

SPACE PROGRAMMING FOR PHYSICIANS

determining the spatial needs for a clinical practice

All too often physicians find themselves asked to commit to a practice suite size before any floor plan is developed. This can have seriously adverse results; too large an area inflates overhead while too little space artificially limits a physician's patient capacity. Either extreme can lead to an unacceptable ratio of operation cost to patient volume. The pitfalls of poor estimating can only be avoided with a reliable process for projection of area needs.

Physicians tend to use a variety of methods for arriving at future space needs. Most often a simple comparison is made to what they have in an existing practice. That approach is fine if the current facility is ideal for long range needs; but this is seldom the case. More common is the assumption that a random multiplier, like half-again-as-much, would solve all the problems. Such wild guesses are usually the cause of severe headaches during the later space planning process and physically limit a practice's effectiveness. Physicians are best served by a space requirement based on the specific needs for their future practice.

While it is true that the best space plans result from a customized design process it is possible to produce a reasonably accurate forecast of its size by analyzing functions and areas common to many contemporary medical practices. When carefully prepared, an architectural space program should be accurate within 5% of the required area for the actual plan -- entirely acceptable for the development of a highly functional floor plan.

The following guide to spaces commonly found in a medical practice will provide a sound basis for an estimated space program. The individual applying these rules-of-thumb must consider any special or exceptional circumstances not covered in the list and make corresponding adjustments. Items inappropriate to a particular practice should be ignored. Factors, multipliers, and minimum requirements are provided for areas that are difficult to determine before an actual floor plan is developed.

1. VESTIBULE

This area should be included where protection from the exterior weather is a concern. Tenants in multi-physician office buildings with a common lobby, or those working in wonderful climates, should list 0(zero) square feet (SF). Requirements for handicapped accessibility dictate a minimum vestibule of 40 SF; for double doors the minimum is 55 SF.

2. WAITING ROOM

The size of a waiting room should obviously relate to a particular practice's needs. For that reason no basic assumption will suffice. The area required for acceptable arrangement of furniture is 18 SF per chair in a waiting room for 10 or more people (20 SF per chair when fewer than 10.) The number of seats relates to both the hourly patient volume and the physician's on-time performance.

Generally speaking a practice will need waiting chairs for 2 to 3 1/2 times the number of patients seen per hour. If physicians function close to the appointment schedule and patients are usually accompanied by only one non-patient then a factor of 2 should be used. Physicians running chronically behind schedule or with patients who frequently bring several friends or family members with them should use a higher factor, if both situations occur together then the 3.5 factor is appropriate. Since exam rooms serve at one level for a waiting function, the number of exam rooms may be subtracted from the total seating requirement. The number of seats provided in sub-waiting areas of the practice should also be subtracted from the total.

The resulting formulas for waiting rooms follow:

TOTAL SEATING REQUIREMENT (# chairs) = Maximum number of physicians seeing patients at the same time. X Average number of patients scheduled per hour. X Load factor(2 to 3.5).

WAITING ROOM CAPACITY (# chairs) = Total seating requirement. - Number of exam rooms. - Number of seats provided in sub-waiting areas.

AREA REQUIRED FOR WAITING ROOM CHAIRS (SF) = Waiting room capacity. X 18 SF(20 SF where fewer than 10 seats).

Many practices choose to provide amenities within their waiting rooms such as children's play areas, nourishment stations, or literature displays. Those areas should be added to that for seating to arrive at the total waiting room area. Therefore:

TOTAL WAITING ROOM AREA (SF) = Area required for chairs. + Special function/amenity areas.

3. BUSINESS OFFICE

A. STAFF POSITIONS

The area needed for each staff member is dictated by the specific requirements of their position and function. In open areas a person working at a simple desk/typing return station will need about 45 SF. If that station includes a credenza or additional work surfaces the number should be closer to 65 SF. Where people work at built-in counters, such as reception or rescheduling windows, 75 SF/person is appropriate.

Work areas in private offices need to be larger than those in open areas, and again should vary with position description. The minimum enclosed work area to accommodate a desk, typing return, and small work area should be about 70 SF. To accommodate the same minimal work area and space for visitor chairs across from the desk an office should be between 90 and 100 SF. An office requiring greater work area as well as visitor chairs will need 110 to 140 SF.

