# DoD Space Planning Criteria for Health Facilities
# Pathology

## 5.3.1 PURPOSE AND SCOPE

This document provides space planning criteria for pathology services in DoD medical facilities. These criteria can be used to plan clinical and anatomic pathology laboratories in small, medium, and large hospitals as well as outpatient laboratories in clinics/medical office buildings. Blood donor centers were historically part of the laboratory but because their operations have such a different focus than either clinical or anatomic pathology, they are seldom operated as part of the laboratory today and are not addressed in this document. Because military gynecological cytology is being centralized into several locations in the U. S., it also has not been included in this document.

## 5.3.2 DEFINITIONS

**Anatomic Pathology:** The branch of pathology dealing with the examination of tissues removed from a patient during surgery or an outpatient procedure. Anatomic pathology may include, but is not limited to, histology, cytology, and autopsy. A frozen section laboratory is a subset of the histology lab and is located in histology or less often in the surgery suite. Morgue operations are generally housed in a non-public area accessible to service vehicles. Non-gyn cytology includes a processing area that can be shared with histology processing and a separate quiet area for microscopic work.

**Automated Lab:** A centralized area in the clinical laboratory that performs the high-volume, automated testing of hematology, coagulation, chemistry, and urinalysis.

**Biosafety Level 3 Lab:** The Centers for Disease Control and Prevention specifies four levels of biosafety precautions for biological agents. The purpose of these levels is to define the safety precautions that must be in place to work in an area with infectious organisms or agents — the greater the potential hazard, the higher the biosafety level and the more stringent the facility requirements. Biosafety level 3 (BSL-3) labs are used by the military to work with biowarfare infectious agents; they are designed to protect staff from exposure to moderate to highly hazardous biological substances through controlled air handling, biosafety cabinet class and type restrictions, and other stringent safety requirements. BSL-3 labs can be located in the clinical laboratory, typically within or adjacent to microbiology.

**Blood Bank (or Transfusion Service):** The section of the clinical laboratory where whole blood, plasma, or blood products are tested, processed, and/or stored for future use in transfusion.

**Chemistry:** The section of the clinical laboratory performing tests on body fluids, primarily blood and urine. Subspecialties may include endocrinology (study of hormones), immunology (study of the immune system and antibodies), or toxicology (study of drugs). Chemistry is often combined with hematology and urinalysis to form an "automated lab."

**Clinical Pathology:** The branch of pathology that correlates test results to patients' signs and symptoms. Clinical pathology may include, but is not limited to, specimen collection, specimen processing, and testing in the areas of hematology, chemistry, microbiology, virology, urinalysis, molecular diagnostics, serology/immunology, and blood bank (transfusion service).

**Coagulation:** The section of the clinical laboratory testing blood clotting capabilities; typically combined with hematology or the automated lab in most laboratories.

**Cytology (or Cytopathology):** A section of the laboratory in anatomic pathology that examines cells from body fluids for evidence of cancer and other conditions.

**Front End:** A workflow term used to describe the first area specimens go through when they reach the laboratory. Specimen processing is considered at the "front end" of the laboratory.

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**Frozen Section:** Part of histology, an area that performs immediate gross and microscopic evaluation of surgical specimens. The frozen section area is typically located within histology but is sometimes in the surgical suite.

**Full-time equivalent (FTE) and Headcount:** FTE is a work force equivalent that represents one individual working full time. One FTE can also be made up of several part-time individuals whose work hours added together equal the hours of one full-time worker. For space planning purposes, the maximum "head count" of people working in the laboratory at any one time is used rather than the number of FTEs. Both FTEs and maximum "head counts" include all military, civilian, and contractor personnel.

**Hematology:** A section of the clinical laboratory that evaluates blood cells and blood disorders. Hematology receives whole blood or citrated plasma and mainly performs complete blood counts (CBCs) and other related whole blood assays. Hematology is usually part of the automated lab.

**Histology (or Histopathology):** A section of anatomic pathology that processes tissue specimens by embedding them in paraffin blocks and then prepares slides from thin slices of the blocks. These slides are stained and then given to a pathologist for examination. Blocks and slides must be stored for up to ten years, with at least the most recent two years stored on-site within the laboratory.

**Immunology:** A section of clinical pathology that tests for antibodies against the body's own cells. Immunology is usually not a separate laboratory department. Most immunology is performed in the automated lab and some is performed manually.

**Laboratory Information System (LIS):** The laboratory's computer system and software. The LIS keeps track of all orders, specimens, quality control, and test results. It is typically interfaced to the hospital information system and all high-volume instrumentation.

**Manual Laboratory**: A section of the clinical laboratory that performs the manual testing in chemistry, hematology, coagulation, and urinalysis (work that is not performed by the automated lab). It is typically located peripherally to the automated lab.

**Medical laboratory:** A laboratory where tests are performed on biological specimens to gain information regarding the health of a patient.

