UNM Learning Environments Design Guidelines

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Introduction

The University of New Mexico (UNM) Learning Environments Design Guideline (LEDG) was developed to provide guidance and consistency in meeting the complex and varied needs of UNM learning environments with a specific focus on pedagogical, sustainability, and efficiency goals in accordance with UNM's 2040 Strategic Framework. Although the Learning Environments Design Guidelines are developed to articulate design principles rather than standards and regulations, this document references requirements that are articulated in other places, such as the federal Americans with Disabilities Act, IBC (International Building Code) which is the State of New Mexico adopted building code, ANSI (American National Standards, UNM policies, standards, guidelines, and the 2040 Strategic Framework. Collectively, the LEDG and referenced documents are intended to provide design professionals with guidance to design consistent and high-quality learning environments that can be sustainably maintained, make efficient use of limited resources, and allow for the flexibility required to adapt to the changing needs of the university. As such, the LEDG was developed to create a tradition of excellence in learning environment design and utilization at UNM and should be systematically applied in the design of learning spaces, owned or leased, on all UNM campuses and properties.

In alignment with the UNM 2040 Strategic Framework, the UNM Integrated Campus Plan, and contemporary trends and best practices, these guidelines represent evidence-based practices to prioritize:

- **Inclusive Learning Environments** - Foster inclusive, equitable, and accessible learning environments.
- **Flexible and Agile Spaces** - Prioritize flexibility and adaptability to accommodate diverse teaching methods.
- **Technology Integration** - Integrate technology to support teaching and learning seamlessly into learning spaces.
- **Sustainability and Health-conscious Design** - Promote sustainability, health, and wellness in classroom design.
- **Community Building and Social-Emotional Learning (SEL)** – Provide spaces that support community building and Social-Emotional Learning, and the development of collaboration, communication, and creativity skills.

Acknowledgements

The contents of the Learning Environments Design Guidelines reflect the efforts of many individuals at UNM, past and present, including professionals in planning, architecture, engineering, information technology, instructional design and pedagogy, and facility maintenance, as well as UNM faculty, staff, students, and administrators. All have contributed to building a strong tradition of excellence for UNM learning environments, including the original authors and those making subsequent revisions.

Update and Approval Process

Changes in influences, teaching approaches, building systems, and available furnishings frequently influence the process of design for learning environments. While effort is made to update and maintain the present guidelines, the LEDG and referenced documents may at times become out of step with current best practices. Innovative design solutions that are not anticipated by the guidelines may be considered as part of the design review process during specific projects. Departure from the current guidelines related to facilities must be fully justified by the design professional and approved by the Associate Vice President of Facilities Services. Any deviation from technology standards should also be discussed with UNM's Chief Information Officer or their delegate. It is the responsibility of the Project Manager to highlight guideline deviations in a project and to bring them to the attention of responsible parties.

This document will be maintained by a committee consisting of representatives from UNM IT, Institutional Support Services, The Office of the Provost, and the Scheduling Office. It is expected that committee members will consult with each other and their constituencies when proposing any changes. The committee will meet once a year to review and/or edit this document. Any of the offices named above can schedule an ad hoc meeting to keep this document current, as needed.

From Code Compliance to Strategic Design

Meeting the needs of an institution like UNM requires intentional planning of facility needs and a strategic vision for how those spaces support the university today and in the future. All UNM facilities must attain full compliance to all applicable codes established by the New Mexico Construction Industries Division (CID) of the New Mexico Regulation and Licensing Department, IBC (International Building Codes as adopted by the State of New Mexico), and ANSI American National Standards Institute in addition to federal requirements such as those found in the Americans with Disabilities Act.

The purpose of the LEDG is to articulate the ways in which standards for UNM learning environments may exceed or extend the minimum requirements established in building codes to design flexible and accessible spaces that can support the strategic goals of the university. These goals include sustainability, increased use of technology, accessibility needs, and a growing number of supplemental requirements for space impacting the size, style, and density of learning environments. Through intentional planning, the university can make the most efficient use of limited resources, ensure effective utilization of the spaces and technologies that we have, and allow for flexibility to support the changing needs of the institution.

Inclusive Learning Environments and Accessibility

UNM places a high priority on accessible learning environments and actively seeks full compliance with requirements as defined in the Americans with Disabilities Act (ADA) Standards for Accessible Design, Architectural Barriers Act (ABA) Accessibility Standards, American National Standard Institute (ANSI) and related legislation and guidance. Beyond legal compliance, UNM recognizes

that accessible design supports all students, faculty, and staff, not just those who need accommodation. As such, the LEDG is intended to promote the latest recommendations defined in Universal Design for Learning (UDL). From a design perspective, UDL implies that instructional needs, accessibility, and flexibility are the foundational design considerations, and that the physical space, curriculum, and technology needs are included early in the design process.

Physical Space Design

New construction and remodel projects are expected to meet all applicable ADA regulations with thoughtful consideration of the experience of students and instructors with accessibility needs, not just ensuring that the design meets code requirements. For example, designs that only include the bare minimum space for a turning radius or place buttons and controls that are minimally within height and location constraints may satisfy the code but are not proactive in promoting accessibility. Examples for incorporating UDL guidelines into learning spaces include:

- **Wheelchair accessibility:** At least 5% of tables/workspaces must be wheelchair-accessible (exceeding the 2% ADA requirement). This accessibility must allow individuals the opportunity to fully participate in classroom activities, including breakout groups and collaboration with other classmates.
- **Flexible seating:** Mobile furniture and adding quiet zones to accommodate neurodiverse learners[1].
- **Adaptable Furniture:** Furniture should be comfortable and include some options that accommodate a variety of body shapes and needs, including height adjustable furniture where possible.
- **Variety:** Classroom chairs are available with and without arm rests, and collaboration spaces include a variety of different seating and work surface options, to support diverse individuals with diverse needs.
- **Sensory inclusive:** Noise-canceling areas, adjustable lighting, and predictable wayfinding to improve focus for students.

Existing construction is being updated to meet ADA requirements. The UNM Facility Access Committee (FAC) oversees the prioritization of projects (sites, facilities, buildings, and elements) for this transition. The following rating system is currently utilized by the FAC to prioritize the projects that will advance UNM's accessibility compliance:

- **Priority A:** Urgent Non-Compliance – Life Safety Issue
- **Priority B:** Important Non-Compliance – Program or Workplace Issue / Special Accommodation Request / Disruption of Primary Accessible Route / Many Complaints
- **Priority C:** Negligible Non-Compliance – Routine Maintenance Issue / Disruption of Secondary Accessible Route / Few to No Complaints

[1] Nisbet, J. (2023). Universal Design for Learning: Principles and Examples for 2023. Available at https://www.prodigygame.com/main-en/blog/universal-design-for-learning/.

- **Priority D:** Compliance – Desired Accommodation

As described above, in accordance with legal requirements, ethical obligations, and UNM's 2040 Strategic Plan, UNM has an ongoing commitment to creating accessible and inclusive spaces.

Flexible and Agile Spaces

Flexible learning environments are essential to support diverse teaching methodologies, enhance student engagement, and maximize space utilization. All new and renovated learning spaces at UNM must prioritize adaptability to meet current and future pedagogical needs.

Flexible learning spaces are essential components of modern educational environments, offering significant benefits for both students and instructors to promote student engagement, collaboration, well-being, and academic success while enabling instructors to adopt innovative pedagogical approaches.

Why Flexible Spaces Matter

1. **Enhanced Student Engagement and Collaboration**
    - Flexible learning spaces foster active learning by enabling students to interact more frequently with peers and instructors. Kariippanon et al. (2018)[2] found that students in flexible environments spent more time collaborating, engaging with classmates, and participating in student-centered learning activities compared to traditional classrooms.
    - Woolner et al. (2012)[3] observed that students in flexible spaces described their interactions with teachers as more relaxed, which positively impacted their learning experiences.
2. **Improved Learning Outcomes**
    - Multiple academic studies such as the Mammadov et al. (2023) meta-analytic review published in *Contemporary Educational Psychology*[4] show that increases in

[2] Kariippanon, K.E., Cliff, D.P., Lancaster, S.L. *et al.* Perceived interplay between flexible learning spaces and teaching, learning and student wellbeing. *Learning Environ Res* **21**, 301–320 (2018). https://doi.org/10.1007/s10984-017-9254-9

[3] Pamela Woolner, Jill Clark, Karen Laing, Ulrike Thomas, & Lucy Tiplady. (2012). Changing Spaces: Preparing Students and Teachers for a New Learning Environment. *Children, Youth and Environments*, *22*(1), 52–74. https://doi.org/10.7721/chilyoutenvi.22.1.0052

[4] Mammadov, S., & Schroeder, K. (2023). A meta-analytic review of the relationships between autonomy support and positive learning outcomes. *Contemporary Educational Psychology, 75.* https://doi.org/10.1016/j.cedpsych.2023.102235

student autonomy and agency is linked to positive learning outcomes.

- Integration of technology and interactive resources in flexible classrooms further enhances learning by capturing students' attention and maintaining motivation.

3. **Support for Diverse Pedagogical Needs and Teaching Styles**

   - Flexible spaces accommodate various teaching methods, such as lecture-based instruction, group collaboration, and hands-on activities. This adaptability ensures that students with different learning preferences can engage effectively with the material.

   - Lomas and Oblinger (2006)[5] emphasized that flexibility fosters diverse teaching styles tailored to subject matter, learner needs, and intended outcomes.