To arrive at the total area required for staff work positions you should list each job description and corresponding square footage from above. It is wise to provide one or two spare or unassigned areas for growth positions or part time help. Positions most commonly found in contemporary medical offices include:

- Reception
- Rescheduling/payment
- Office Manager
- Insurance
- Billing
- Collection
- Patient Counseling
- Surgery Scheduling
- Data Entry/Transcription
- Medical Records Clerk
- Spare/Future Use
- Telephone Screening/Switch Board

B. MEDICAL RECORDS

Many physicians are tempted to save their medical records forever. Rather than enter that debate suffice it to say that finished medical office space is a very expensive place to store inactive records. At the same time the last thing you need is to pay staff for continual trips to off-site storage locations. The right

number of medical records requires a judgment call of the average number of years a file must age before it is truly inactive. Beyond that date records should go to less expensive storage space, keeping in mind that staff will always need to access an occasional record. The most common number of years medical records are stored on site seems to be 7, but ranges between 5 and 12 depending on specialty.

To estimate your space need for medical record storage you should first measure your existing records. The number we are looking for is linear feet, which means the length of shelf required to hold all your records in line. If you use typical 36" wide 7 shelf units they each contain 21 linear feet (LF) of files. Most metal file drawer cabinets hold about 2 LF of files per drawer. If parts of your files are in boxes simply measure the depth (width) of each box and add to the total.

The next factor to consider is how many physician-years are represented by those files. Two physicians in practice together for 12.5 years will account for 25 physician-years. If a third practitioner participated for a portion of those 12.5 years and his records are part of the total measured then his time is added to the total for the practice, etc.

Based on the use of 7 shelf open front file units in the new facility the floor area required is approximately 1 SF per 1.75 LF of medical records. The following formulas will calculate space requirements for medical records:

PHYSICIAN CHARTS PER YEAR (LF/YR) = Total lf records in existing facility. / Total physician-years.

PROJECTED CHART VOLUME (LF) = Physician charts per year. X # of physicians in new facility. X # years files will be stored in new facility.

AREA REQD. FOR MEDICAL RECORD STORAGE (SF) = Projected chart volume / 1.75 LF per SF.

C. COMPUTER

The greatest need for dedicated area with a computer system is for storage of supplies and forms. If a noisy printer is used for batch processing, it should be enclosed to avoid disruption of adjacent work areas. In a rare case the main terminal/CPU/file server may require special humidity or temperature control. All these needs can usually be addressed in a single room. A space used only for computer storage should start at about 40 SF. Including a large printer increases that number to 55 SF. A room for supplies, printer, and mini/main frame needs

about 80 SF. In a large practice or clinic with a staff position for computer system supervision the room typically ranges between 120 and 150 SF.

D. WORK AREA / MAIL PROCESSING

This function requires between 40 and 80 SF depending on practice size.

E. STORAGE, BUSINESS OFFICE

No medical practice ever seems to have too much storage, but the discount associated with bulk purchasing is quickly over-run by the cost of finished medical office space. The business office should have adequate storage for operation between economically sound delivery dates.

Plan on providing about 20 SF for each of the first two physicians in a practice, an additional 10 SF each for the third through tenth physician, and 5 SF each beyond ten.

4. AUDIO / VISUAL & PATIENT EDUCATION

The use of video tape as an extension of physician and nurse based patient education has become fairly popular in most medical practice specialties. The room is sometimes used for surgery scheduling as well, so that patients can have pre & post surgical care education and schedule the procedure in the same space.

A minimum room for this purpose would provide space for three chairs, a very small table, and the A/V cart. That minimal space should start at 80 SF. Rooms with 100 to 120 SF are more flexible and could serve additional purposes, such as for consultation or future conversion to another use.

5. NURSE WORK

This area serves as the central control point for the exam block portion of a practice. It should provide adequate work area to allow nursing staff to perform paper work and phone tasks as well as patient care functions such as medi prep or minimal lab work. This is also a good area to provide dictation and telephone areas for physicians seeing patients.

