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Architectural Design Standards

Northeastern University Guidelines for Capital Project Design & Implementation

7.0 ARCHITECTURAL DESIGN STANDARDS

Individual university departments maintain various standards, specifications, and guidelines related to the specific function of their department. This chapter is intended to provide broad guidelines and, where available, refer the design team to the appropriate source of specifications. Chapter organization is as follows:

- ▶ General considerations for university-wide projects.
- ▶ Suggested space utilization for programmed areas throughout the campus.
- ▶ Interior materials preferences and guidelines.
- ▶ Specific requirements for various programmed spaces.

7.1 GENERAL INFORMATION

7.1.1 The following information applies to all university projects and is to be incorporated with the highest level of benefit to the project.

7.2 SERVICE ACCESS

7.2.1 Identify the service entry for buildings. Designate the service route from

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the nearest street or access to the service entry. Avoid pedestrian and vehicle conflicts. Consider campus deliveries including mail delivery, general commercial deliveries, trash pick-up, and hazardous material delivery and disposal. Design service access and service area for the largest delivery vehicle that will (regularly) service the building.

- ▶ Is a loading dock appropriate?
- ▶ Are roll-up doors required?
- ▶ Is a freight elevator required near the service entry?

7.2.2 Provide service access in a manner that is most consistent with the campus master plan and City of Boston requirements and reduces or eliminates disruptions to pedestrian access, non-service access, or general campus activity. Service access should be located, designed, and screened so as to be discrete and non-disruptive to non-service campus activity wherever possible.

7.2.3 Locate service access to provide direct access to spaces / functions within the building that require it. This may include but not be limited to services such as a building receiving, mail, building technical services (electrical, IDF, mechanical areas), freight / service-related elevators, and other building elements.

7.3 EQUIPMENT AND TRASH ENCLOSURES

7.3.1 All exterior mechanical and / or electrical equipment shall be screened from view.

7.3.2 This includes rooftop equipment and ground-level equipment. The screening should be adequate to fully cover the equipment from ground level or adjacent building view. Screening shall also be reviewed and accepted by any applicable utility provider.

7.3.3 Trash enclosures shall be provided with each project unless waived by Owner.

7.3.4 Trash enclosures should also be screened from public areas, campus view corridors and building entries. Screening shall be provided from ground level views as well as any adjacent building views.

7.3.5 Access panels, where required, shall be located in a convenient location for maintenance and be lower than 10 feet above the finished floor. Best 93K lock system shall be used on access panels.

7.4 HARDWARE

7.4.1 Refer to university Hardware Specifications for all appropriate building and FF&E hardware. [Carpentry Standards](#) * (Updated for 2017)

7.4.2 Coordinate hardware requirements with security requirements of NUPD for all departments and access.

7.5 BUILDING / SPACE / ROOM DESIGN GUIDELINES GENERAL REQUIREMENTS

7.5.1 The standards below are a reflection of campus development to date and are in accordance with the university's conventional space requirements as noted by faculty, staff, and enrollment projections. The university is aware that student expectations, technological advances, and changing industry conventions of space utilization will continue to impact these requirements. Northeastern University considers each building and space program to be unique and will evaluate each project on a case by case basis.

7.5.2 At the end of this section are individual Space / Room Design Layout / Information Sheets. These space / room sheets illustrate the layout and features of some common / typically programmed spaces (but is not fully inclusive of all potential spaces) and provide typical square footages, suggested FF&E layouts as well as detailed information on power, data, and other infrastructure requirements. Spaces may require further investigation during design; particularly for spaces likely to have more specific requirements based on use. (i.e. offices and service spaces are more likely to be typical, whereas classrooms, labs and clinical spaces are more likely to require specific investigation on a project-by project basis).

7.5.3 The following table shall be used as a guideline in assigning office and support spaces in design. Where applicable and efficient for building planning, Consultants shall work with the university to assign space allowances to typical building program elements that are repeated to allow flexibility / consistency with building planning modules for building systems coordination.

7.5.4 Space assignment shall take into consideration future flexibility of space for potential building remodel or re-assignment as well. It is the goal that the minimum necessary space types be used to accomplish project space goals, accommodation of users and required FF&E in a space, and provide modular flexibility for future remodel or reimplementation of space as functions and users change.

7.5.5 All programmed areas and assigned spatial layouts and sizes shall be verified with the university's Project Manager during programming and design.