**Medical technician:** A graduate of an approved medical laboratory course of study usually less than three years in length and who may also hold a Medical Laboratory Technician (MLT) certification from a nationally recognized organization.

**Medical technologist:** A graduate of an approved medical technology course of study usually four years in length and who may also hold a Medical Technology (MT) certification from a nationally recognized organization.

**Microbiology:** A section of the clinical lab that tests specimens for bacteria or viruses, identifies the organisms, and determines what antibiotics are most efficacious in treating the patient.

**Molecular Pathology (or Molecular Diagnostics):** An esoteric section of the clinical laboratory that uses specialized techniques to evaluate disease at the molecular level.

**Morgue:** A room specifically arranged and equipped for the study and storage of human remains. A morgue may or may not include autopsy facilities.

**Mycology:** Part of microbiology, the area where specimens are tested for the presence of fungus.

**Office/Cubicle:** A private office is an enclosed room outfitted with either standard furniture (OFA01) or systems furniture (OFA02). An administrative cubicle is within an open room and is constructed out of systems furniture (OFA03).

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**Parasitology**: The examination of feces or body fluids for parasites; part of microbiology.

**Pathologist:** A specialized physician who successfully completed an approved graduate medical education program in pathology and an evaluation process by a certifying organization.

**Pathology:** A specialty of the practice of medicine dealing with the causes and nature of disease, contributing to the diagnosis, prognosis, and treatment through knowledge gained by laboratory applications of the biologic, chemical, or physical sciences.

**Phlebotomist:** An individual trained to draw blood samples for the purpose of testing and diagnosis.

**Phlebotomy:** A section of the laboratory responsible for drawing blood specimens.

**Point of Care Testing (POCT):** Diagnostic clinical laboratory testing performed at or near the site of patient care rather than within the central laboratory. POCT mainly uses hand-held or small instruments for immediate testing at the patient's bedside. Workspace is required in the laboratory for quality assurance and monitoring of POCT and filing of maintenance records. Also referred to as "bedside testing" or "decentralized testing."

**Reagents:** Chemical compounds or solutions that are used to perform laboratory tests; reagents may be liquid, solid, or impregnated on paper, glass, or other materials. They also have specific storage requirements — some must be stored at room temperature, others refrigerated, and still others stored at -20 or -70 degrees.

**Reference (or Referral) Laboratory:** A lab that performs tests sent from outside entities. The reference lab accessions the sample, performs requested tests, and sends results back to the entity that submitted the sample. Reference labs are used by physicians who do not have a laboratory of their own or by laboratories that do not have the instrumentation or capability to perform a specific test. The reference lab could be another DoD lab or a civilian lab.

**Referring Laboratory:** The laboratory that initiates the transport of a specimen to another testing facility for analysis.

**Serology:** A small manual testing area of the clinical laboratory that performs basic immunologic tests based on antigen/antibody reactions. Serology is usually not a stand alone section, it could be located in several sections of clinical pathology.

**Specimen Processing :** The receiving, verifying, and preparing of specimens for distribution to the appropriate testing area in a laboratory. These activities are also known as "preanalytic" or "front end" processing. Specimen processing should not be near a patient entrance and should be located near the elevator bank for easy access.

**STAT:** The medical term used to indicate a test, process, or procedure that must be performed immediately. STAT tests are generally ordered to treat patients in emergency or life and death situations; the expectation is that the test results will be reported to the physician within one hour or less from the time the test was ordered.

**STAT Lab:** A laboratory specifically designed, staffed, and equipped to perform STAT testing. STAT labs may be free-standing labs located within or in close proximity to emergency departments, intensive care units, or surgery suites. They may also be a specific section within the clinical laboratory that focuses only on providing immediate service. Today, STAT labs are rarely seen within a hospital laboratory — STAT testing is performed by the automated lab.

**Test (Assay):** A process to determine the presence and/or amount of a particular substance under study; for example, the method by which glucose is identified and measured in a blood sample is called a glucose test or glucose assay.

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**Urinalysis :** An array of tests performed on urine that are used in medical diagnosis. Also, a section of the clinical laboratory where urine analysis is performed. This area is sometimes referred to as clinical microscopy.

**Virology:** The study of viruses. Also, an area typically part of microbiology where specimens are tested for the presence of viruses.

## 5.3.3 POLICIES

**Types of laboratories.** This document provides space planning criteria and guideplates for four types of laboratories ranging in scope of service from an outpatient lab within a clinic or medical office building to a hospital-based laboratory in a large medical center. Although outpatient laboratories are generally open only during the hours of the clinic or medical office building, hospital-based labs are open 24/7. It is anticipated that components will be deleted, added, or moved from one guideplate to another to meet specific service requirements. For example, the outpatient specimen collection area could be expanded within a central hospital-based laboratory if no other location is provided within the hospital.