4. **Positive Impact on Student Well-Being**

   - Research by Kariippanon et al. (2018) highlighted students felt more comfortable and less stressed in flexible environments due to the availability of varied seating options, mobility within the space, and opportunities to refocus away from distractions.

   - Flexible spaces also support physical movement, which has been shown to improve metabolism, boost mental cognition, and enhance overall behavior.

5. **Instructor Innovation**

   - Flexible classrooms inspire instructors to explore new pedagogical techniques. Rands and Gansemer-Topf (2017)[6] found that adaptable spaces facilitated the use of diverse engagement strategies while encouraging creative teaching approaches.

Key Design Principles

- Reconfigurable Furniture
- All seating and tables must be easily movable by a single user.
- Furniture should support quick transitions between lectures, group work, and individual study.
- Chairs on casters
- Flexible room design with at least 2 options to configure the front of the classroom.
- Provide clear instructions for safe operation of movable elements.

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[5] Lomas, C. & Oblinger, D. G. Student Practices and Their Impact on Learning Spaces, *Learning Spaces*. EDUCAUSE (2006). https://www.educause.edu/research-and-publications/books/learning-spaces

[6] Rands, M. L. & Ganesmer-Topf, A. M. (2017). The Room Itself Is Active: How Classroom Design Impacts Student Engagement. *Journal of Learning Spaces,* 6(1), 26-33.

- Technology Integration
- Distributed power access points (floor, walls, furniture)

Technology Integration

Technology requirements are more completely described in subsequent sections, but technology is an increasingly crucial tool for teaching and learning, and planning for incorporation of technology in the classroom should be a key consideration in the design or retrofit of any learning environment.

The addition of more technology usage in classrooms specifically calls on the designer to plan for access to power, high speed Wi-Fi for the occupancy of a room (assuming each occupant has multiple devices), and integration of cameras, microphones, and presentation display surfaces (televisions and projectors).

In addition to the physical requirements imposed on classrooms in terms of power, network, and equipment, designers should be aware of and plan for the fact that technology can serve as both an assistive device and a learning tool that may require additional accommodation. Technology considerations are mentioned here because technology choices supporting UDL have an impact on the physical requirements for space and the necessary supporting infrastructure. At their best, technologies in the classroom can improve accessibility, support sustainability, and facilitate presentations, communication, collaboration, and delivery of multimodal content.

Assistive technology examples:

- Adjustable height tables
- Automatic door openers
- Accommodation of remote participants in a classroom
- Noise canceling zones for sensory inclusivity aligned with autism research.
- Support for multimodal content delivery
- Speech to text and screen reader software
- Closed captioning and assistive hearing devices.

Sustainability and Health-Conscious Design

One of UNM's 2040 Goals is to "[c]reate long-term sustainability and ensure the necessary resources – human, financial, and physical – to achieve our aspirations while protecting the natural environment that supports all people of the state and the world." UNM has several ongoing initiatives toward achieving that goal, including projects by the Office of Sustainability to improve the university's energy efficiency and the development and implementation of an Integrated Campus Plan to make recommendations on land development, connectivity, safety, signage, and wayfinding.

The LEDG is intended to help designers navigate UNM's sustainability standards, guidelines, and

initiatives which influence UNM learning environments. New Mexico Executive Order 2006-001 requires all new state building and remodels over 15,000 square feet to be built to U.S. Green Building Council LEED Silver certification or above. Details on building commissioning on LEED buildings can be found on the UNM Sustainability Office website.

UNM's Integrated Campus Plan provides design recommendations for the coordinated placement of infrastructure, including open space, roads, pedestrian/bicycle access, and parking. It also identifies existing land use districts and mobility maps for the UNM campuses to help identify proper infill areas.

A complete list of standards and guidelines, including those related to sustainability may be found at the UNM Institutional Support Services standards and guidelines website.

Community Building and Social-Emotional Learning (SEL)

With a growing awareness of the importance of student mental health and belonging and institutional desires to improve student outcomes and retention, researchers have increasingly noted the importance of community building on student outcomes, including initiatives such as First Year Experience cohorts and First Year Learning Communities.[7] Building on Vincent Tinto's model on student retention (Tinto, 1993[8]) and later work by Pascarella and Terenzini, institutions are working on integrating students into the academic environment to increase student belonging and persistence (Pascarella & Terenzini, 2005[9]). Consequently, higher education institutions have developed strategies to enhance academic and social integration by focusing on the "first-year experience" (FYE) (Jamelske, 2009[10]; Reason et al., 2006[11]). This research recognizes the fact that student success is dependent on small group interactions with students, faculty, and staff inside and outside of the classroom, with the classroom being a primary venue for building connection to an academic community.

While many of the elements of Social-Emotional Learning are dependent on the interactions that students, faculty, and staff have with each other, the built environment creates the conditions in

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[7] van der Zijden, J. P., & Wubbels, T. (2023). Socio-emotional support in Higher Education: Evidence from First Year Learning Communities. Journal of University Teaching & Learning Practice, 20(6), 1–30. https://doi.org/10.53761/1.20.6.23

[8] Tinto, V. (1993). Leaving college: rethinking the causes and cures of student attrition / Vincent Tinto. University of Chicago Press.

[9] Pascarella, E. T., & Terenzini, P. T. (2005). How college affects students: A third decade of research (2nd ed.). Jossey Bass.

[10] Jamelske, E. (2009). Measuring the Impact of a University First-Year Experience Program on Student GPA and Retention. *Higher Education: The International Journal of Higher Education and Educational Planning*, *57*(3), 373–391. https://doi.org/10.1007/s10734-008-9161-1

[11] REASON, R. D.; TERENZINI, P. T.; DOMINGO, R. J. First Things First: Developing Academic Competence in the First Year of College. **Research in Higher Education**, *[s. l.]*, v. 47, n. 2, p. 149–175, 2006. DOI 10.1007/s11162-005-8884-4. Disponível em: https://research.ebsco.com/linkprocessor/plink?id=75f2b588-b173-3a89-b946-446d96a1a5b7. Acesso em: 13 maio. 2025.

which interaction occurs. Designers are encouraged to consider SEL factors in the remodel of existing spaces and design of new ones. The following strategies offer examples of design choices for the built environment that can effectively support student and staff health, wellness, and SEL when implemented with supporting programs.

- Variety and Choice in Spaces
    - Flexible, Multimodal Areas: Provide a range of spaces for different activities—collaborative zones, quiet study nooks, and areas for movement. This variety allows students autonomy and agency, supporting diverse learning and emotional needs.
    - Ergonomic and Adjustable Furniture: Use height-adjustable desks and chairs to accommodate different body types and preferences, enhancing comfort and focus.
- Sensory Comfort and Control
    - Lighting: Maximize natural light with large windows and use warm, adjustable artificial lighting. With New Mexico's bright sun, solar shading may be needed to reduce glare and anxiety triggers as well as to make projections and displays visible. Avoid harsh fluorescent lights.
    - Acoustics: Incorporate sound-absorbing materials and design quiet zones or sensory rooms for students who need to decompress or self-regulate.
    - Air Quality and Temperature: Ensure good ventilation and maintain comfortable temperature ranges, as these factors are linked to improved mood, concentration, and overall well-being.
- Access to Nature and Outdoor Spaces
    - Outdoor Classrooms: Utilize courtyards, patios, or green spaces for instruction. Exposure to nature reduces stress, improves attention, and supports both mental health and SEL development.
    - Views to Nature: Design classrooms with windows that offer views of greenery or natural landscapes, which are shown to boost mood and cognitive performance. Particularly for southern and western windows, shades may be needed to reduce glare.
- Spaces for Privacy and Restoration
    - Quiet Zones and Sensory Rooms: Designate areas where students can retreat for calm and self-regulation, equipped with soothing lighting, soft furnishings, and sensory tools.
    - Restorative Spaces: Include wellness rooms or "chill zones" that allow for emotional decompression, supporting self-advocacy and emotional resilience.
- Support for the Whole Person
    - Cultural and Community Spaces: Incorporate design elements that reflect local history, culture, and community identity, fostering belonging and emotional safety.
    - Welcoming Entrances and Wayfinding: Use clear signage and inviting entryways to reduce anxiety and promote a sense of security and orientation.
- Environmental Quality and Safety
    - Cleanliness and Maintenance: Maintain high standards of cleanliness and repair to support perceptions of safety and well-being.
    - Balanced Visual Complexity: Avoid overstimulation with clutter or excessive visual noise while providing enough interest to engage and inspire.

- Integration of Technology and Resources
- Accessible Tools and Supplies: Ensure that technology and learning materials are readily available, supporting both academic and emotional needs.
- Support for Counseling and SEL Programming: Design spaces that facilitate access to mental health professionals and SEL instruction, such as private counseling rooms or group meeting areas.

Special Requirements for Design Submissions

All projects are to follow the requirements and protocols for design submission and review, as established in the ICP and Institutional Support Services Standards and Guidelines, especially Facilities Design and Construction Standards and Guidelines. The project manager will route a Pre-Design or Programming document, for appropriate signoffs by the user representatives, prior to all design phase submittals. This document must at minimum specify the scope of work, the design intent, and the specific goals of the project with respect to the learning environments included in the project. Compliance with the LEDG will be under review beginning in the Pre-Design phase and extending through all subsequent phases of each project. To make an appropriate evaluation of the design and an accurate assessment of its components, the following items will be required for each design submission in the design phases indicated:

Submittal	**Phase**	**Requirement**
Preliminary Budget	P SD	To include funding amounts allocated to Consultant Services and FF&E (furniture, fixtures and equipment).
Furnishings Plan	SD DD CD	To include for each learning environment all FF&E elements such as: chairs, tables, lecterns, equipment carts, instructor workstations, marker boards, projectors, projection screens, lights, controls, switches, data outlets, wireless access points, power receptacles, floor junction boxes, etc., as well as projection paths to seats, sight lines to instructor & media surfaces, egress paths, accessibility door clearances, wheelchair turning & clear floor spaces, etc. Final approval by the Fire Marshall is required.
Typical Section	SD DD CD	To include items as mentioned above, with indications of pertinent height dimensions.
3D Digital Model	DD CD	To include all elements within the learning environment. Model format: Autodesk Revit. This requirement is not an additional service in the A/E contract.
Acoustic Engineer's Report	DD CD	To include calculations of sound transmission, noise level, and reverberation time, as well as recommendations to improve acoustic performance in existing situations.