7.6 SPACE ASSIGNMENT GUIDELINES

7.6.1 Space program to be determined and verified by the university as part of the facility planning and design process for each new project. Space adjacencies and hierarchies to be recommended by affected department for programmed use and verified / approved through the program approval process.

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TABLE 7.0 NU SUGGESTED SPACE ASSIGNMENT AND UTILIZATION

BUILDING TYPE	SPACE TYPE	SUGGESTED USABLE SF
Administrative	Senior Vice President	300
	Provost	300
	Vice Provost	150
	Associate Vice Provost	125
	Dean	250
	Associate Dean	150
	Department Chair	150
	Vice President (Administrative)	150
	Associate Vice President	150
	Director	125
	Faculty - (Tenure/Tenure Track)	140
	Faculty - (Adjunct)	70
	Graduate Assistant	50
Residential	Student Housing	150 NSF / Bed
Academic	Classroom	22 SF / Seat
	Lecture Hall	19 SF / Seat
	Wet Lab	700 NSF / Bay
	Dry Lab	500 NSF
	Computational Lab	500
Support	Lactation Rooms	60
	Custodial / Janitorial	40
	Restrooms (Public)	per code +
	ITS	80
	Electrical Closets	80
	Storage (Administrative Department)	80
	Storage (Bldg. Attic Stock and Maint.)	120

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7.7 SUGGESTED SPACE ASSIGNMENT AND UTILIZATION

7.7.1 Based on university and Industry Standards - Refer to Table 7.0 NU Suggested Space Assignment and Utilization.

7.7.2 Consultant shall prepare similar space / room utilization schedule as part of the programming phase, with appropriate spaces and space features per project.

7.8 INTERIORS PREFERENCES

Northeastern University's Office of Campus Planning and Development and Facilities Design and Construction Division encourage creative expression for facility design. The university does have some preferences for interior materials based on lessons learned, operations, and long term maintenance. Materials used in NU facilities shall be durable and cost effective as well as complementary of the project's overall design intent. Materials shall also meet the requirements established in the NU Technical Design Guidelines located at: [NU MEP Design Standards](#)

Continuing the commitment to sustainability, NU would like all projects to incorporate as much natural lighting and other passive sustainable design elements as possible within each project. Interior design elements and materials shall complement and, where possible, enhance the experience of these measures. Materials selected shall contribute toward the sustainable design goals. [A 0% VOC level is the preferred standard for all materials, with a maximum of 10% by volume for emissions, and 0% in VOC content for paint, carpet, and adhesives.](#)

Interior materials selection for all university projects shall meet or exceed the expectations of the following utilization preferences below.

7.8.1 Flooring

Flooring materials shall be durable and attractive. Acceptable materials shall be determined based on the use of the programmed space and department / end user preferences as they relate to the selected project design. Acceptable materials include but are not limited to:

► Carpet

» *Basis of Design / Preferred Manufacturer: LEES Carpet / Mohawk Carpet Modular Tile 24" x 24" tile, 12" x 36" tile or equal and 12 ft. broadloom.*

» *Preferred areas of use:*

- Administrative Offices
- General Offices
- Private Offices
- Conference Rooms
- Classrooms
- Student Lounge Areas
- Dormitories

► **Resilient Flooring**

» *Resilient flooring is typically utilized due to the benefits of durability, cost effectiveness, stain resistance, water resistance, chemical resistance, electrical charge resistance, sound absorption, sustainability, and ease of maintenance.*

» *Resilient flooring offers multitudes of color, pattern, and design choices. Material composition and sizing varies greatly. Many products are composed of recycled content and / or rapidly renewable resources. Acceptable forms of resilient flooring materials include, but are not limited to:*

- Vinyl Sheet Flooring - 6' roll, 12' roll
- Vinyl Composition Tile (VCT) - 12"x12" tile
- Linoleum / Marmoleum - sheet roll, tile
- Rubber Flooring - sheet roll, tile
- Cork - tile

» *Preferred areas of use:*

- Areas of high traffic
- Corridors
- Office Workrooms
- Breakrooms
- Classrooms
- Laboratories
- Lab Storage Areas
- Dormitories - Kitchens, Kitchenettes, Bathrooms
- Dining / Retail Spaces
- Student Lounges
- Study Areas
- Libraries
- Janitorial Spaces / Service Spaces
- Mechanical / Electrical / Technical Equipment Areas
- Elevators
- Stairs

► **Hard Flooring Surfaces**

» *Hard flooring surfaces are reserved for high traffic areas and spaces that require maximum durability due to presence of water, chemicals, and constant use. Hard flooring can also be used as a design feature for the specific design intent of the project or space. Acceptable hard flooring materials include, but are not limited to:*