- **Outpatient Laboratory (Small Clinic).** This laboratory would be located in a small clinic to provide specimen collection, STAT testing, and a very limited outpatient test menu. It will be open only during the clinic hours of operation and will allow a physician to see limited test results and make immediate decisions about care while the patient is still at the clinic. This lab could handle approximately 4 to 6 patients per hour and would provide white cell counts, hemoglobin, urinalysis, and limited point of care testing (POCT) such as glucose, prothrombin time, and cholesterol. The only countertop instrumentation will be a small hematology analyzer, microscope, centrifuge, and a hand-held POCT instrument. The remainder of the testing will be sent by courier to a local hospital or reference laboratory. If there is no reference laboratory in the area, referral tests would need to be sent via express mail to a reference lab. It is assumed that patient reception and waiting areas, as well as staff support facilities, would be programmed in conjunction with the other outpatient services to be located in the facility.
- **Outpatient Laboratory (Clinic/Medical Office Building).** This laboratory would be located in a clinic or medical office building (MOB) to provide specimen collection, STAT testing, and a limited outpatient test menu. It will be open only during the clinic/MOB hours of operation, and will allow a physician to see test results and make immediate decisions about care while the patient is still at the clinic. This lab could handle approximately 10 to 15 patients per hour and would provide CBCs, differentials, prothrombin times, PTTs, urinalysis, approximately 20 basic chemistries, gram stains, and culture setup. The majority of these tests can be automated on small countertop instrumentation. There will also be tests ordered and drawn that cannot be performed in this facility — they will be sent by courier to a local hospital or reference laboratory. If there is no reference laboratory in the area, cultures would be read onsite and referral tests would need to be sent via express mail to the reference lab. It is assumed that patient reception and waiting areas, as well as staff support facilities, would be programmed in conjunction with the other outpatient services to be located in the facility.
- **Small Hospital Laboratory (less than 100 beds).** This laboratory will support basic inpatient care typically provided in a small hospital with less than 100 beds. The test menu will offer full service STAT and routine test coverage including hematology, chemistry, microbiology, histology, and non-gyn cytology. The blood bank is equipped to perform blood bank and manual serology procedures. While some esoteric tests will be performed onsite, the majority will be sent out.
- **Medium Hospital Laboratory (100 to 250 beds).** This laboratory builds on the small hospital laboratory, enlarging the existing technical areas, adding a BSL-3 lab, and increasing the sophistication of the test menu. The test menu will offer full service STAT and routine test coverage including hematology, chemistry, immunochemistry, toxicology, coagulation, urinalysis, serology, blood bank, microbiology, histology, and non-gyn cytology. POCT procedures performed by nursing staff are supported by laboratory personnel — who provide quality control review, proficiency testing, training/education, etc. Low volume esoteric tests will be sent to a referral laboratory.

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- **Large Hospital Laboratory (over 250 beds).** This laboratory will provide a broad spectrum of tests to support specialty inpatient programs as well as the high-acuity patients typically provided in hospitals with over 250 beds and academic medical centers. The test menu builds on the medium sized laboratory, adding more capacity, virology, parasitology, and molecular testing. Low volume esoteric tests will be sent to a referral laboratory.

**Types of testing and configuration of laboratory services.** There are two functional areas in the laboratory — clinical pathology and anatomic pathology. The outpatient laboratory discussed above will perform only clinical pathology testing. Hospital-based laboratories will perform both clinical pathology and anatomic pathology testing. Clinical and anatomic pathology areas are ideally located in adjacent space under one laboratory management structure. This arrangement also allows the sharing of central support space — such as conference rooms and staff lounges — and facilitates pathologist interaction. It is permissible to separate clinical pathology and anatomic pathology if space is inadequate to collocate them since these two areas rarely share specimens or technologist staff. Key service configuration considerations include:

- **Automated lab.** This is a grouping of highly-automated instrumentation into one section of the clinical laboratory, centralizing the performance of all the high-volume testing in the disciplines of hematology, chemistry, urinalysis, and coagulation. This configuration allows significantly greater efficiency and faster turnaround time than would be achievable if each of these sections were separately located and staffed. The automated lab performs tests as soon as they arrive in the laboratory so there is no need for a separate STAT lab when this configuration is deployed. In medium and large hospital-based laboratories, there is typically automated instrumentation for processing specimens prior to loading them on the instruments. Preanalytic automation ranges from units that totally automate the processing of specimens to units that only automate some of the processing steps.
- **Manual lab.** The manual lab performs the chemistry, hematology, coagulation, and urinalysis tests that are left over after all of the automation has been centralized. Included in this area would be more hands-on types of instrumentation and procedures, such as osmometry, blood gases, manual differentials, electrophoresis, etc. If there is an automated lab, there should be a manual lab as well.
- **Microbiology** in a small laboratory will typically perform only bacterial cultures. In a medium or large hospital-based laboratory, mycology, mycobacteria cultures (TB), and parasitology may be added. Mycology and TB can be performed in a separate enclosed negative-pressure room. Parasitology will be needed when working with patients who have been in a geographic location where parasitic infections are common.
- **Molecular pathology** uses polymerase chain reaction (PCR) methodologies, some of which require separation of operations into two or more rooms and may require specific ventilation requirements, such as negative-pressure. Molecular pathology labs will only be located in larger laboratories.
- **Point-of-care testing (POCT)** is typically performed near the patient and not in the lab. However, space is still required within the central laboratory. The laboratory typically oversees the point-of-care-testing program — training nurses in how to perform the tests, monitoring the quality of the tests, and performing preventive maintenance on the equipment. The laboratory POCT coordinator will need both laboratory bench space and a clerical/computer workstation and file storage to manage the POCT program.

