PART 3: B

SPACE PLANNING STANDARDS

This section is in development and will include general space and program requirements for academic and administrative spaces.

Classroom Design Guidelines

The purpose of this document is to provide guidelines for classroom spaces throughout campus.

- Encourage interactive learning
- Provide comfortable seating with large work surfaces
- Provide for multi-media audio visual systems with good sight lines
- Have internet service connectivity
- Improve access for all users
- Are flexible and respond to future needs
- Increase classroom use rates.

The *Classroom Design Guidelines* will be used for the design of classrooms at the University of Delaware. It applies to new construction as well renovation projects. This document should be used along with the Technical Standards and the *Campus Design Guidelines* which address issues such as project procedures, management, deliverables, room numbering, communications, sustainability and engineering.

The University Architect recognizes that the University supports dynamic change in our teaching methods and that guidelines can become obsolete as changing in teaching concepts, technology, building components, and furnishings occur. Innovative design solutions that have not been anticipated by the guidelines will always be considered as part of the design review process for specific projects. Deviations from the guidelines must always be clearly identified and submitted for approval through the project manager to the University Architect.

Compliance & Special Requirements

Code Compliance

Achieving full compliance with building and fire codes is a University of Delaware requirement. Designs shall provide more comfortable seating with easier access than seating layouts that simply meet minimum requirements specified in codes. The criteria in the guidelines is intended to meet or exceed current Americans with Disabilities Act Accessibility Guidelines, fire, life safety, and other related building codes. Designers shall incorporate subsequent changes if they are more stringent.

Americans with Disabilities (ADA)

The University of Delaware requires full compliance with the ADA. Our goal is to make it as easy as possible for instructors, students and visitors to teach and learn in all university environments, and to accommodate them discreetly. This suggests design solutions that go beyond the minimum:

- Instructor and student work stations designed to accommodate persons with disabilities but which are similar in function and appearance to conventional work stations.
- Adjustable height marker boards that can be raised so they can be easily seen from the rear of the room.

- Projectors and screens designed to allow computer-generated media to be easily seen.
- Audio systems that allow both the presented material and student responses to be understood in all parts of the room.
- Flexible seating that comfortably seats people of all proportions.

Design documents and material selections should be reviewed by the Office of Disabilities Support Services.

Requirements for Design Submissions for Classroom Designs

All projects shall follow the Design Phase Submission Requirements outlined in the University of Delaware's Design Guidelines and Standards. Designs shall be sufficiently complete by the Design Development submission to provide evidence that they fully comply with the *Classroom Guidelines.* The submission will include floor plans and sections showing furnishings, markerboards, lights, monitors, screens, projectors and projection light paths, and sight lines.

Cost estimates are required to incorporate audio-visual and FFE. Funds for new furnishings and audio-visual are programmed for all projects and are part of the project budget.

Classroom Types & Layouts

Classrooms should be located as close to building entrance levels as possible to improve access and sound control. Auditoriums and large classrooms should be located close to the primary building entrance. The size of lobbies and corridors should be designed to be large enough to accommodate students waiting for class.

Consider access to natural light in the location of classrooms, access to natural light. Passive solar design including light shelves and daylight sensors should be included.

The following are the general types of classrooms that the University uses:

Auditorium

Auditoriums generally support scheduled classes of larger than 100 students. They serve multiple academic disciplines and some non- instructional events.

Description: Rooms typically have a multi-media audio-visual system with seats oriented towards the front of the room and writing surfaces for each student. In general, we do not consider theaters or concert halls which are not generally used for instructional purposes as part of this room type.

Traditional Classroom

These rooms are primarily used for scheduled classes of multiple academic disciplines with a seating capacity from 21- 99.

Description: Rooms typically have a multi-media audio-visual system, with seats primarily oriented towards the front of the room and writing surfaces for each student.

Collaborative Classroom

These classrooms primarily house scheduled classes of multiple academic disciplines with a seating capacity from 21-99.

Description: Rooms typically have a multi-media audio-visual system; seating is flexible and varied to allow for rapid re-organization and focus of the room; walls have multiple writing surfaces and furniture provides for writing surfaces for each student.

Seminar Room

Seminar rooms are primarily for scheduled classes of multiple academic disciplines with a seating capacity of 12-20 students. As a secondary use, seminar rooms may also serve non-instructional purposes.

Description: Rooms typically have a multi-media audio-visual system, with seats generally around a table, enabling students and instructor to easily interact with each other.

Distance Learning

A distance learning room is a classroom, seminar room, or auditorium with specialized audio-visual and communications equipment that allows the instructor and students to communicate visually and orally with people located outside the room.