- Porcelain Tile
- Ceramic Tile
- Terrazzo
- Concrete
- Stone Flooring
- Hardwood Flooring

» *Preferred areas of use: Lobbies / Vestibules*

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Corridors
Restrooms / Bathrooms
Laboratories
Dining / Retail Spaces
Student Lounge Areas
Dormitories
Libraries
Offices

► **Applied Flooring Surfaces**

» *It is often necessary for budget or programming requirements to simply coat or re-coat a flooring surface. This is typically done for slip resistance, chemical resistance, and extreme ease of maintenance and most often occurs in spaces that are not generally within the public realm. Acceptable hard flooring materials include, but are not limited to:*

Sealed Concrete
Stained Concrete
Epoxy Coating
Resinous Flooring

7.8.2 Walls

Wall covering and decorative materials shall be durable and attractive. Acceptable materials shall be determined based on the use of the programmed space and department / end user preferences as they relate to the selected project design. Typically the university uses paint as a decorative surface treatment. Other materials may be considered based on programmatic requirements and needs for durability such as the presence of water and chemicals. Acceptable materials and usage preferences include, but are not limited to:

► **Paint**

- » *It is assumed that all wall surfaces in all areas of all projects will receive some sort of paint or sealant treatment.*
- » *Basis of Design: **Eggshell finish is preferred for all NU wall surfaces unless otherwise required to suit design intentions. Paint systems specifications shall be determined by the need for appropriate applications for project components. **Semi-gloss shall be the standard for doors and door frames unless otherwise required to suit design intentions.*****
- » *Drywall surfaces in public areas and areas to be occupied full time by faculty and or students, and that will be receiving eggshell or semi-gloss paint, shall be specified to have a Level 4 or higher smoothness and quality prior to application.*
- » *Paints, sealants, and coatings that are specific to various substrates shall be specified and reviewed as needed for each individual project and construction type.*

► **Wall Tile**

- » *The University requires that typical wall treatment installations in restrooms / bathrooms, locker rooms, and similar "wet" spaces include*

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ceramic and / or porcelain tile. A range of sizes, styles, and colors for field tiles are acceptable. Accents that include glass, metal, and stone shall be reviewed as part of the proposed design scheme.

- » *Basis of Design: Daltile, Crossville, or similar for product pricing, availability and consistency.*
- » *Provide appropriate wall tile trims and edging as part of the design scheme to avoid exposed unfinished / unsealed edges of tile.*
- » *Provide appropriate transition trims where depth of tiles vary from each other or from adjacent wall surfaces whenever applicable.*
- » *Installation and finishing recommendations shall conform with manufacturer recommendations for product warranty.*

► **Specialty Wall Treatments**

- » *Specialty wall treatments and accents will be considered on a case by case basis. Any suggested materials shall be durable, cost effective, and easily maintained. Specialty materials shall carry a Class A fire rating or otherwise be approved by governing agency before use.*

7.8.3 Wall Base

- All walls in public areas and areas to be occupied by faculty or students shall be completed with a wall base as a transition from wall to floor.
- Basis of Design: Rubber Wall Base with cove profile for easy maintenance shall be the primary basis of design for NU projects. Specialty profiles may be considered as part of project design.
- Alternate acceptable Wall Base suggestions: Tile and Wood
 - » *Tile wall base may be used in wet locations such as restrooms, bathrooms, locker rooms, etc.*
 - » *Wood Base may be used in administrative areas or areas of high importance and low volumes of traffic such as offices and conference rooms. Wood shall be appropriately painted or sealed to ensure durability.*

7.8.4 Ceilings

Ceiling materials shall be durable and attractive. Acceptable materials shall be determined based on the use of the programmed space and department / end user preferences as they relate to the selected project design. Materials shall allow access to plenum spaces, light fixtures, mechanical equipment, etc. as required per project design. Acceptable materials include but are not limited to:

► **Lay-in Ceiling System**

- » *In most spaces, the university prefers a lay-in ceiling system of acoustical tiles. The exact style of design will be determined by the programmatic need. Material light reflectance and noise ratio requirements are further described in the Technical Design Guidelines.*