**Major drivers of laboratory space.** The amount of space required in given laboratory will depend primarily on the following factors:

- **Instrumentation and automation.** The instrumentation required to perform the test menu in the laboratory, and the degree of automation, is the primary driver of space. In the automated lab, a very large volume of tests can be performed on one analyzer run by one staff member — test volume and staffing are not generally used to determine the amount of space required for lab operations in automated areas. The degree of automation has a significant impact on both the space and configuration of the laboratory. One new automated instrument often consolidates several manual workstations or individual instruments. Automation is taking tremendous strides — every year, more tests are available on automated analyzers, reducing the number of staff needed in technical areas and giving laboratories the capability to perform esoteric tests that they could not provide in the past.

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- **Test volume and staffing.** In highly manual areas, where automation is not yet developed, there is more correlation between test volume, staffing, and space. These areas include histology, microbiology, and the blood bank. Even in these areas, new technology is being developed to automate specific processes — within the next five to ten years, additional automation will change the facility requirements for these lab sections as well. This document assumes for planning purposes that automation will not require any of these areas to be larger than they are currently.
- **Laboratory outreach programs** involve marketing and selling tests to physicians' offices, other hospitals or clinics, veterinarians, manufacturers, companies, etc. The laboratory typically operates a courier service to pick up the specimens and bring them back to the lab for testing. The major space impact is in support services. Space must be provided for specimen accessioning and processing, courier management and supplies, marketing representatives and marketing supplies, and other client services support. In addition, courier parking and laboratory access from the parking area must be considered. If the outreach tests include manual tests such as histology, molecular, or microbiology, additional testing space may also be required.
- **Education programs** to train phlebotomists, medical technicians and technologists, medical students, residents, and fellows require a significant amount of space in the laboratory. Classrooms, study areas, administration, and offices comprise the majority of educational space, but workbenches and practice equipment for students is also required in the technical areas. Educational programs are typically found in medium to large hospitals.

**Outpatient specimen collection.** Outpatient specimen collection was historically located within the hospital laboratory. With ambulatory care/outpatient services increasingly centralized in contemporary hospitals to enhance patient convenience and expedite treatment, along with improvements in automated specimen transport systems, outpatient specimen collection is routinely performed at the point-of-care in most civilian hospitals. The space criteria in this document assume that outpatients will not generally be directed to the laboratory for specimen collection — a single phlebotomy chair and cot, one specimen collection toilet, and a small waiting area are included in each guideplate for after hours specimen collection when outpatient areas are closed. In some cases, it may be more efficient to direct all outpatients to the laboratory for specimen collection — in this case, additional waiting space, specimen collection toilets, and phlebotomy chairs will be required.

**General specimen workflow.** Most specimens are either carried into the specimen processing section by hospital staff or phlebotomists or arrive via a pneumatic tube. Typically, histology and cytology specimens are carried directly to those departments; microbiology specimens are either taken directly to the microbiology testing area or processed in the specimen processing area, depending on the ability of processing staff to handle microbiology orders. Specimens move through specimen processing into testing areas and most are stored for a period of time (typically a week) before they are discarded.

**Specimen storage.** Specimen storage can be in either a refrigerator in the department/section where testing was done or in a centralized area such as a walk-in refrigerator in the specimen processing area. In some cases, specimen storage may be at room temperature or in freezers. The storage of specimens after testing is called the "back-end" of laboratory workflow — the space need will depend on the type and volume of tests being performed. When the specimens are no longer needed, they are discarded into biohazard bags for disposal. Biohazardous waste storage must be present in all laboratories. In small laboratories, red bag receptacles may suffice; in larger facilities, a separate biohazard storage room will be required. Refrigerated and room temperature storage will also be required for reagents and supplies. The amount of space required for storage will depend on the size of the laboratory and the materials management procedures used in the hospital or outpatient facility.