Cost Estimate	DD CD	To include the FF&E budget (established in pre-design) and line tabulations for each item. It is unacceptable to reduce the FF&E budget to pay for cost increases in other areas of the project.
Security Intent Narrative	PD	To include overview of the intentions and elements of the security strategy.
Security Plan	PD SD DD CD	To include initial risk assessment, access control, CCTV, and other security enhancements as well as recurring costs. The final Security Plan will be filed with the departments and with the UNM Police Department.

P = Planning, PD = Predesign, SD = Schematic Design, DD = Design Development, CD = Construction Documents

Space Type Definitions

UNM is responsible for conducting, reporting, and maintaining an institutional space inventory that provides basic information regarding space categorization and coding, space utilization and availability, space allocation and assignment, and space efficiency and maintenance. This information permits UNM to assess the adequacy of its current space, to determine the operation costs of its facilities, and to plan for its future space needs. The types of UNM learning environments are defined below and coded according to the Postsecondary Educational Facilities Inventory and Classification Manual (FICM). They are defined primarily by the following parameters:

Space Type & #	Floor Type	Seating Type	Room Size
Lecture, Seminar, Auditorium, Studio	Flat, Tiered, or Sloped	Fixed or Movable	Small, Medium, Large or Extra-Large

Please note: UNM identifies instructional technology standards for these space types. Descriptions of these standards can be found in the Audio-Visual System Standards section of these guidelines.

Capacity

UNM space types are not defined by strict boundaries between seating capacities, as may be the case with conventional guidelines from other post-secondary institutions. There may be “overlaps” in capacity when comparing space types. For example, it is possible to have a 126-person learning studio and a 126-person auditorium, but it is not possible to equate these space types formally or functionally. The same may hold true for the comparison between larger seminar rooms and smaller lecture rooms, or between larger lecture rooms and smaller auditoriums. Overlaps in capacity should remain flexible, and therefore capacity should not drive the formal and functional definition of the space types.

In general, UNM’s classroom space standard for flat-floor classroom space is 25-30 assignable

square feet per seat.[12] Specialized class labs and active learning studios may require 30-35 assignable square feet per seat or more to meet functional needs. While UNM follows the room type definitions found in the FICM, the university prioritizes standardized room functionality, maintaining parity for room technology, furniture, and environmental features. The room types listed in the subsections below should therefore be used as an aid in determining the predominate programming in a room and not as a prescribed design standard.

Seminar Room

The Seminar Room primarily serves the needs of conversation and discussion and secondarily for presentation. These rooms are ideally arranged so students can see and hear each participant equally well. Typically, these rooms include:

- Series of modular tables arranged in an island or doughnut configuration.
- At least 60" W (72" W preferred), height-adjustable tables to serve at least 5% of users
- Perimeter seating to allow greater flexibility.
- Larger seminar rooms intended for frontal arrangement should be designed to function equally well for presentation and for collaborative learning formats.
- Primary presentation wall, with markerboard and screen
    - Markerboards on perpendicular walls will enable the room to be used in alternate configurations.
- An unobstructed view of the projection screen from all seats.
- Power and data for a ceiling-mounted data projector with a wiring pathway to a floor junction box located under the table near where the instructor will sit.
- Outlets for power, data, and audio-visual system wiring in the junction box.

See the Audio-Visual Systems section of these guidelines for details on instructional technology for these spaces.

Lecture Room

A Lecture Room should be designed to function equally well for presentation or for collaborative learning. Typically, these rooms include:

- Furnishings in lecture rooms with flat floors should be movable, including tables on casters.
    - Tablet armchairs are not recommended for lecture rooms, as they are poorly designed for laptop use and accessibility requirements.
    - Open style chairs should be included to accommodate different body types.
- At least 60" W (72" W preferred), height-adjustable tables to serve at least 5% of users

[12] University of New Mexico Space Policy Recommendations (draft), April 14, 2022, Sasaki Space Planning Consultants.

- Power and data for a ceiling-mounted projector with a wiring pathway to a floor junction box located under the location of the instructor station, and power for motorized screen at the front of the group.
- Power and data, as needed, for other AV in the room (e.g., additional monitors, cameras, ceiling microphone, etc.).
- Markerboards at the front of the room and on adjacent walls to facilitate collaborative configuration.

See the Audio-Visual Systems section of these guidelines for details on instructional technology for these spaces.

Auditorium

An Auditorium is an extra-large learning room primarily used for presentation-style teaching. Its defining feature is the use of fixed seats mounted on tiered or sloped floor so that each seat has a clear, unobstructed view of the primary wall where the instructor and instructional media are located. Typically, auditoriums include:

- Adequate aisle widths for students to easily come and go, and sufficient instructor space at the front.
- Primary instructional walls should include vertical or horizontal sliding markerboards and a large, motorized projection screen, wider spaces should include 2 large, motorized projection screens.
- Power and data for a ceiling-mounted projector(s) with a wiring pathway to a floor junction box located under the location of the instructor station, and power for motorized screen at the front of the group.
- Power and data, as needed, for other AV in the room (e.g., additional monitors, cameras, ceiling microphone, etc.).
- Front rows may be configured to encourage interactive discussion when the room is not full.
- Remaining seats are normally arranged in a gentle arc within the viewing angles of all projection screens.
- If a collaborative learning style is desired in the auditorium, swivel seats may be provided to allow individuals to face the row behind them.
- To minimize room depth in large auditoriums (400 or more seats), consider using auditorium-style seats with tablet arms, instead of task chairs and tables.
- Height adjustable tables to serve 5% of users in multiple locations within the room.
- Auditorium seats are required to be labeled per ADA standards if they are intended for ADA seating and located on ground level with no required steps up or down.
- Additional lectern and tables at the front and back of the room.

See the Audio-Visual Systems section of these guidelines for details on instructional technology for these spaces.

Active Learning Studio

Active learning studios are designed to emphasize collaborative learning among students and minimal presentation by the instructor. Students are seated at large round tables to facilitate teamwork, and the walls include working surfaces and video monitors to present student work. Typically, active learning studios include:

- Large round tables, resembling a banquet hall, approximately 7 feet in diameter, table seating capacity of 9 students: 3 groups of 3 students each.
- Instructor station with AV system controls in the center of the room to diminish the perception of a "front of the room."
- Computing at the tables, typically with a laptop computer provided for each team (typically three students per team and three teams per table).
- Power and data supplied from floor boxes through the center of the table or may come from above on a coiled feeder line.
- Power and data for a ceiling-mounted projector(s) with a wiring pathway to a floor junction box located under the location of the instructor station, and power for a motorized screen at the front of the room.
- Power and data to support large LCD displays mounted above 7 feet at perimeter of room. The number of displays is to be determined by sight lines and room coverage.
- Power and data, as needed, for other AV in the room (e.g., cameras, ceiling microphones, etc.).
- Wireless access points sufficient to support all laptops in the room plus up to 3 additional devices per total room capacity.
- Markerboards surround the perimeter of the room for multi-directional instruction and collaborative work.
- Zoned perimeter lighting to provide a darkened background to displays and projection screens.
- Carpet for acoustic attenuation during multiple activities and noisy discussions.
- Occupancy sensors to shut off lights, and power strips to shut off equipment when not in use.
- Raised floor for flexible table locations, cable runs, and to allow retrofitting of IT.
- In larger rooms, a microphone is connected to a perimeter speaker system for each instructor station and student table.

See the Audio-Visual Systems section of these guidelines for details on instructional technology for these spaces.

Class Laboratory

A class laboratory is a room used primarily for regularly scheduled classes with university course numbers. Class laboratories require special-purpose equipment for student participation, experimentation, observation, or practice in the field of study. The class laboratory is specially

equipped to serve the needs of a particular discipline for group instruction in regularly scheduled classes. The design of these rooms and/or the equipment in them normally limits or precludes its use by other disciplines. Examples are rooms in which lab sections of a course are held.

Included in this category are the following room types:

- Class Lab – Wet
- Class Lab – Dry
- Class Lab – Computer
- Class Lab – Art
- Class Lab – Music
- Class Lab – Clinical/Observation
- Class Lab – Production
- Class Lab – Design
- Class Lab – Language
- Class Lab – Performance

Design features (such as size and shape) vary widely in class laboratories. During the programming phase of a project, the design capacity, furnishings, and equipment planned for these room types must be clearly identified. AV systems for class labs may require modification to be compatible with specialized lab equipment or custom- designed furnishings. However, basic concepts such as providing good sight lines for all students will still apply. Similar judgment must be used to adapt other applicable guidance to the lab design.

Class Lab - Wet

A Wet Class Lab is a room used for formally or regularly scheduled classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in academic discipline methods that require water or utility services. It is a room used primarily for scheduled instruction in one of the physical sciences (e.g., biology or chemistry). Specialized equipment and furniture such as lab benches, fume hoods, and gas valves may be present in these rooms. Access to water is required.