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- » *In addition to acoustical ceiling tiles (ACT), lay-in materials may include tiles specially designed for laboratory spaces, or decorative tiles such as metal, wood, or another pattern. Selection to be determined with NU PM during design development.*
- » *Basis of Design / Preferred Manufacturer: 2'x2' Acoustical Ceiling Tile such as USG or Armstrong products.*
- » *Preferred areas of use:*
 - Administrative Offices
 - General Offices
 - Private Offices
 - Conference Rooms
 - Classrooms
 - Lobbies
 - Student Lounge Areas
 - Libraries
 - Corridors
 - General Public Spaces

► **Drywall Ceiling / Drywall Suspension System**

- » *Drywall ceilings may be considered in spaces where access to utilities is not a concern. Drywall ceilings may also be a part of existing buildings. Finishes of these ceilings shall be Level 4 or greater in smoothness and shall be painted with a flat finish ceiling paint.*
- » *Hard ceilings shall contain secured but accessible access panels for service of utilities that are contained within ceiling above.*

► **Specialty Ceiling System**

- » *NU does not have a basis of design or preferred manufacturer for specialty ceilings. Such systems shall be determined by the proposed project design scheme. Specialty systems shall be durable, easy to maintain, and allow access as needed to ceiling fixtures, structure, support, electrical, mechanical, and other items within the system, exposed above the ceiling or concealed within the plenum space.*
- » *Preferred areas of use:*
 - Lobbies
 - Lounges
 - Private Offices
 - Conference Rooms
 - Classrooms
 - Libraries
 - Corridors
 - General Public Spaces

7.8.5 Doors

- **Basis of Design / Preferred Material:** Solid Core Wood Stain Grade Doors are the preferred door for public areas when appropriate.
- **Alternates:** Metal Doors - for use as appropriate for programmed space and / or building design and for roll-up doors at garage and loading areas. Metal doors shall also be used for projects or spaces that need to achieve a

higher fire rating.

- ▶ All specified doors shall be code compliant and use specific.
- ▶ Refer to NU hardware specification located at: [Carpentry Standards*](#) (Updated for 2017)
- ▶ **Lites and Side Lites:**
 - » *Doors for public rooms and corridors other than doors specified for fire separation purposes shall contain a lite within the door to allow for visibility to adjoining spaces.*
 - » *All Classroom doors shall have a lite or side lite.*
 - » *Doors for private offices and residential spaces shall not contain lites within.*
 - » *Doors integrated within window systems and are abutted by side lites shall only contain lites if desired by end user or as part of particular design scheme.*
 - » *Lites and side lites for doors designated for higher fire ratings shall be sized appropriately per required codes.*

7.8.6 Window Treatments

- ▶ **Basis of Design / Preferred Material:** Hand operable, fabric screen shade such as Mechoshade or approved equal for all spaces where appropriate. Such shades provide maximum protection with maintenance of view and visual connection to outside environment. Color to be coordinated with project design intent.
- ▶ **Alternates:** Aluminum Horizontal Blinds - hand operable, such as Hunter Douglass or approved equal. Color to be coordinated with project design intent.
- ▶ Provide specialty shades such as black-out shades in media centric spaces, or automated systems as program dictates.

7.8.7 Acoustic Design

- ▶ Acoustic requirements of a space are impacted by the intended use of the space and the building construction and the completed finishes. Each shall be incorporated to achieve appropriate levels of design within the project spaces.

STC	DESIRED SPEECH BLOCKING EFFECT
20 - 25	Quiet speech is audible
25 - 30	Ordinary speech is audible and intelligible
30 - 35	Loud speech is audible and intelligible
35 - 40	Loud speech is heard but is rarely intelligible
40 - 50	Loud speech can be heard, faintly
50 - 60	Loud sounds can barely be heard

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- ▶ **STC - Sound Transmission Class Basis of Design:** is a building standard issued by the American Society of Testing and Measurement (ASTM) and has been incorporated into many specifications and regulations as a measurement of acoustic comfort for sound transmission. [ASTM - STC - E413](#)
- ▶ Consultant shall incorporate noise control information as part of all project documentation and building detailing.

7.9 SPECIFIC SPACE REQUIREMENTS

Below are a series of specific requirements for spaces typically programmed into facilities at university. These requirements are intended to highlight major points / elements and items relative to the design, performance and construction of these spaces. Specific project programming information may supplement these requirements. Additionally, spaces may exist in project programs that are not specifically addressed in these standards where supplemental program data may provide information for these spaces. These standards are to be used in guidance for design, construction, and performance of these spaces, and as general information for typical Northeastern University requirements.