**Point-of-care testing.** Currently, point-of-care testing is used primarily in physicians' offices, clinics, emergency departments, intensive care units, and surgery suites to provide rapid test results. Although many pundits state that point-of-care testing will replace a major portion of the laboratory in the future, there are few indications that this will happen until the cost per test is significantly reduced when compared with the cost of sending the sample to the central laboratory. The space planning criteria do not assume that there will be any major decrease in the space required in the laboratory due to increased point-of-care testing.

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**Preanalytic, specimen processing, or front-end automation.** Preparation of samples for testing includes receiving them in the LIS, centrifuging, aliquoting, and sorting into the racks that will go to various testing departments/ sections. Preanalytic automation is increasingly performing more of this workload. In a small laboratory, preanalytic technology is too expensive — it is cheaper to perform the processing steps manually. But as workload increases (as in medium and large hospital-based laboratories), these instruments can replace enough FTEs that their purchase or lease is cost-effective. When processing automation was first introduced to the market, only very large laboratories could afford it; but now manufacturers have developed smaller automated processing instruments that are affordable and still significantly reduce staff. The automation of front-end processes is expected to continue to evolve. From a space planning perspective, this automation should be near an entrance to the laboratory where specimens are received. Routine automated testing will be placed on the automated processors and then either hand carried to the automated lab or moved by a track system and automatically placed on the instruments. The rest of the specimens (non-automated lab specimens) will move through the processors too, but are separated into department-specific racks and hand-carried to that testing area. Because of the need to automate as much of the routine testing as possible and the growing use of track systems to move tubes to the automated lab, the preanalytic processors need to be spatially aligned with the automated lab instrumentation.

**Specimen transport.** Pneumatic tubes are used for specimen transport in the majority of hospitals across the U.S. When this specimen transport system was first introduced to the market, broken tubes, hemolyzed blood, and lost specimens were common. Now, pneumatic tubes have evolved to highly efficient, very rapid transport devices with excellent performance records — significantly reducing turnaround time. Hospitals today use pneumatic tubes for transport of blood and urine specimens and, in some innovative hospitals, even for blood products. They are typically not used for specimens that are irreplaceable, such as tissues, spinal fluid, and bone marrow. While pneumatic tube transport is by far the most common and successful transport method, it is certainly not the only one available. Specimens and paperwork can also be transported by robots that follow a predetermined pattern in the floor, moving samples from inpatient areas to the lab or moving samples from one area to another within the lab.

**Glassware washing.** With the use of disposables and pre-made reagents the need for glassware washing rooms in the laboratory is minimal. There does need to be a utility room that can be used for a deionized water system, recycling of volatiles, autoclaving, cart storage, a dishwasher, and a drying oven, along with a double sink — this utility area is all that is needed in the typical hospital laboratory environment.

**Provision of administrative offices and workstations.** Private and non-private administrative offices and workstations will be provided as follows:

- Offices, private. With the exception of the offices provided for "Key Personnel," all other private offices will be 100 net square feet as stated in Section 2.1 (General Administration). Private offices will be provided for the following personnel:
  - Staff who must meet with patients/customers on a regular basis and hold private consultations/discussions.
  - The senior officer and enlisted member of a department.
  - Staff who supervise others and must hold frequent, private counseling sessions with their junior staff. This does not include staff who supervise a very small number of people and who would only occasionally need private counseling space. These staff can use available conference rooms or other private areas for their infrequent counseling needs.
  - Any personnel who interview or counsel patients with patient privacy concerns.

- Offices, non-private or shared space. Personnel, who require office space, but not a private office, will be provided space in a shared office. Non-private or shared office space will be programmed at 60 net square feet per occupant.

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**Laboratory layout and design.** The following considerations will optimize laboratory efficiency:

- Shipping and receiving is a section of specimen processing that packages and mails specimens to other labs and receives and unpacks specimens that are sent to the lab for testing. The size of this area will depend on the volume of work flowing through it.
- Each department of the laboratory has its own requirements for bench layout and internal workflow. The discussion in this document and the guideplates provide general layout information, but laboratory staff should be involved in space planning to identify any special needs.
- Automated analyzers produce heat, make noise, and drain fluids requiring ventilation, cooling systems, sound-absorbing materials, and plumbing systems be fine-tuned to meet the needs of this equipment. These analyzers are also sensitive to temperature variances and may not work properly if the temperature is too high.
- Morgue operations are generally housed in a non-public area accessible to service vehicles; the morgue does not need to be located near the laboratory.
- The LIS will require many computer workstations throughout the lab, both in technical and administrative areas. The mainframe may be located in a computer room in the laboratory or elsewhere in the hospital or outpatient facility. In medium and large laboratories, a classroom may be needed for computer training.
- Administrative, education/training, and clerical staff space should be located at the periphery of the laboratory, separate from testing areas, but still accessible to the staff.
- The employee entrance to the laboratory should be near the staff locker/changing rooms.
- The specimen processing area should be located at or near the entrance to be used by phlebotomists and/or other staff bringing laboratory specimens to the laboratory.
- Administrative space and storage are considered "clean" areas; laboratory and processing space are considered "dirty." Since lab coats must be worn in the dirty areas and cannot be worn in the clean areas, it is helpful to develop a clean/dirty interface that employees must walk through to go from one area to the other. This interface should be a room with hooks on the wall to hang lab coats, a storage cabinet for clean lab coats, and a hand-washing sink.

