panel on the back side of an ASC that would only be seen by staff. Another benefit of using lower cost material in that case was that if the facility ever expanded it would be on that side of the building and it would be easier and less expensive to remove that metal panel compared to a standard wall.



*Front Lobby and Waiting Room at Cornerstone ASC in Rochester, NY.*

Additionally, the front lobby and waiting room are the first interior spaces patients will experience in the ASC, so upgrading finishes in these areas is a great way to communicate that your facility is exceptional.

## Part III – To come

### “Adaptive Reuse vs New Construction”



*Maggie is an architect and Principal at Hyman Hayes Associates (HHA) with more than ten years of experience in planning, designing, and managing complex renovation and new construction healthcare projects. She listens, understands, and collaborates with clients and end-users to develop design solutions to meet their workflow needs. Maggie is meticulous and ensures the highest level of quality is brought to each project.*

*Maggie's passion is to design healthcare spaces that foster healing for patients and meet the complex technical needs of medical diagnostics, treatments, and procedures. She understands the industry's challenges in optimizing the quality of care, outcomes, and experiences of patients and staff and how the physical environment can play a positive role.*

*She is a board member for the Capital Region chapter of NAWIC (National Association of Women in Construction) and serves as the organization's Community Outreach Chair. Through this involvement, she has connected with other local organizations such as Veteran and Community Housing Coalition and Girls Inc. Maggie is also an active member of HHA's CANstruction team, benefiting the Food Pantries of the Capital District.*



*As Founding Principal of HHA, Myles sought to craft an architecture practice known for client service and quality. Stepping back from 30 years of day-to-day management, Myles now devotes his time to working on projects as Principal-In-Charge. Also, he spends a lot of his time working on planning, programming, healthcare design research, schematic design, and CON submissions. In addition to his project work, Myles's responsibilities include mentoring staff and quality review of designs and drawings.*

*Myles has concentrated his career on the design of health care facilities. The majority of his clients are long-term relationships; one client has been with the firm since 1997. Myles believes we should know our clients well so that we can prepare designs that meets their needs. This philosophy has been successful; several clients consider him as part of their organization.*