A one or two physician group can be well served by a nurse station of 80 to 90 SF. Each additional physician seeing patients at the same time usually requires another 40 SF above that basic minimum. This, of course, is heavily dependent on the degree to which physicians depend on nursing support, and consequently how many nurses they employ.

6. LAB

If a practice requires a separate lab, its size should match the equipment involved and the number of employees working in it. An absolute minimum enclosed lab,

to be adequate for minor blood and urine work, is about 40 SF. If more equipment is anticipated, such as a microscope or blood analyzer, 60 SF should be the minimum. If a lab tech's desk is included, start at 120 SF.

7. EXAMINATION ROOMS

The two big questions with exam rooms are how many and how big? If designed too small it can be difficult to use and slow the exam process. Designed too big will increase physician movement within the room and therefore slow the exam. The exam room is usually the single most important space for revenue generation, so too few is very costly. On the other hand it can be one of the most expensive areas to build and equip, making excess exam rooms expensive waiting space.

The character of the practice combines with the general condition of the patient group to establish a suitable number of exams. Two rules serve as guidance: 1) never make a physician wait for the next patient to be ready; 2) minimize the time patients wait for the physician once in the exam room. Rule number 1 serves to avoid wasted physician time. Rule 2 should avoid over-provision of exam rooms.

To determine an appropriate number of exam rooms you must first establish the amount of time required for a previous patient to dress, staff to ready the room, the next patient to gown, and the staff to prep/interview that next patient prior to the physician's exam. By dividing this room turn-around time by the duration of the typical exam you arrive at a minimum exam room requirement. Most physicians are best served by increasing that minimum number by 1.5 and rounding to the nearest whole number of rooms. If the typical exam duration is 20 minutes and the turn-around time for the room is 25 minutes then:

$$\begin{aligned} 25 \text{ minute turn-around} / 20 \text{ minute duration} &= 1.25 \\ 1.25 + 1.5 &= 2.75 \\ 2.75 \text{ rounded} &= 3 \text{ exam rooms required.} \end{aligned}$$

Exam rooms must obviously be sized by specialty of medicine. Primary care exam rooms work well around 110 SF. Orthopedic, OB/GYN, and rooms with significant equipment or handicapped patients should be closer to 125 SF.

8. SPECIAL PROCEDURE AREAS

The absolute minimum room to allow circulation around both sides and one end of an exam table or gurney is about 120 SF. Such would generally be adequate for orthopedic casting or for minor endoscopy. If a more traditional mini-O.R. is desired with full perimeter working clearance for medical staff and equipment, then 250 SF is more appropriate. An E.N.T. practice can make good use of the 120 SF room, while a plastic surgeon's need can be greater. With careful

planning, special procedure rooms between 150 & 225 SF are very functional for most practice-based procedures.

In a practice with a high anticipated special procedure volume the inclusion of separate utility spaces will greatly increase the capacity of a procedure room. The first question to ask is if the physician routinely waits for the room to be turned over from one patient to the next. If the answer is yes, or if the equipment being cleaned is objectionable to patients, then a utility room could be a real asset.

A full process utility space will range between 40 and 100 SF, depending on the amount of equipment and storage involved. Where soiled and clean functions are separated, the combined total generally ranges between 100 and 140 SF.

9. RADIOLOGY SPACES

A. PROCEDURE ROOMS

A full function x-ray room that will accommodate a broad range of procedures, including standing legs, should be 180 to 200 SF. Omit the requirement for standing legs and the number can be closer to 150 SF. If a room is to be used only for extremities, then 100 to 120 SF is usually sufficient. All these areas assume handicapped and ambulance gurney accessibility. The actual requirement for procedure room size is critically dependent on the equipment used . . . do not develop a floor plan without first verifying specific manufacturer requirements.

B. WORK AREA & CONTROL

Most control consoles require only about 10 SF and are frequently placed within the procedure room itself, behind a simple screen. That does not, however, address the need for a technician's paper work area outside of the dark room. A designated area providing about five feet of work surface and the control console requires approximately 40 SF.