The UNM Lab Airflow Safety Standard is to be implemented, consisting of supply air control valve(s), general exhaust control valve(s) and lab exhaust control valve(s) along with associated airflow controls. Also required is airflow testing & balancing, fume hood certifications and pressurization sealing of the lab spaces.

Class Lab - Dry

A Dry Class Lab is a room used for formally or regularly scheduled classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in academic discipline methods that do not require water or utility services.

Class Lab - Computer

The Computer Class Lab is a room used for formally or regularly scheduled classes that require computer equipment or a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline that uses computers.

Computer Class Labs are designed with the AV system of a small or large lecture room, depending on room size. Typically, there is sufficient power and data for 1 computer per student. The main characteristic of a Computer Class Lab is hands-on computing by students during class time. Student computing stations should be oriented appropriately to maintain optimum lines of sight between faculty and student, taking into consideration individual large monitors for each station.

Optimally, student computer station tables should be 72" wide and at least 30" deep for 2 students, to provide adequate space for large monitors and students' personal items. There should be 60" W (72" W preferred) adjustable-height tables to accommodate at least 5% of the student stations in the room. Cable management trays should be added to all tables, preferably with a single large grommet in the top center of the table for cables for all equipment on the table, rather than individual grommets for each user station. Power and data may be provided in the walls, floor boxes or power poles, but should be designed into the room to allow for maximum flexibility to reconfigure the room to meet future instructional preferences. Ideally, there should be additional power available on each table to personal devices in addition to equipment provided in the lab.

Furniture should accommodate Class Lecture (LEC) pedagogical standards. Standard LEC chairs should be provided. See Facilities, Design, & Construction furniture standards for more information.

Class Lab - Art

An Art Class Lab is a room used primarily for scheduled instruction in art. Specialized equipment such as easels, pottery wheels, kilns, worktables, benches, or elevated platforms for models or subjects may be required. These spaces may have additional safety and ventilation requirements.

Class Lab - Music

A Music Class Lab is a room used for formally or regularly scheduled ensemble classes that require special purpose equipment or a specific room configuration for student musical participation, experimentation, observation, or practice in an academic discipline. These rooms require acoustic attenuation and may require special audio equipment.

Class Lab – Clinical/Observation

A Clinical/Observation Class Lab is a room used for formally or regularly scheduled clinical/observational classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline.

Class Lab - Production

A Production Class Lab is a room used for manipulating video and film images.

Class Lab - Design

A Design Class Lab is a room used primarily for scheduled instruction in various kinds of design. Disciplines such as architecture, graphic arts, and mechanical design may use this type of room. Specialized equipment and furniture such as layout tables and tack boards are present in these rooms.

Class Lab - Language

A Language Class Lab is a room used for formally or regularly scheduled language classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline. Specialized equipment such as recording and playback devices, microphones, and headphones are present in these rooms.

Class Lab - Performance

A room used primarily for scheduled instruction in one of the performance arts such as dance, music, or drama. Specialized equipment such as audio equipment, special lighting or acoustic equipment or specialized flooring may be required in these rooms.

Study Space

Study Space may be either a room or an area used by individuals to study. It is not restricted to a particular subject or discipline and contains no specialized equipment. Study Spaces vary in size to accommodate groups of two to twelve students often within a private/semi-private room that can be acoustically isolated for a variety of study situations but can also be located within open areas. The rooms are typically, but not always, adjacent to other types of open, informal, and collaborative learning spaces. These spaces should have ample means of visual surveillance to and from the area. There should be ample work surface, power and data outlets, and at least one large whiteboard.

Collaboration Space

Collaboration Spaces are informal study spaces that are not isolated within a room. They are located within the interior of a building and offer a variety of study arrangements. The primary features which distinguish them from the Learning Commons (see the following section), are the ad hoc and varied nature of the spaces, as well as their lack of dedicated support.

Such areas are created to provide students with places to informally interact, study, and gather between classes and during extended breaks.

In renovations, Collaboration Spaces are typically created from the under-utilized areas within buildings and transformed into comfortable and supportive learning environments. These spaces are renovated with an emphasis on improving lighting, acoustics, and ergonomics for informal learning. In addition to providing new, contemporary furniture and finishes, these spaces may be fitted with artwork from the UNM Art in Public Places Committee. As Collaboration Spaces are adjacent to, or within, corridors and exits, it is important that projects which create such spaces carefully address code issues regarding these elements. The minimum required clear dimensions of egress routes and exits should never be compromised by the presence of furniture in these spaces.

Campus spaces that are leftover, marginal, or peripheral to primary usage, and which are often under the responsibility of no specific department for their care and maintenance, can be improved in this manner to support the academic mission of the university.

Collaboration Spaces can be designed in a variety of ways, but they should always be located within or directly adjacent to corridors and foyers. Such spaces range from smaller alcoves containing a few seats to larger atria containing many seating types and arrangements. They should foster continuity with the formal learning environment, providing places for students to continue discussions and share information before and after scheduled class-time. These types of spaces also offer students a place to wait for class, read, use laptops, and generally interact and informally collaborate with each other.

Collaboration Spaces within a building should vary in type, size, and location as much as practically possible. Because their specification is somewhat indeterminate, the design of these spaces should be carefully negotiated with applicable building efficiency standards. If not designed properly, these spaces can negatively impact the overall sustainability of a building by lowering the building's efficiency ratio.

Learning Commons

A Learning Commons is a multi-functional resource and service environment, typically found within library reference and study spaces, grounded in the use of digital technologies. The Learning Commons typically features student computing facilities; technology, including printing, charging stations and makerspace technologies; collaborative study furniture; teaching rooms for information literacy; integrated library service desk; and café or other food space. Students have access to library and internet resources, productivity software, makerspace technologies, capture and output peripherals, individual and group study spaces, reference assistance, and technical support – all in one location.

The Learning Commons not only integrates technologies, references, and services but also facilitates learning in which students engage critically with information and actively participate in the acquisition of knowledge. The Learning Commons represents a greater functional integration of learning support and in some cases may extend to support academic staff. Its foundation is student culture that is centered on collaborative and computing-intensive learning.

High density wireless connectivity is required, along with ample sources for power. Power and data locations within the Learning Commons must coordinate with their associated furniture arrangements.

Networking Standards and Wireless Connectivity

The wireless coverage standard for classrooms is based on Aruba Wi-Fi 6/6E (802.11ax) access points. A classroom design should support 30–40 active devices per AP radio, ensuring that wireless devices have reliable capacity and performance during instruction.

For large auditoriums, wireless design should account for 50–70% occupancy. For example, an auditorium with 800 seats should be planned to support 400–550 active users. This typically requires multiple access points strategically placed throughout the area to ensure balanced coverage and efficient spectrum usage.

In high-density event areas such as the SUB Ballrooms, wireless demand can be significantly higher due to the concentration of attendees. These areas should be engineered as high-density environments, using additional APs, proper channel and power planning, and the 6 GHz spectrum where supported. When events exceed normal design capacity, supplemental coverage can be provided with Wireless on Wheels (WOWs) or portable APs.

Modern design emphasizes capacity, spectrum efficiency, and user experience rather than a simple AP-to-device ratio. Aruba features such as ClientMatch and AI-driven optimization in Aruba Central further enhance performance, ensuring seamless roaming and balanced client distribution across the wireless network.

To support these standards, the wired infrastructure must also be considered. Aruba Wi-Fi 6E access points often require 802.3bt (PoE++) for full performance and may benefit from multi-gigabit uplinks (2.5/5 Gbps) on access switches to prevent bottlenecks. Planning should include properly sized power budgets on switches, adequate cabling to support higher speeds, and sufficient uplink capacity to the core network.

Audio Visual System Standards

UNM Academic Technologies provides standards for audio visual (AV) systems by classroom size and type. Room types for AV control systems are defined by size and configuration and are not parallel with the Space Type Definitions listed above. For example, the AV control system for a class lab could be configured as a Small Classroom, Large Classroom, or Conference Room, depending on the size and function of the space. The room types for AV control systems are as follows:

> **Small Classroom** – Small classrooms generally include seminar rooms, lecture halls, and class labs with a capacity of 30 or less. Small classroom AV equipment typically includes a single display, audio speakers, video camera equipment, and instructor station with simple

control panel, desktop computer, internet connectivity, laptop connectivity, and audience response system.

Large Classroom – Large classrooms generally include lecture halls with a capacity of 30 and larger class labs that require two displays and vocal reinforcement. Large classroom AV equipment typically includes dual displays, audio speakers, microphones for vocal reinforcement, video camera equipment, and instructor station with simple control panel, desktop computer, internet connectivity, laptop connectivity, and audience response system.

Auditorium/Lecture Hall – Auditoriums and lecture halls require more complex AV systems due to their size and pedagogical requirements (e.g., hyflex). Auditoriums and lecture hall AV systems are often customized to the specialized configuration and purpose of the space. However, AV equipment typically includes multiple displays, audio speakers, microphones for vocal reinforcement, video camera equipment, external line return (XLR) connectivity support, digital signal processing (DSP), and instructor station with simple control panel, desktop computer, internet connectivity, laptop connectivity, document camera, and audience response system.

Group Study – Group study rooms include small seminar rooms and study rooms where an instructor station is not required. These rooms do not include a control panel or cameras for video conferencing. AV equipment in group study rooms typically includes a single display, speakers, and laptop connectivity.