## 5.3.4 PROGRAM DATA REQUIRED

The following program data is required to plan the pathology laboratory (addressed in this section):

Will an Outpatient Clinic Lab be required?
- How many FTE Receptionists are projected?
- How many daily urine specimen collections are projected?
- How many daily blood specimen draws are projected?

How many FTE Lab Technicians are projected?
Is an Outpatient Laboratory – Medical Office Building authorized?
Does the Laboratory support a Small Hospital (less than 1100 beds)?
Does the Laboratory support a Medium Hospital (101-250)?
Does the Laboratory support a Large Hospital (over 250 beds)?
Will a computer room be required within the Pathology Laboratory for an Laboratory Information System (LIS) server or other equipment?
Is a morgue/autopsy suite projected?
- How many annual autopsies are projected?
- Will a standard morgue refrigerator be provided?
- Will a walk-in morgue refrigerator be provided?
- How many annual deaths are projected?
- Will a body viewing room be provided in conjunction with an autopsy room?

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Is a Director of Pathology projected?
Is a FTE secretary projected?
How many FTE NCOIC/LCPO/LPOs are projected?
How many FTE staff will require a dedicated office? **Note:** Do not count Director or NCOIC/LCPO/LPOs
How many officer or officer equivalents are projected? **Note:** This information is used to calculate the size of the Conference Room. See Chapter 2.1 (General Administration), paragraph 2.1.2 for Personnel Equivalent Chart.
How many staff will require a dedicated cubicle? **Note:** Do not count secretary.
How many FTEs on peak shift? **Note:** This information is used to calculate the number of Staff Toilets and the size of the Staff Lounge.
Is the facility a 'freestanding' Clinic?
Will Tumor Registry be located within the Pathology area?
How many Tumor Registry clerks are projected?
Will there be vending machines in the Staff Lounge?

## 5.3.5 SPACE CRITERIA

The spaces listed below are typically required for pathology services. It is not intended that planners include all functional areas listed herein unless there is a valid requirement at the installation under consideration.

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **OUTPATIENT CLINIC LAB** | | | | |
| Reception | RECP1 | 3.72 | 40 | Minimum 40 nsf; add 40 nsf per authorized FTE receptionist. Receptionist space can be combined with the Lab Venipuncture (LBVP1) space. |
| Waiting Room | WRC01 | 9.29 | 100 | Minimum, provide 6 seats per Venipuncture station @ 16 nsf for 95% of the seating and 25 nsf for 5% of the seating (handicapped seating). |
| Specimen Collection Toilet, Unisex | TLTU1 | 4.65 | 50 | Minimum of one toilet; additional toilet for each increment of 50 specimens per day. |

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|---|---|---|---|---|
| **OUTPATIENT CLINIC LAB** | | | | |
| Lab Venipuncture | LBVP1 | 18.58 | 200 | Minimum for two drawing stations; additional chair at 60 nsf for each increment 50 specimens per day. |
| Laboratory, Satellite | LBSP1 | 9.29 | 100 | Provides space for 1 or 2 Lab Technicians. Includes bench-top analyzer, centrifuge, microscope, computer, undercounter refrigerator, blood drawing chair, and sink. |
| Lab, Small Clinic, Standard | LBSC1 | 23.23 | 250 | Provides space for more than two Lab Technicians. |
| Lab Storage Room | SRS01 | 9.29 | 100 | One per Outpatient Clinic Laboratory. |
| **OUTPATIENT LABORATORY - MEDICAL OFFICE BUILDING Authorization for this module requires a Special Study/Justification** | | | | |
| Shipping/Receiving, Minimal | LBSS1 | 23.23 | 250 | One per Outpatient Laboratory - Medical Office Building. |
| General Lab Area | LBGM1 | 88.26 | 950 | Includes chemistry, hematology/coagulation, urinalysis, gram stains, and culture set-up. Provides space for up to three Lab Technicians. |
| Central Storage Room | SRS01 | 13.94 | 150 | One per Outpatient Laboratory - Medical Office Building. |