C. DARK ROOM

An efficient dark room for one or two procedure rooms requires 50 to 70 SF. This area does not include the film processor, but it does accommodate the chemical tanks and a large sink for roller cleaning.

D. FILM PROCESSOR / READING AREA

A film processor alone requires about 20 SF of floor area to allow servicing and maintenance. If it is located in an area accessible to physicians or staff, it should be adjacent to a bank of view boxes. The combined area for the processor and viewing function should be about 40 SF.

E. FILM FILES

This area is calculated in the same manner as medical records, with the exception that 1 lf of film files requires 1 SF of floor area. Refer to item # 3.B. above for the calculation process, and substitute "1.0 lf per SF" for the 1.75 factor used there.

10. SUB-WAITING SPACES

It is far more space efficient to provide small waiting areas near ancillary services, such as radiology, then to use exam or procedure rooms as waiting space for those services. Plan on 8 SF per chair if the sub-waiting area will be open to circulation areas(i.e. a wide part of a hallway) or 20 SF per chair if it will require privacy(such as patients in gowns). The number of seats provided should have been considered as part of the total practice requirement in item # 2 above.

If gowned patients will not be sent back to an exam room for additional consultation following the subject ancillary service then changing room(s) and clothing storage lockers should be provided adjacent to the sub-waiting area. Allow 35 SF for a wheelchair accessible changing room. Additional changing rooms can usually be about 20 SF. Clothing storage lockers do not effect the space requirement.

11. PHYSICIAN OFFICES

There are several approaches to providing private physician office space. If the physician routinely does patient consultation in his office, it should be as close as possible to the exam rooms used and provide visitor seating compatible with the physician's practice character; otherwise it is usually located for an exterior view or access to a particular function of the practice and can be whatever size desired.

One interesting variation for physician groups that do not perform consultations in their offices is to arrange very small private offices around the perimeter of a large conference/library room. This minimizes the inefficiency of non-productive private space while encouraging physician interaction. Private offices with this concept range between 45 SF for a 30"x60" desk and 55 SF for an executive desk. The inclusion of a single visitor's chair in these mini-offices would add 10 SF to either one.

Except as noted above the minimum physician office should be 80 SF, which does not allow for visitor chairs across the desk. If chairs are to be located across the desk the minimum is 100 SF. Add a wall of book shelves and you need 120 SF. Including a sofa dictates a minimum room size of 155 SF, ranging up to 190 SF.

If you plan to minimize space without being cramped, plan on physician offices of 110 SF each. The most common size is probably 120 SF, while those wanting to make a statement choose closer to 200 SF.

12. CONFERENCE / LIBRARY

To provide the typical conference setting of individuals seated around a large table requires about 110 SF for the first four people, and 14 SF for each additional person. If a wet bar or built in work surface is needed at one end of the room add another 30 SF to the total room size.

13. STAFF ROOM

The absolute minimum enclosed staff room, which is quite snug, should be about 80 SF. In such a room there would be seating for three or four people at a very small table and a sink/work surface with an under-counter refrigerator. Each person beyond that three or four will require an additional 14 SF.

There is frequently a temptation to size the staff room for full staff meetings or lunches. When you consider that this would happen at most one hour per day, and probably a lot less often than that, the square footage involved seems wasteful. A better approach is to look at eating patterns of your staff and of other medical staffs near your future location to determine a likely daily demand for eating facilities. If there are no nearby restaurants or fast food you will need a relatively large staff room. The more alternatives there are available, the less likely any staff member is to eat in every day. Full staff meetings can usually be accommodated off-hours in the waiting room, or in a conference room if provided.

An innovative approach to providing large capacity staff areas is to provide a kitchen that can be open or closed to an adjacent conference room. This will only work for staffs that clean up after themselves, and where conference scheduling does not need to include the lunch hour. You would probably be well served by providing separate access to the kitchen for staff coffee during an unrelated conference or meeting.

14. TOILET ROOMS

There are two basic issues relating to toilet facilities; how many do you need to serve your patients and staff, and how many you are required by code to have. With the current concern for communicable diseases, separation of patient and staff facilities is a common desire. Many states require separate facilities for any staff greater than a particular number of employees.