Conference – Conference rooms include small seminar rooms and study rooms where an instructor station is not required, but a control panel and cameras for video conferencing are needed in the space. Conference rooms are typically equipped with a single display, audio speakers, laptop connectivity, a video camera package, and simple control panel.

A matrix of equipment for each room type is included below:

	Small Classroom	Large Classroom	Auditorium / Lecture Hall	Group Study	Conference
Single Display	X			X	X
Dual Displays		X			
Multiple Displays			X		
Audio Speakers	X	X	X	X	X
Instructor Station/Podium	X	X	X		

Laptop Connectivity	X	X	X	X	X
Desktop Computer	X	X	X		
Simple Control Panel	X	X	X		X
Video Package	X	X	X		X
Audience Response	X	X	X		
Internet Connectivity	X	X	X		
Microphones (Vocal reinforcement)		X	X		
Document Camera			X		
XLR Support			X		
DSP			X		

All design instances that are identified for any of these categories must provide these baseline technologies. As technology develops, additional computing-enabled learning technologies could be integrated as baseline elements for all learning environments. For these reasons, UNM IT Academic Technologies should be involved in the programming stage of a building or remodeling project to better understand the needs and provide technology solutions that are in keeping with or build upon existing UNM standards. Involving UNM IT Academic Technologies during programing is critical for UNM to support and sustain the technology during and after the AV contractor's initial warranty period.

Room Design

Room Location

Learning rooms should be located near building entrances to improve access and reduce noise levels in other areas of the building. Large learning rooms should be in proximity to primary building entrances and large circulation corridors. Such corridors should be large enough to accommodate students waiting for their classes to begin. The strategic location of rooms for access to natural light should be considered a fundamental requirement for all learning environments. Rooms with windows facing north can be more easily designed to provide adequate blackout capability and energy efficiency than rooms with windows facing other directions. Passive solar design features should be considered for rooms having the capacity for direct solar gain. While natural light and passive solar design increase the energy efficiency of the building and provide views that connect

the classroom to the external environment, special considerations for window shading need to be incorporated into the design so that audio visual systems within the space are not washed out with natural light. Where existing learning spaces do not meet these conditions, subsequent renovation/remodel projects should discover opportunities to adequately resolve them.

Corridors, Doorways and Access Aisles

The configuration of corridors, doorways, and access aisles is critical to the success of learning environments. Movement of students within and between learning environments significantly impacts the way learning environment's function and the way students learn within them. All circulation elements should be designed as extensions of the learning environments that they serve, and should offer the same basic criteria for comfort, functionality, and access. Corridors, doorways, and access aisles are often referred to as "break-out" spaces when they incorporate some dimension of informal learning.

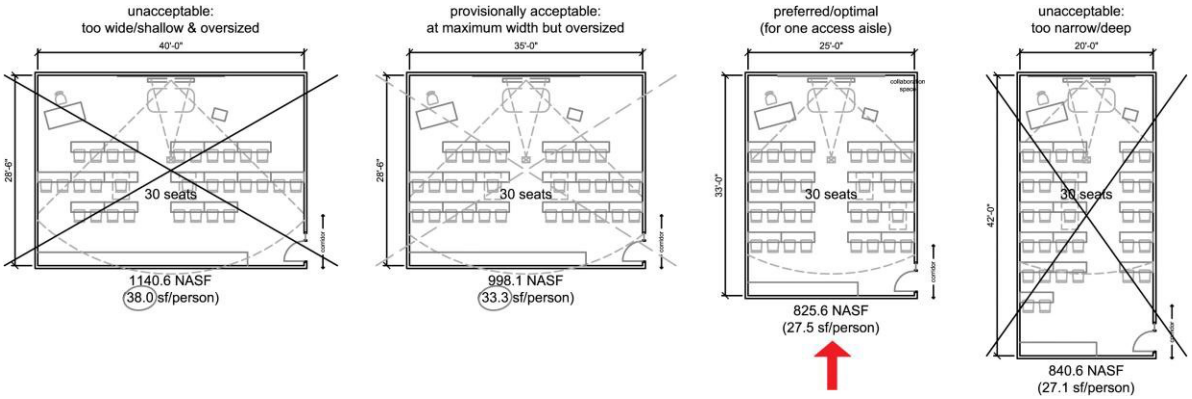
Where practical, corridors should be comfortable places for sitting, socializing, reading, using laptops, and waiting for class whenever practicable. Such vestibules can function as an informal learning environment before and after scheduled class times.

Doorways must always provide ample clearance and should be designed to facilitate accessibility, including a plan for automatic door openers or alternative means of facilitating accessible access. Doorways that swing outward from the room should be recessed so that doors do not swing into the corridor. Doorways to larger learning environments must provide ample space to relieve the congestion that occurs during class transitions and should integrate with corridor alcoves whenever practicable. Vision panels should be installed in or near doors to allow students to check whether the classroom is in use. Panels should be narrow to reduce transmission of light from the hallway.

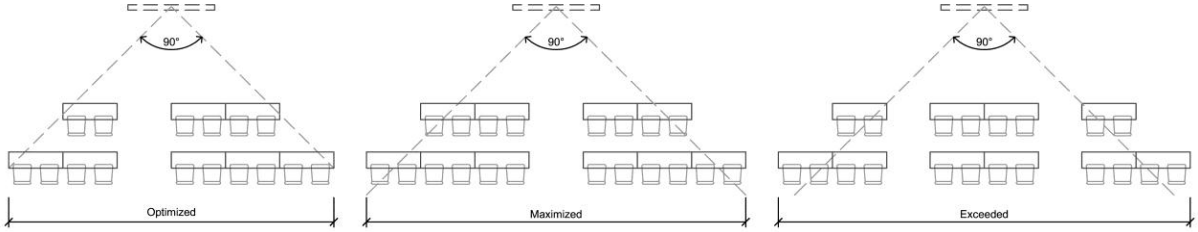
Access aisles within the rooms should allow ample flow through the learning environment while also complying with accessibility standards and fire codes. Because learning environments with movable chairs and tables may be configured in many ways on an ad hoc basis, it is important that reference diagrams be provided for each room to depict acceptable configurations and clearances. Primary access aisles should be minimally 36 inches wide minimum. Secondary access aisle should be minimally 32 inches wide minimum.

Room Proportion

Room proportion significantly influences the way instruction takes place in the learning environment. Rooms that are too wide inhibit the instructor's ability to maintain eye contact, provide more instructor space than is needed, and typically have poor sightlines, especially from seats in front corners. Rooms that are too deep make it hard for students seated in the back to hear the instructor, to interact with the entire group, and to see whiteboards and projection screens. They also force a narrow instructor space, causing instructor stations to interfere with views to the front.



Relationship between Room Proportion, Viewing Angle, and Throw Distance.

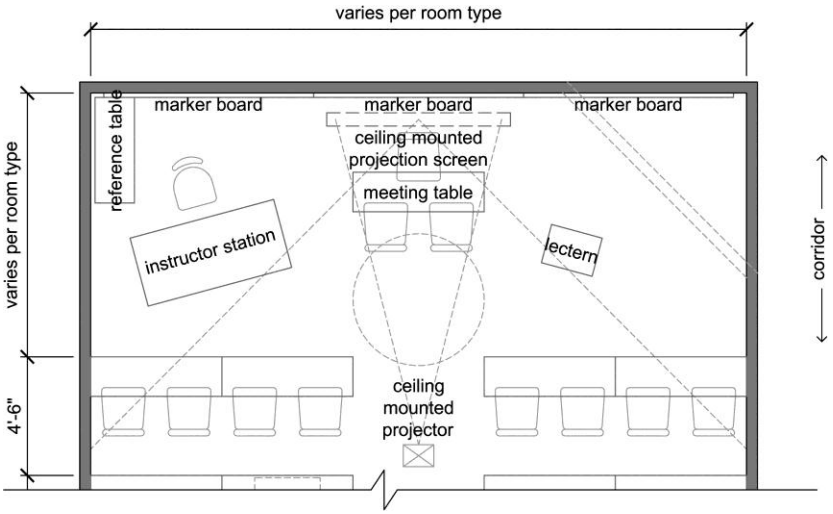


Relationship between Room Width and Viewing Angle (based upon a standard 45-to-60-degree view angle from center of screen). NOTE: DRAWINGS CAN BE CHANGED TO REFLECT A 60 DEGREE VIEWING ANGLE.

Front of Room

The front of the room is an important design feature for those learning environments which support forward-facing instruction. Forward-facing seating should be set back to a minimum depth of 9 feet at the front of the room to accommodate a multimedia instructor station, a reference table, portable equipment, and circulation space.

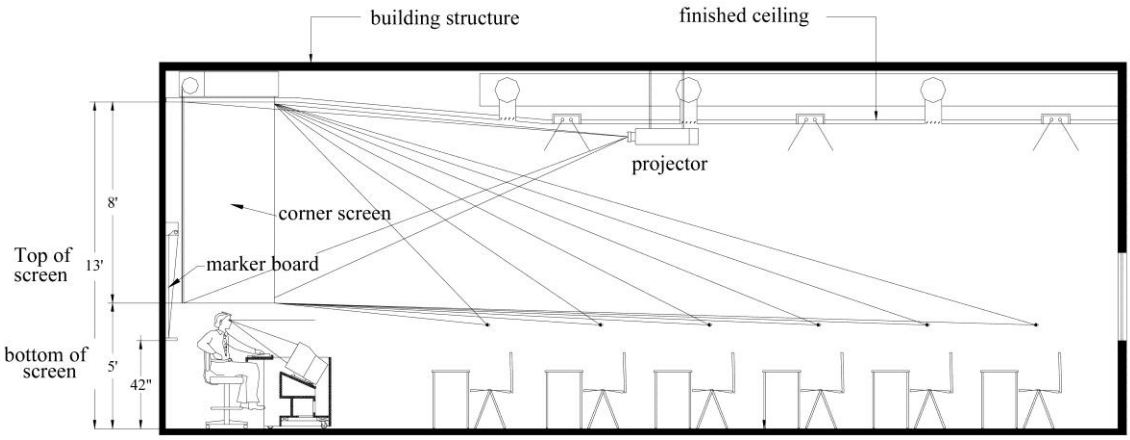
Rooms that are intended for alternative and flexible seating arrangements and that allow students to face multiple directions should be supplemented by flat screen monitors that are mounted in strategically accessible locations. The instructor station should also have an alternate location to the center of the room. The width and height of the front of the room should be based on criteria for room proportions and sight lines discussed below.