Description: Includes cameras, microphones, and visual display devices. Rooms should be able to send and receive communications.

Room Size and Proportion

Classrooms need to be large enough to comfortably accommodate the number of students that will be in the room. Classroom design must also consider the type of furniture design and technology equipment, as well as be flexible to allow for different styles of teaching and instruction.

The following space standards and furnishing types shall be used to estimate the total usable floor area of a classroom during the programming of a project:

SF PER STUDENT	CAPACITY	ROOM TYPE	FURNISHINGS
26-28	20	Seminar	Table and Chairs
22-24	21-32	Classroom	Moveable Table and Chairs
20-22	40-48		Moveable Table and Chairs
21-23	60-99		Fixed writing surfaces and Moveable Chairs
19-21	100-119	Auditorium	Fixed writing surfaces and Moveable Chairs
19-21	120-199		Fixed writing surfaces and Moveable Chairs
18-20	200-300		Fixed writing surfaces and Moveable Chairs
16-18	300-		Auditorium seating with Tablet Arms

Furniture layouts shall be developed during schematic design and room data sheets will be produced to validate the program. The shape of the room, size and types of furnishing proposed, and any other design issues will impact the size and proportion of a classroom.

Room proportions are critical. The proportions of a classroom impact sight lines and the ability to have teacher/student or student/student interaction.

For each classroom size and layout Sight Line diagrams shall be presented as part of the schematic design and Room Data sheet submission:

- Determine the number of screens and monitors
- Determine the general location, size and orientation of each screen or monitor
- Verify the dimension and clearances of the teaching station
- Show viewing angles
- Show access and circulation aisles

Instruction Area for General Use Classrooms

The size of the instruction area in the front of a classroom should be well planned and designed.

- The teaching station should accommodate a multi-media workstation for a laptop and print material.
- Provide for task lighting.
- Provide ample circulation to access white boards and the student seating area   Fixed writing surfaces and Moveable Chairs
- The front of the room should allow for both projection and marker board use at the same time
- All students should have a clear view of projected images.
- To provide good sight lines – show a sectional sight line diagram

Acoustics

Locate classrooms distant from high noise sources like heavy mechanical equipment, elevator machine rooms, and heavy traffic. Design classrooms to provide adequate acoustical separating from other interior and exterior noise sources. Meet or exceed the following requirements:

- 50 STC   Walls, ceilings, floors and moveable / foldable partitions
- 40 STC   Doors and windows near high noise areas
- 28 STC   Doors and windows near low noise areas
- An overall noise level in empty rooms under NC 35 with heating or air conditioning systems in operation.
- Target 0.75 reverberation time (acceptable range is 0.6-1.2)

The acoustical engineer's report shall be included in the design development and construction document submittals. The report should minimally include sound transmission, noise level, and reverberation time calculations and recommendations to improve acoustic performance.

Corridors, Entrances/Exits, & Exits

In determining the widths of corridors, the number, size and proportion of entrances building codes are not the only criteria to consider. Corridors should be designed to provide comfortable and efficient pedestrian circulation, welcoming places to sit while waiting for class or to meet with a professor. These areas should have suitable lighting, data and power for laptop use. Alcoves along corridors are desirable for casual meetings, study and to provide visual interest or space. Provide space to wait for elevators.

Entrance and exits to classrooms should not impact corridor traffic. In smaller classrooms, a recessed entrance is preferred. In large classrooms, an entrance alcove or lobby is required. The lobby should be designed to reduce noise and light from entering or leaving the classroom. Doors should be located so students arriving late can find seats without disrupting class:

- Locate at least one door near the rear of the seating area.

- Provide access aisles that allow easy access to all seats.
- Provide sidelights or vision panels alongside doors to allow people in the corridor to see if the room is in use.

Surface Treatments & Colors

All material selections will be submitted through the Project Manager for review and approval by the University Architect. A list of submissions and requirements is incorporated in the Design Guidelines.

A color board illustrating the colors and materials, and products including their sustainability qualifications both in manufacture, installation, and durability shall be included with the Design Development submission.

The Acoustics section provides guidance on the acoustic performance of surfacing materials. Carpet, however, should be avoided in most classrooms for more durable and easily maintained materials. Exceptions may include rooms where

- Eating and drinking are restricted
- Sound absorption is the highest priority (possibly distance learning classrooms)
- Operating budgets are sufficient to insure proper maintenance
- Raised floor systems are required.