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| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **SMALL HOSPITAL LABORATORY (less than 100 beds)** | | | | |
| Shipping/Receiving, Small (GP) | LBSS2 | 44.59 | 480 | One per Small Hospital Laboratory. |
| Automated Lab (GP) | LBAL1 | 113.34 | 1,220 | Includes automated chemistry, hematology/ coagulation, and urinalysis; for up to four Lab Technicians. |
| Manual Lab | LBMN1 | 23.23 | 250 | Includes manual chemistry, hematology/ coagulation, and serology; for up to two Lab Technicians. |
| Microbiology, Small (GP} | LMM02 | 63.17 | 680 | For up to two Lab Technicians. |
| Blood Bank, Small (GP) | LMBB1 | 48.31 | 520 | For up to three Lab Technicians. |
| Cytology/Histology Receiving (GP) | LMCY1 | 58.53 | 630 | Up to two Lab Technicians. |
| Cytology Screening and Histology (GP) | LMCY1 | 55.74 | 600 | For up to three Lab Technicians. |
| Lab Tissue Storage Area (GP) | LBTS1 | 9.29 | 100 | One per Small Hospital Laboratory. |
| Lab Microscope Slides (GP) | SRL01 | 14.86 | 160 | One per Small Hospital Laboratory. |
| Decontam/Glass Washing Room (GP) | LBGW1 | 9.75 | 105 | One per Small Hospital Laboratory; glassware washing and decontamination. |
| Central Storage Room (GP) | SRS01 | 27.87 | 300 | One per Small Hospital Laboratory. |
| Biohazard Storage Room (GP) | SRHM1 | 3.72 | 40 | One per Small Hospital Laboratory. |
| Computer Room | CMP02 | 9.29 | 100 | Depending on concept of operations. |

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**MEDIUM HOSPITAL LABORATORY (101 to 250 beds)**

| | | | | |
|---|---|---|---|---|
| Shipping/Receiving, Medium | LBSS3 | 55.74 | 600 | One per Medium Hospital Laboratory. |
| Automated Lab | LBAL2 | 185.80 | 2,000 | Includes automated chemistry, hematology/ coagulation, and urinalysis; for up to five Lab Technicians. |
| Manual Lab | LBMN1 | 41.81 | 450 | Includes manual chemistry, hematology/ coagulation, and serology; for up to four Lab Technicians. |
| Microbiology, Medium | LMM03 | 83.61 | 900 | For up to four Lab Technicians. |
| Blood Bank, Medium | LMBB2 | 74.32 | 800 | For up to four Lab Technicians. |
| Cytology/Histology Receiving | LMCY2 | 78.97 | 850 | For up to four Lab Technicians. |
| Cytology Screening and Histology | LMCY2 | 74.32 | 800 | For up to four Lab Technicians. |
| Lab Tissue Storage Area | LBTS2 | 18.58 | 200 | One per Medium Hospital Laboratory. |
| Lab Microscope Slides | SRL02 | 27.87 | 300 | One per Medium Hospital Laboratory. |
| Decontam/Glass Washing Room | LBGW2 | 18.58 | 200 | One per Medium Hospital Laboratory.; glassware washing and decontamination. |
| Central Storage Room | SRS02 | 32.52 | 350 | One per Medium Hospital Laboratory. |
| Biohazard Storage Room | SRHM1 | 7.43 | 80 | One per Medium Hospital Laboratory. |
| Computer Room | CMP02 | 9.29 | 100 | Depending on concept of operations. |

# DoD Space Planning Criteria for Health Facilities
## Pathology

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **LARGE HOSPITAL LABORATORY (over 250 beds)** | | | | |
| Shipping/Receiving, Large | LBSS4 | 65.03 | 700 | One per Large Hospital Laboratory. |
| Automated Lab | LBAL3 | 209.03 | 2,250 | Includes automated chemistry, hematology/ coagulation, and urinalysis; for up to six Lab Technicians. |
| Manual Lab | LBMN1 | 60.39 | 650 | Includes manual chemistry, hematology/ coagulation, and serology; for up to eight Lab Technicians. |
| Microbiology, Large | LMM04 | 102.19 | 1,100 | For up to eight Lab Technicians. |
| Flow Cytometry | LBFC1 | 27.87 | 300 | For up to two Lab Technicians. |
| Mycology | LMMY1 | 41.81 | 450 | For one Lab Techncians; includes anteroom at 70 nsf. |
| Parasitology | LMMP1 | 18.58 | 200 | For one Lab Technician. |
| Blood Bank, Large | LMBB3 | 120.77 | 1,300 | For up to five Lab Technicians. |
| Cytology/Histology Receiving | LMCY3 | 88.26 | 950 | For up to four Lab Technicians. |
| Cytology Screening and Histology | LMCY3 | 111.48 | 1,200 | For up to eight Lab Technicians. |
| Lab Tissue Storage Area | LBTS3 | 23.23 | 250 | One per Large Hospital Laboratory. |
| Lab Microscope Slides | SRL03 | 32.52 | 350 | One per Large Hospital Laboratory. |
| Decontam/Glass Washing Room | LBGW3 | 23.23 | 250 | One per Large Hospital Laboratory; glassware washing and decontamination. |