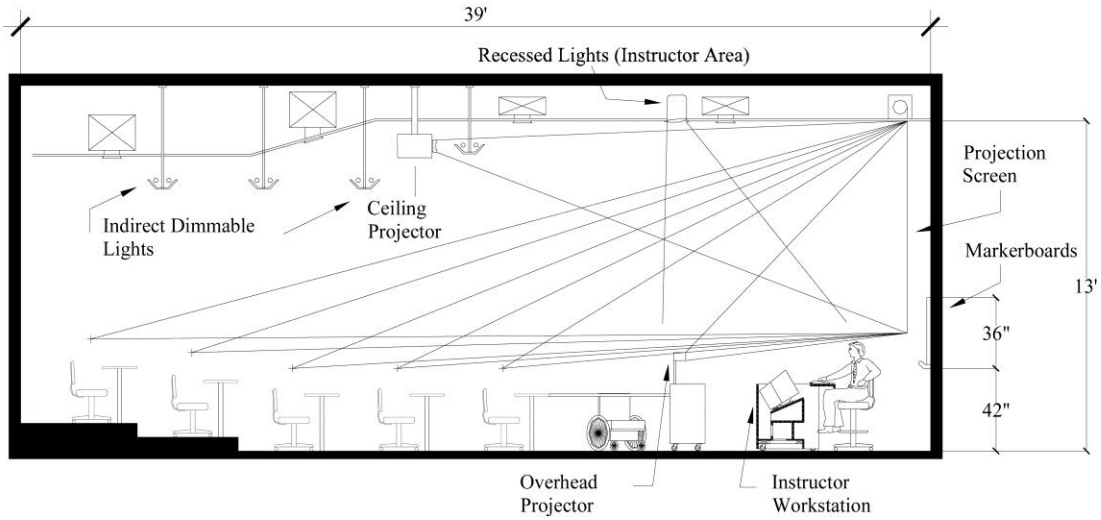
Layout in Front of Room.

Sight Lines

Fixed seating arrangements should be vertically tiered and horizontally staggered to ensure proper sight lines to the front of the room. Ceiling heights at the front of the room should be minimally 12 feet to provide ample projection height.



Sightlines to Projection Screen in Flat-Floor Room. (from Univ. of Cincinnati).



Sightlines to Projection Screen in Tiered-Floor Room. (from Univ. of Cincinnati).

Acoustics

Learning rooms should be located an appropriate distance away from high-noise sources such as mechanical equipment, heavy vehicular traffic routes, music practice rooms, stadiums, food courts, or outdoor spaces that are frequently used for noisy activities. Spaces, such as restrooms, which generate noise and are adjacent to learning rooms should be acoustically modified for minimum disruption. Learning rooms should be designed to provide adequate acoustic separation from all other interior and exterior noise sources and should meet the following minimum sound transmission class (STC) requirements:

- 50 STC – at walls, ceilings, floors. Movable or folding partitions are discouraged, as substantial costs are associated with bringing them to compliance. Partition walls that do not extend to the deck of the floor above should extend sound-attenuating materials to the deck.
- 40 STC – at doors and windows near high-noise areas.
- 28 STC – at doors and windows near low-noise areas.

Regardless of room size, location, or construction type, an overall noise criterion (NC) rating in empty rooms should be at or below NC-35 and should be met with the heating and air-conditioning system in operation.

Wall, ceiling, and floor surfaces shall provide good acoustics. The design of large learning rooms (over 50 seats), auditoriums, and distance-learning rooms require special acoustic attenuation, and the services of an acoustic engineer should be obtained. The following should be provided:

- High-reflectance materials near the instructor that project sound to the back of the room.

- Sound-absorbing materials on ceilings and on the upper levels of walls in the rear.
- Target 0.6 seconds reverberation time for unoccupied furnished learning rooms. Core learning spaces ≤ 283 m3 (≤ 10 000 ft3) shall be readily adaptable to allow reduction in reverberation time to 0.3 seconds. (See *ANSI/ASA S12.60-2010/Part 1 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools* at http://asastore.aip.org/shop.do?pID=594)
- Design features such as angled walls and ceilings may be required to ensure sounds can be clearly heard without distortion in all parts of the room.

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

Finishes and Colors

Soft flooring materials such as carpeting should be avoided in most learning rooms. Soft flooring is usually more difficult and costly to keep clean than hard-surface finishes. Exceptions can be made in rooms where:

- Food and drinks are not allowed, especially in computer instruction labs.
- Acoustics are especially important, particularly in distance-learning rooms and music and dance class laboratories.
- Unique use requires a luxury vinyl tile floor finish rather than resilient flooring.
- Operating budgets are sufficient to ensure proper maintenance.
- Raised floor systems are proposed to improve energy efficiency and reduce costs.

Colors of finishes, furnishings, and audio-visual components shall be fully coordinated. A color board illustrating the colors, materials, and products proposed for all these elements shall be included in the Design Development submission. Colors for finishes should be selected from palettes that are compatible with the existing color scheme in use in adjacent areas to the project.

Colors in the front of rooms behind marker boards and projection screens should be darker than in other areas to reduce light reflections when media projectors are in use. Standards for interior paints may be found on the UNM Facilities, Design and Construction Standards and Guidelines web page. Colors for furnishings and AV components should be coordinated with finish colors used in the same building or on the same campus. Neutral colors are preferred so these items can be moved from room to room.

All learning environments with movable furnishings should include chair rails wide enough for the specified tables and chairs. Mounting height should typically be 28-33 inches above floor finish. Wall corners in high-traffic areas should be protected from damage. Low-maintenance finishes are strongly preferred. Typical solutions include:

- Hard-surface or resilient flooring with durable surface coatings.
- Gypsum wallboard on steel studs.
- Epoxy coatings or other durable materials on wall areas within reach of people.
- Sound-absorbing materials are located beyond arm reach.

Only low-VOC architectural coatings should be used. All interior finish materials must comply with NFPA 101 and be of Class A or B only.

Room Furnishings

Stimulating and successful learning environments require careful study of the type, size, and location of furnishings planned for each type of room. Furnishings should be selected for durability, ease of maintenance, quality, warranty, comfort, ergonomics, durability, flexibility, accessibility, reasonable economy, design options/compatibility, and favorable previous product experiences at UNM. The selection of seating types and their arrangement should accommodate people with different body types and those with specialized needs. They should also accommodate computers and audio-visual components as needed. Impact on aisle width and seat spacing should be evaluated early in the design process, especially in remodel projects where room sizes may be fixed.

The type, size, and arrangement of furnishings greatly determine the size of each learning room and the location of lights, diffusers, and power/data outlets within them. For each learning environment, the seating capacities developed in pre-design must be met and ensured by the subsequent design. ADA furniture should contain a label according to ADA standards.

Please see UNM's Classroom Furnishings Guidelines, available from the Facilities, Design, and Construction Standards and Guidelines webpage, for specific information regarding furnishing standards.

Remodel Projects

Projects that remodel or renovate existing learning rooms typically encounter increased design constraints over those in new construction. In such cases, the designer may inherit difficult room shapes, room orientations, or entrance locations and must negotiate the location of the front-of-room, markerboards, and projection screens to the best possible configuration. Remodels typically result in reduced seating capacities and efficiency ratios. This must always be considered beforehand in the establishment of overall occupancy and utilization objectives for the project, so that final counts do not fall short of anticipated needs. Remodel projects also encounter a variety of code issues which must not be compromised. Sound research and innovative solutions to these challenges are encouraged and expected from the design and remodel professional.

Instructional Equipment

Marker Boards

Provide whiteboards in learning rooms as follows:

Room Type	Room Depth	Fixed-Height	Adjustable-Height
Seminar	Under 30 ft	Min 36 SF (3 x 12 ft)	None
Classroom Computer Instruction	Under 50 ft	Min 36 SF (3 x 12 ft)	Min 24 SF (3 x 8 ft)
Larger rooms	Over 50 ft Any depth	Multiple boards, Min 24 SF each (3 x 8 ft) With electronic capability	None

Fixed-height marker boards shall be mounted with the bottom edge 42-inches above the floor to allow students in the rear rows of seats to see more of the boards. They shall:

- Have a low-gloss white porcelain-enameled steel surface or white glass board 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 them.
- Have a continuous marker tray below the whiteboard surface and a wall-mounted holder nearby that is large enough for six markers and an eraser.
- Marker boards should be installed so that they are clearly visible / legible from the back of the room. Classrooms that are too deep for students to read a whiteboard from the back of the room should use projection or other means of communicating information to the class.