The regulatory trend now points to separate toilet facilities for male and female staff, in addition to separate toilet facilities for male and female patients. If you decide that four or more toilets are what your practice needs anyway, regulatory compliance depends primarily on proper labeling or signage. If you need fewer than four toilets it is worth the effort to have your architect check with local code officials for their interpretation of requirements. If you are in a building with

public multi-stall toilet rooms for each sex, such facilities may completely meet your requirement for public toilets.

Looking beyond regulations, most medical practices are best served by one patient toilet near the waiting room door to the exam areas and another at the far end of the facility. Both these toilets are primarily for patient convenience and privacy, so consider an additional staff toilet if circumstances should indicate the need.

For the sake of preliminary programming even before local regulations are checked, assume you will need the greater of two toilets or one for each 1500 SF (or any fraction thereof) of gross practice area. Since toilet requirements are based on a gross area, you should come back to this number and double check it at the completion of writing the program.

Recent federal regulation indicates that all required toilets must be handicap accessible. Some states require that every toilet provided, no matter who will use it or how many there are, will be handicap accessible. If you want to be conservative at this preliminary point, it is best to assume that all toilets will be handicap accessible. Again this is something to have your architect verify before actual design begins.

A single stall toilet room (simply a toilet and a sink) requires 55 SF for handicapped accessibility. Non-handicap toilets (where permitted) work well at 35 SF. Multi-stall toilet rooms do not maintain the patient privacy emphasis of contemporary medical practice, and therefore are not usually appropriate within private practices.

15. STORAGE

Storage is most useful when provided in several small areas near points of need. You can never have too much storage, but again you wouldn't want to pay for it unnecessarily either. Most practices can function pretty well with about 30 SF of well planned storage for each 1500 SF of gross practice area. This storage is in addition to that provided in the business office and will not be adequate for high supply volume practices, such as orthopedics with casting supplies and accessories. High volume supply needs should be programmed within the associated space, such as a casting room or special procedure suite.

16. UTILITY AREAS

This category can include area for specific equipment requirements like a central medical vacuum system, or space for other items requiring a special or isolated environment.

17. OTHER ASSIGNED AREAS

This category is for special areas unique to the practice or specialty. Ophthalmologists may want to dispense contact lenses; ENTs may dispense hearing aids; some physicians want exercise facilities and staff locker rooms; therapy and exercise areas may be desired.

18. SUB TOTAL -- NET ASSIGNABLE AREAS

Add all program areas listed above in items 1 through 17, and any other special areas you have identified. That total represents the facility net assignable area, or the square footage dedicated to specific and recognizable medical practice functions.

19. CIRCULATION

To get between the rooms identified above, or between open workspaces, you need to allow for circulation areas and passageways. For a typical medical practice, patient corridors work well with a 48" clear width. Practices with a high percentage of patients with wheel chairs or otherwise limited ambulation ability are better served with 60" clear corridors.

Experience shows that suites with 48" patient corridors result in circulation being about 30% of the net assignable area. For the wider patient corridor that number is about 35%.

To arrive at the appropriate square footage of circulation you simply multiply the Sub Total -- Net Assignable Area (item # 18) by .3 (for 48" corridors) or .35 (for 60" patient corridors).

20. TOTAL PRACTICE SUITE AREA

The total suite area is equal to the sum of net assignable area (item # 18) and the circulation (item # 19).

21. GROSS FACILITY AREA

If the primary mechanical equipment (heating and air conditioning) for the building is provided outside of the practice suite then the physician's gross facility area is equal to the total practice suite area (ITEM # 20). If, on the other hand, each suite is responsible for its own mechanical equipment, or is in its own separate building, then the Gross Facility Area = Total Practice Suite Area (ITEM # 20) X 1.05.

CONCLUSION

The suggested areas and approximation factors listed above will guide a physician's estimate of area requirements for a new practice suite. They are, however, not represented as being specifically accurate for any given practice, and do not by themselves assure an effective facility. Architectural programs are used to give direction to the design of a facility. How the designer interprets a program and organizes the actual spaces, will determine the efficiency and utility of the design. During that process the areas required to best serve each function will be refined, and consequently may vary from the original program.

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