# DoD Space Planning Criteria for Health Facilities
## Pathology

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **LARGE HOSPITAL LABORATORY (over 250 beds)** | | | | |
| Central Storage Room | SRS03 | 37.16 | 400 | One per Large Hospital Laboratory. |
| Biosafety Level 3 Lab | BSL03 | 41.81 | 450 | Depending on concept of operations; includes anteroom at 70 nsf. |
| Biohazard Storage Room | SRHM1 | 11.15 | 120 | One per Large Hospital Laboratory. |
| Computer Room | CMP02 | 9.29 | 100 | Depending on concept of operations. |
| **MORGUE/AUTOPSY SUITE** | | | | |
| Autopsy Room | LBAR1 | 27.87 | 300 | One per 200 annual autopsy procedures; autopsy table, gross pathology workstation, scale, two sinks, and computer. |
| Locker room | LR002 | 9.29 | 100 | Per Pathology Department, can be shared with multiple labs or in a central location within the Pathology Department. |
| | TLTU1 | 4.65 | 50 | |
| | SHWR1 | 5.57 | 60 | |
| Morgue Refrigerator | LBMR1 | 2.32 | 25 | 25 nsf minimum (one space); one space per 50 annual deaths (rounded up). |
| Walk-in Morgue Refrigerator (Optional) | LBMR2 | 2.32 | 25 | |
| Body Prep Room | LBBP1 | 9.29 | 100 | One per Facility where no autopsy room is provided. |

# DoD Space Planning Criteria for Health Facilities
## Pathology

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **MORGUE/AUTOPSY SUITE Continued** | | | | |
| Body Viewing Room | LBBV1 | 9.29 | 100 | Depending on concept of operations. |
| Pathological Waste Holding Room | UTC01 | 3.72 | 40 | One per Facility with autopsy room. |
| Archives and Records | FILE1 | 7.43 | 80 | One per Facility. |
| **STAFF AND ADMINISTRATIVE SPACE** | | | | |
| Pathology Director | OFA01<br>OFA02 | 9.29 | 100 | Per authorized FTE. |
| Secretary w/Visitor Waiting | SEC01 | 11.15 | 120 | Per authorized FTE. |
| NCOIC/LCPO/LPO Office | OFA01<br>OFA02 | 9.29 | 100 | Per authorized FTE. |
| Private Office | OFA01<br>OFA02 | 9.29 | 100 | Per authorized FTE requiring private office. |
| Conference Room (GP-CRA01) | CRA01 | 23.23 | 250 | Minimum; one per Pathology Laboratory with eight or less officers (or officer equivalent personnel). |
| | CRA02 | 27.87 | 300 | One per Pathology Laboratory with 9-16 officers (or officer equivalent personnel). |
| | CRA03 | 37.16 | 400 | One per Pathology Laboratory with >16 officers (or officer equivalent personnel). |

# DoD Space Planning Criteria for Health Facilities
## Pathology

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **STAFF AND ADMINISTRATIVE SPACE** | | | | |
| Classroom | CLR01 | 37.16 | 400 | One per 'freestanding' Clinic, Hospital or Medical Center. Room furnished/outfitted with table and chairs. |
| | CLR02 | 55.74 | 600 | Total of two classrooms per Hospital or Medical Center, may be a combination of 2-CLR01 or 2-CLR02 or one of each. Room furnished/outfitted with writing arms chairs. Includes area for instructor and a screen (100 nsf) and seating (40 seats). Classrooms should be sub-dividable. Room furnished/outfitted with table and chairs. |
| Administrative Cubicle | OFA03 | 5.57 | 60 | Per authorized FTE requiring cubicle. |
| Tumor Registry Cubicle | OFA03 | 5.57 | 60 | Per authorized FTE requiring cubicle within the Pathology area. |
| File Storage | FILE1 | 5.57 | 60 | One per Department. |

# DoD Space Planning Criteria for Health Facilities
## Pathology

| FUNCTION | Room Code | AUTHORIZED $m^2$ | AUTHORIZED nsf | PLANNING RANGE/COMMENTS |
|---|---|---|---|---|
| **STAFF AND ADMINISTRATIVE SPACE Continued** | | | | |
| Reproduction Room | RPR01 | 11.15 | 120 | One per Department. |
| Staff Lounge (GP) | SL001 | 13.01 | 140 | Minimum 140 nsf for 10 FTEs on peak shift. Add 5 nsf for each peak shift FTE over 10. Maximum size is 300 nsf without vending machines and 320 nsf if vending machines are included. |
| Personal Property Locker Area | LR001 | 1.86 | 20 | Minimum for the first 10 FTEs on peak shift. Add 2.5 nsf for FTE over 10. For staff without a dedicated office/cubicle space. |
| Staff Toilet | TLTU1 | 4.65 | 50 | Minimum of one for the first 15 FTEs on peak shift. Add one TLTU1 for every additional 15 FTEs on peak shift. Can be combined into multi-stall toilets. |