The adjustable-height whiteboard shall be near the instructor workstation in a location that can be easily seen from all seats when the panel is raised. It shall:

- Have a low-gloss white porcelain-enamel steel surface that is easy to clean.
- Have a panel that can be raised and lowered easily by instructors in seats or wheelchairs. The bottom of the panel should be adjustable from 30 to 42 inches above the floor.
- Be illuminated by lights on a separate switch that do not spill over onto screens, other boards, or the wall behind the board.

Tack Boards

In learning rooms with conventional fixed-height marker boards, tack board strips and clips should be provided along the top of the boards to easily display materials. Tack boards of a modest size may be mounted outside the learning room near the door. In rooms or corridors where display of

student projects is common, full-height display boards of low-maintenance material should be provided. Large display boards are not desired in other areas because they attract personal notices and advertisements that detract from room and building purpose.

Music Equipment

Contact the Music Department at 505.277.2126 regarding requirements.

Other Concerns

FS Engineering and Energy Services Design Standards

UNM routinely updates its design standards for concrete reinforcement, fire suppression, fire detection & alarm, plumbing, HVAC, HVAC controls, electrical, lighting, electronic security, earthwork, and utilities. While not all-inclusive, these standards highlight specific UNM requirements and concerns, including providing requirements for design document submittals. UNM FS Engineering & Energy Services Design Standards is located on the Facilities Services Standards web page.

The Learning Environments Design Guidelines includes some additional consideration for engineering and energy services that are highlighted below.

Electrical Power for Student Devices

Although battery life is increasing for laptops and mobile devices, it is also true that students are coming to UNM with three or more devices that periodically require charging. To meet students' request for easily accessible power, it is mandated that the ratio of power outlets is to be determined based upon room occupancy. These ratios will range between 1-quad outlet per eight students, or 1-quad per six students, depending upon how heavily the room is scheduled. For example, a lower ratio is acceptable in auditoriums, while a classroom that is designed for more collaboration and computer use will require a higher ratio. Power circuit boxes should always anticipate future demands for more power outlets, even if a particular room is initially designed to contain a low ratio because of low occupancy. This will enable flexibility in the future, at lower future cost, should additional quad outlets be required because of unanticipated power demands.

Wall-Mounted Electrical Power

A quad grounded AC power receptacle outlet shall be placed at the front of the classroom primarily for instructor use. In addition, to accommodate student devices that require occasional charging, similar quad outlets or in line outlet strips shall be placed around the perimeter of the classroom to provide coverage of a single quad receptacle per 8 students so that two students may have access to 1 plug. In a 40-person classroom, this would translate to 5 quad receptacles.

Floor-Mounted Electrical Power

Floor receptacles are called for if power cords that lay across aisles to wall-mounted quad receptacles could jeopardize emergency exiting, or could cause tripping in low-lit scenarios, such as when projectors are being used during classroom instruction. In this case, floor receptacles shall be distributed around the floor, located under or accessed on tabletops, and ideally in a manner to support reconfiguration of classroom furniture. Floor-mounted power must also accommodate regular janitorial cleaning (e.g. to prevent damage due to water rinse-down and adequate cover access to avoid wax buildup).

Raised floors are not considered cost effective for power unless HVAC and data are included. Further investigation into this solution is underway. Raised floors are only a design consideration for new building projects and not for remodels, unless building modifications, such as ramps were a part of the redesign. Please confer with FDC regarding raised floor options.

Ceiling-Mounted Electrical Power

Where wall or floor receptacles are not feasible, ceiling-mounted receptacles may be employed. Ceiling power should be dropped to easily reachable heights through "tele-power" poles. Outlet-to-student ratios should be based upon room occupancy as above.

Peripheral Electrical Power

Ceiling projectors and electrical projector screens will require special-case ceiling power receptacles. These outlets should be recessed, above drop ceilings, so that the cord for the device is hidden, if possible.

Power for printers, including plotters and 3D printers, should be designed into the electrical floor plan by default. Even if a printer is not to be installed at the outset, receptacles should be provided near printer data outlets, for the future installation of a printer, possibly for two printers if it is for an exceptionally large room or computer lab.

For special room use requiring power for other kinds of devices, such as plotters, coffee machines, refrigerators, or other miscellaneous electrical appliances, please verify that accommodation will be made to suit power demands.

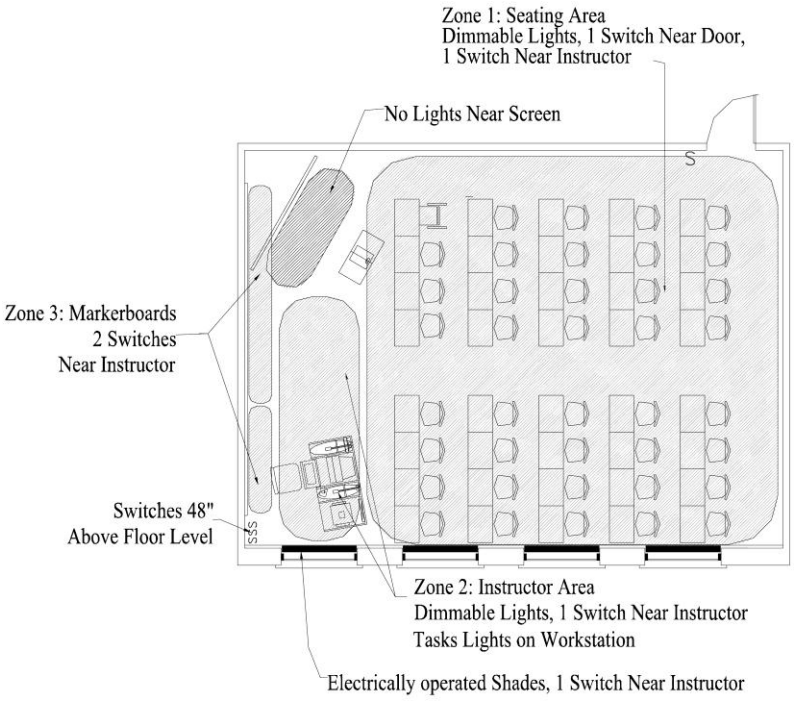
Lighting

In general, lighting systems should:

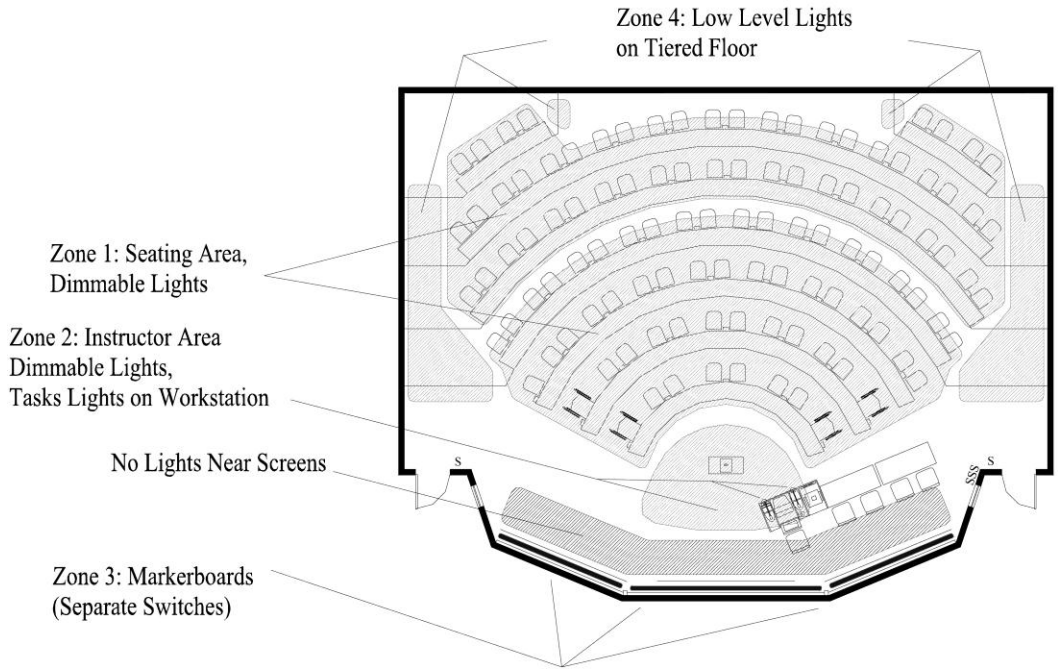
- Be energy efficient.
- Be easy to use, maintain, and modify.
- Emit appropriate lighting levels for all room activities.
- Cause no glare or reflections on computer and projection screens.
- Be indirect to eyes and surfaces.
- Be located out of important view paths.

Lighting Zones and Levels

- Seating areas: Provide 30-40 foot-candles, dimmable to 5 to 10 foot-candles.
- For those rooms where very dark images such as x-rays are projected: Provide lights dimmable to 2 foot-candles and full blackout capability.
- At projection screen locations: No lights.
- Corridors, instructor areas, ramps, & tiered floors: Provide lights with lower light levels.
- Instructor workstations: Provide task lights that do not spill onto screens and monitors.
- Whiteboards: Provide lights that do not wash out screen projections.
- Throughout: Provide night/emergency egress lighting per code, to remain on when other lights are off, but do not illuminate screens.



Typical lighting zones for a regular classroom. (from Univ. of Cincinnati).



Typical lighting zones for lecture hall. (from Univ. of Cincinnati).