We currently do not have pre-selected color palettes. We do recommend:

- Colors behind marker boards and projection screens/monitors should be darker than in other areas of the room to reduce light reflections when media is in use.
- Colors for furnishings and millwork should coordinate with the public areas of the building
- Colors should be interchangeable for furnishings so that items can be moved from room to room

We are always pursuing strategies to reduce maintenance and repairs in our facilities. We advise the following strategies:

- Chair rails should be used in classrooms with moveable furniture. They should be wide enough to be effective with tables and chairs of various heights. We general recommend protecting wall surfaces in the range of 28-33" above the finish floor. Base moldings should be made from easily cleaned materials with a minimized dust ledge.
- Wall corners in high-traffic areas should be protected from damage. With the Design Development submission, the design team will prepare a plan drawing to show the location and type of wall and wall corner protection for the project.
- High impact drywall should be used in high traffic areas to a minimum height of 5 feet above the finish floor.
- Washable paints or wall surfaces should be used in high traffic areas to a minimum height of 33".

Furnishing Types and Layouts

During the design phase we evaluate the selection and layout of furniture based on:

- The type, size, and location of furnishings
- Flexibility of use

- Aisle width and seat spacing
- Flexibility to accommodate people of different sizes and needs
- How computers and media will be accommodated
- Location of power, data, types and variety of lighting switches and controls.

Recommended seat spacing for classrooms and auditoriums is as based on the following design intent:

- Allow students who arrive late to find seats with minimum disruption
- Improves accessibility for handicap students

For classrooms with moveable seats: minimum spacing should be 28" on center.

For classrooms with fixed and continuous work surfaces: minimum of 36" per student in rows with up to 18 students. For rows with 19- 24 seats, provide a minimum of 38" per student.

For access aisles, provide a minimum of 36 inch wide aisle leading to the front of the room.

The first review of furniture and layouts will occur in Schematic Design. Designers will adjust room floor areas based on review and comment from the University Architect.

Student Seating & Work Surfaces

The University of Delaware has conducted several surveys of students, faculty, and staff to determine preferred seating types. While opinions vary on the merits of specific models, wide consensus has been reached on the major design decisions:

- Classroom seating up to 50 students shall be designed with individual desks and chairs or combo desks. This gives the instructor the flexibility to break classes down into small groups and then quickly move furnishings back into a traditional layout.
- Classrooms seating more than 50 students will have a fixed work surface. In these larger classrooms, it is best to layout the room to allow students to more easily communicate with each other and the instructor. Good sight lines to the screen and the instructor must be provided.
- Provide about 4sf of usable work surface for each student (generally a minimum of 20" deep by 28" wide)
- Provide for both right and left handed students
- Provide for wheel chair accessible furniture. For each accessible work station, provide the same number to accommodate students who are very large.
- In general we do not recommend arm rests on classroom chairs

Instructor Workstation/Podium- In development

Renovated Classrooms

We understand that renovation of classrooms must deal with many restraints. We expect our consultants to find creative solutions to these challenges. Here are a few examples of classroom renovation that we consider successful:

Design for Flexibility & Computers

Avoid the following:

- Plastic floor outlets
- Raised floor outlets (create tripping hazards)

Marker Boards

Provide marker boards in classrooms as follows:

Room Type	Room Depth	Fixed Height	Adjustable Height
Seminar	Less than 30ft.	Min 48 sf (4X12)	NA
Classroom	Less than 50ft.	Min 48sf (4x12)	Min 32 sf (4x8)
Larger Rooms	Greater than 50ft.	Min 64sf (4X16)	Min 32 sf (4x8)

Fixed height marker boards should be mounted with the bottom edge at 42" above the finish floor.

- Provide low-gloss white surface that is easy to clean
- Be illuminated by lights on a separate switch that do not spill over onto screens, other marker boards or the wall behind the marker board
- Have a continuous marker tray below the marker board surface and a wall mounted holder that is large enough for six markers and an eraser.

Audio Visual Systems- In development

Teaching Laboratory

USE Type	Net Square Feet
Highly intensive	105
Intensive	70
Moderately intensive	50
Non-Intensive	33

Administrative Space Guidelines

The following space allocations will serve as a guide for planning purposes. .

OFFICE	NET SQUARE FEET
Senior Administration	225
Professional	150
Department Chair / Director	150
Faculty Office	120
Secretary/Administrator	90
Graduate Student	50

OPEN OFFICE PLAN (with Systems Furniture)	NET SQUARE FEET
Graduate Student	48
Secretary/Administrator	64
Staff/professional	80

OFFICE SUPPORT ALLOWANCE

50 NSF per employee for conference rooms and office support spaces to be calculated. Do not include graduate student areas in this calculation.

RESIDENCE HALLS

Space Type	NET SQUARE FEET
Standard double room	195-205
Complex Coordinator	
Building Lounge	
Complex Lounge	
Mail Room	