7.9.1. Offices and Administrative Areas

- ▶ Show furniture and equipment layout on floor plans at Schematic Design Phase. At Design Development and Construction Documents Phases, provide separate floor plans for furniture and equipment. Demonstrate ADA clearances in offices with furniture shown to scale.
- ▶ Indirect lighting is preferred for artificial light.
- ▶ Show data and power locations on plans. [Provide 6 outlets minimum per workstation, below the desk, with 1 quadruplex outlet next to the NUnet Quad Box and a separate 2.3 amp duplex outlet with two USBports placed at a reasonable distance from the quadruplex, allowing convenient power access throughout the workstation.](#)
- ▶ Corridors in office areas: double loaded corridors should terminate with natural light whenever possible. Doors should be offset across corridors (i.e. doors of spaces across a corridor should not align and should be fully offset for visual and acoustical reasons) to maximize privacy.
- ▶ Provide acoustical privacy in private offices. Preferable methods are through insulated walls and ceiling tiles / surfaces. Insulated / finished walls to bottom of deck may be used as well. Consideration of measures of acoustical privacy relative to building systems shall be considered as well (i.e. HVAC provisions and other.) Provisions for acoustical privacy shall have special consideration and measures (i.e. insulated and finished walls to bottom of deck, other

measures to meet performance criteria) at areas of high acoustical privacy, i.e. counseling rooms, HIPAA compliant spaces, spaces where matters of high privacy are discussed, etc.

- ▶ Audio-Visual Systems - Coordinate with university Project Manager and ITS Department for system requirements and parameters. Typical systems can include: visual systems / projection, audio systems, lecterns, and other considerations to support classroom use. Audio-visual systems and their performance is to be coordinated with building services, acoustical, lighting and other systems. Program budget to determine if systems and equipment are purchased and installed by project or purchased by university and installed by project or to be purchased at a later time.
- ▶ Access Control: Coordinate with university security protocols and conform to university hardware specification for space type.
- ▶ Special Considerations: Consider donor signage or potential for future signage applications in design.

7.9.2. Lobbies

- ▶ Main entries should have vestibules with built-in recessed walk-off mats in accordance with Northeastern University Guidelines for Sustainable Practices: [*Sustainable Practices and Operations Guidelines*](#)
- ▶ Lobbies should have direct access to toilet rooms that are visually screened.
- ▶ Wayfinding: Provide building directories, wayfinding / directional signage, code required signage (exiting, accessibility, and other), and other signage in construction budget. Building directories should be dynamic electronic signage wherever possible for new construction and renovated facilities. Signage that can be easily revised by the university sign shop should otherwise be provided.
- ▶ Provide a building directory in the main lobby and secondary entries as suitable.
- ▶ Stairs should be visible from the lobby and identified with appropriate and required signage.
- ▶ Passenger elevators should be convenient for the lobby and well signed for accessibility. Elevator finishes should be determined in accordance with the level of finishes selected for the entire building.
- ▶ Provide a location for university designated trash and recycling receptacles that is conveniently located within the typical path of travel to ensure visibility and use.
- ▶ Provide a location for news stands for campus publications. This should be adjacent to or near facilities for seating, vending, trash, and / or recycling.

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- ▶ Elements that should be considered when designing lobbies: donor wall, seating, screened trash / recycling receptacles, data and power for lobby users, campus phone, upgraded finishes for appearance and durability, monitors for building, information, specialty lighting, reception or security counter, natural lighting, display cases, bulletin boards, visibility and / or connectivity to circulation, and vehicle / bicycle parking.
- ▶ Additional potential areas near the lobby: concession area, and vending area.