Natural Light

Natural light should be provided, though not excessively, in all learning rooms. Windows should be located in order not to disrupt projection technologies. Skylights and clerestory windows must have an easily accessible mechanism for darkening and are generally not recommended in a classroom unless they are strategically placed to reduce glare on projection screens and classroom displays or have integrated or automatic controls for shading. Opaque window coverings should reduce light levels to 2 foot-candles. Window coverings in rooms that do not require full darkening should nevertheless be capable of reducing light intensity and glare. Avoid use of mini blinds, as they are difficult to clean and maintain, frequently jam, and allow too much light into rooms. Exterior glazed openings should open directly onto a public way, yard, or court in accordance with applicable building codes. Glazing systems should meet or exceed UNM energy standards.

Lighting Control Devices

Dimming and switching of small areas to reduce energy usage shall be considered.

Occupancy sensors should be used to control lighting in appropriate rooms. Room lighting should be controlled by motion sensors and should be turned off 15 minutes after the last occupant leaves. Occupancy sensors shall not be used in electrical, mechanical, or IT rooms/closets.

Switches

Many room controls can be built into A/V control systems that are mounted on a wall or accessible from a touch panel located at the instructor station. Specifically, controls for projectors and screens, input devices, audio, and cameras should be controllable through the A/V controller. Departments should consult with UNM IT before integrating additional controls for lighting and blinds into the A/V control system.

Security

A full Security Plan (SP) will be developed for each new building, and a modified Security Plan will be developed whenever significant changes are made in design, landscaping, equipment investment or entries/exits in large remodels. Protocols, training and an operating budget are included in the final SC based on any proposed CCTV and access controls. Specific design considerations for classrooms and classroom buildings are a subset within the larger context of environmental design and must be a part of every project. UNM strongly encourages using the concepts espoused by Crime Prevention Through Environmental Design (CPTED).

CPTED is based on the idea that the proper design and effective use of the built environment can lead to a reduction in the incidence and fear of crime, and an improvement in the quality of life. Safety and crime prevention can be enhanced through architectural design and layout, site planning & landscaping, signage, and circulation control. It can also be enhanced by the use of access control, locks, alarms, monitoring and other devices. And finally, safety can also be advanced through organizational methods, such as police, security guards, and observant faculty, staff and students.

Environmental Perimeters

- Designing the classroom environment begins with an assessment of risk at the perimeter of buildings. Exterior lighting is essential to creating a sense of safety. LED lights provide better lighting than Halogen bollards and should be part of an overall safety and lighting plan for the building. Provide lighting systems that minimize glare, shadow, light pollution and light trespass. Refer to the UNM Lighting Guidelines which suggest standardized fixtures that are energy efficient and provide the proper foot-candles. Identify the pathways that will be used by pedestrians and ensure that they are properly lit and included as a part of the site improvement of a new facility.
- Landscaping is designed in such a way as to avoid the opportunity to screen or hide someone, with adequate setbacks from the building. The exterior architecture should facilitate easy visibility of the entrance and areas on the perimeter of the building. Designing low, see through walls, landscape and paving patterns to clearly define the space around a building entry as belonging to (and the responsibility of) the building occupant provides a “territorial reinforcement” of a public area. Keep shrubbery under two feet in height for visibility. Lower branches of trees should be trimmed to at least seven feet off the ground. Landscaping should not obstruct views from windows, and shrubbery should be avoided directly beneath a window if it is used as an emergency egress.
- Eliminate or design covered walkways to restrict access to the roof and avoid other structural (such as door overhangs and fences or landscaping features) that provide roof

access.

- Designate a main area to secure bike racks that are easily observed from a normally occupied area of the building.
- Locate the main entrance so it is easily identified when approaching the building.
- Keep dumpsters visible at the designated service area and locate them in a secure, locked area or consider an internal trash room. Dumpsters can create blind spots or hiding places.
- Emergency Blue Phones are used to summon police assistance. When the activation button on the station is pressed, a two-way audio link with the 911 communications center is opened.

Internal Design Considerations

- Locate common areas as centrally as possible or near major circulation paths within the project. Avoid remote locations for common areas.
- Balconies or areas outside of the building should be carefully considered to avoid areas that may allow people to fall from the building.
- Design hallways to be easily observed with very few offsets.
- Locate visual panels (small windows in doors or adjacent to doors) in all classrooms to allow instructors to observe the hallway with minimal visual distractions to the seated students.
- Design open access to the restrooms with no need for a hallway door. Position rest rooms adjacent to entries when at all possible.
- Construct stairwells to be open and visible, without solid walls, wherever possible. Place elevators close to the main entrance, with the entire interior in view when the doors are open. Do not install permanent stop buttons in elevators but ensure that elevators can be turned off.
- Glass-break systems or motion detection systems are installed on a case-by-case basis, with consideration for assessing what is to be protected. UNM PD will review, advise, and modify the design as needed prior to completion of design development drawings. Motion detection is preferred over glass-break systems. (Note: over 3,000 hours were spent in one year on false alarms).
- Reactors, Level III labs, etc. have special considerations and are connected directly to the UNM Police Department.
- Freezers, incubators, etc. frequently have alarm requirements that are routed through UNM PD dispatch, who then contacts the affected lab's researcher.

Classrooms

- All classroom doors will be equipped with locks. Occupants should be able to lock rooms from the inside in the event of an active shooter. Access control is generally not recommended for general classrooms. Trilogy locks are prohibited.
- Auditoriums and other classroom spaces should contain signage for Max Occupancy.
- For class labs, each college-allocated lab space will establish policies and procedures for controlling entry during the handling of any bio-hazardous, radioactive, or chemical materials. All microbiological cultures, bio-hazardous, radioactive, or chemical materials will have secure

storage areas provided. Based on the Security Survey, departments should consider risks and determine whether access control is appropriate. Older facilities are generally not able to be retrofitted due to concrete or plaster walls and obsolete infrastructure.

- Freezers, incubators and other storage cabinets will be contained within each class lab and locked to prevent access by unauthorized personnel.

Access Control

In new construction, the building perimeter doors will be controlled by the University access control system. The UNM Lock Shop's standards for access control, including doors and frames are available on the Facilities Services Standards web page. The UNM Lock Shop will provide additional equipment and wiring standards access control systems, depending on the building's location, on central campus or at the Health Sciences Center. Contact UNM Security for more information about systems, charges, and timelines for Access Control system installation and maintenance.

Video Security Systems

Video security systems can support university safety and security. Any installations of video security systems must be designed and installed in conjunction with the UNM Security and follow the requirements listed in UNM Policy 6140: Video Security Systems. Contact UNM Security for more information about video security systems and access permissions to any video feeds.

Alarms

- Fire Alarms always come into the UNM Police Department, as do burglar and panic alarms. Panic and burglar alarms are installed on a case-by-case basis.
- Emergency (Blue) Phones dial directly to UNM PD dispatch. Emergency phones should be included in new construction and major remodel budgets. Collaboration with Environmental Health & Safety, Facility Design & Construction, IT, and Facility Services is essential for placement. The main UNM PD # 277-2241.

Reviews

- UNM Police Department will review the initial Security Plan based upon information from the Risk Based Assessment. A narrative should be provided in each Pre-Design document outlining the security intent. UNM PD will review Schematic Design documents and again at 50% Design Development drawings for compliance with initial risk assessments and provide final decision-making regarding access control, CCTV and other security enhancements.
- UNM FDC will review department business plans that address recurring costs .
- Final Security Plans will be filed with the departments and with UNM PD.

Room Signage

Signage is important in the effort to maintain safety and security while providing information allowing those with physical disabilities to engage successfully with the learning environment. UNM's Interior Signage Standard provides comprehensive interior signage to support these goals, which include, but are not limited to accessibility (ADA), wayfinding, and life safety (max occupancy, fire risers, fire exit routes, and other fire department signage) The intent of the current guidelines for signage is to provide the highest standard available from the ADA and the American National Standards Institute (ANSI) as well as the latest International Building Code (IBC) and National Environmental Policy Act (NFPA) standards. Whenever there is a discrepancy with these standards, life safety issues will be the priority. As these national standards evolve over time, UNM will mandate that the most stringent requirement apply to signage.

Trash and Recycling Containers

Trash receptacles are to be attractive and to be neutral in color. They are to be located near exit doors while not interfering with circulation and other room functions. As recycling is strongly encouraged throughout UNM as part of a coordinated sustainability effort, recycling containers should be conveniently located to serve building occupants on each floor in locations where recyclable items are predominantly generated.

Recycling containers should not be located within learning rooms, but may be located within lobbies, lunchrooms, informal gathering areas, or along corridor walls near learning room doors while near trash receptacles so as to discourage contamination of recycling containers with trash.

Trash and recycling containers must not impede required egress and accessibility areas. It is recommended that a 2-bin waste and recycling unit (typically one for trash & one for bottles/cans) be specified. Recycling containers should always have restricted openings (a 5" circular opening for bottles/cans is standard) to distinguish them from trash receptacles and to prevent contamination by trash. Recycling containers must be placed on a solid, sealed floor surface (not carpet) to permit spill cleanup. Further, recycling containers should be backed by a wall surface that is easily cleaned.

Clock Systems

Faculty request that the standard in each classroom includes a clock. The clock should be positioned so that the lecturer and students can easily see the clock at a glance. Please refer to UNM's Design Standards available on UNM Institutional Support Services standards and guidelines website.

Conclusion

The Learning Environments Design Guideline (LEDG) of the University of New Mexico is designed to engage feedback for their ongoing improvements. The LEDG is under continual modification based upon current research, user feedback, and shifting trends. It is subject to modifications of content as well as fundamental shifts in perspective.

Overall, the LEDG manifests from an inclusive approach that supports and sustains qualitative learning environments for current and future generations at UNM. This document should be used critically and imaginatively toward the creation and improvement of all UNM learning environments.