7.9.3 Classrooms / Academic Facilities (Class Dry Labs / Computer Labs and Similar Spaces)

- ▶ As part of the programming phase consultation shall be coordinated with the Center of Advanced Teaching and Learning to determine the instructional format of the room.
- ▶ General: Classrooms (Including Class Dry Labs / Computer Labs and similar spaces) may be unique and custom designed spaces to support the activities and teaching methods that occur within them. These spaces may have unique requirements accordingly, and special needs for fixed furniture, equipment, building services, audio-visual equipment, HVAC service / tolerances / redundancy, access control, and other features. Below are some general guidelines to support the requirements of these spaces that are subject to refinement, validation and further definition based on the specific function, requirements, and activities of a particular space.
- ▶ Accessibility - Ensure accessibility standards are met in classrooms, including but not limited to audio-visual systems compliance, assisted listening systems, number, location and distribution of accessible seating locations, floor walks/ ramps / stairs, handrails, and other elements of accessibility. Integrate accessibility elements into the base design so that they are functional, meet requirements, and are integrated into the design to not appear / act as supplementary to the overall design. Integrate principals of universal design.
- ▶ Coordinate with university Project Manager and ITS Department for system requirements and parameters. Typical systems can include: visual systems/ projection, audio systems, lecterns, and other considerations to support classroom use. Audio-visual systems and their performance is to be coordinated with building services, acoustical, lighting, window treatments and other systems. Program budget to determine if systems and equipment are purchased and installed by project or purchased by university and installed by project or to be purchased at a later time.
- ▶ Sloped floors in classrooms need to be provided where size and configuration requires a sloped floor for sightlines and classroom function (i.e. typically over 50 students; subject to program verification). Ceiling configuration needs to be considered to work with floor configuration and support classroom and classroom systems functions (i.e. A / V systems, lighting, acoustics, service access, surface treatment, and other considerations for function).
- ▶ Access Control: Coordinate with university security protocols and conform to university hardware specification for space type.

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7.9.4 Wet Labs (Including Research, Teaching and other Wet Labs and Associated Spaces)

- ▶ The university has a desire to deploy open lab and shared lab concepts wherever practical to allow for maximum flexibility in use of the space.
- ▶ At the earliest stage of design, a formal equipment list is required from the PM that identifies all equipment (by make and model) that will be installed or operated in the lab. This will inform the design and layout of the space for all disciplines and systems.
- ▶ Laboratory design and layout shall be reviewed by and receive approval from Environmental Health and Safety.
- ▶ General: Wet Labs may be unique and custom designed to support the activities and research that occur within. It is typical that wet labs will have unique requirements accordingly, and special needs for fixed furniture, equipment, building services (i.e. power, water, RO / DI water, data, gas, compressed air, vacuum and other services), shielding, vibration tolerances, EMI resistance / levels, HVAC service / tolerances / redundancy, access control, structural requirements and other features. Below are some general guidelines to support the requirements of wet labs that are subject to refinement, validation, and further definition based on the specific function, requirements and activities of a particular wet lab.
- ▶ Floor / Base Finish: seamless surface, chemical, static, microbial or other resistance, other as required based on program, use, equipment requirements.
- ▶ Walls: Paint - Semi-gloss, min. Special / upgraded finishes to address chemical, static, microbial or other resistance, shielding requirements, or other as required based on program, use, and equipment requirements.
- ▶ Ceilings: Provide washable and chemical / stain resistant acoustical ceiling tile treatment - 2x2 lay-in with reflective tile min. Special / upgraded finishes to address chemical, static, microbial or other resistance, other as required based on program, use, and equipment requirements.
- ▶ Provide fixed furniture and equipment (lab benches, shelving / cabinets, carriers and other fixed systems) in labs and coordinate with end user program and building services (i.e. power, water, RO / DI water, data, gas, compressed air, vacuum, and other services) to provide all required building services in a modular and regular manner (i.e. 3' on center, 6' on center, other).
- ▶ Loose Furniture: Provide washable and chemical / stain resistant fabrics and finishes for all furniture within wet lab spaces.
- ▶ Provide all building services (HVAC, power, water, RO / DI water, data, gas, compressed air, vacuum, and other services) to support space use and to support equipment to be used in the space.
- ▶ Shielding: Provide shielding from electrical interference (EMI, RF and other types) or to contain any radioactivity or other items / activities requiring

containment in the space (e.g. shielded walls), to support the operational requirements of equipment and activities in wet labs.

- ▶ Vibration Resistance / Tolerances: Ensure vibration tolerances are met for equipment / instrumentation operation and to support research activities.
- ▶ Accessibility: Ensure accessibility standards are met in wet labs.
- ▶ Special Considerations:
 - » *Consider donor signage potentials and special signage for functional or warning purposes in design.*
 - » *Plan wet labs on a modular basis to work with furniture and equipment.*
 - » *Design with modularity to allow for future flexibility in space use, arrangement, assignment and provisions for furniture and equipment. This applies to many items in the wet lab design (structural bays, layout of bench and equipment areas, design of benches and their modularity/ adjustability (layout, height, etc...) and other considerations.*
 - » *Lockable storage in furniture, equipment, and built-in casework should be provided based on the user needs.*
 - » *Management and disposal of biohazards must be addressed, per the requirements of the operations needs of clinical facilities.*
 - » *Provide analysis of and provision for any chemical storage and use provisions (fire separations / ratings, control areas, maximum allowable chemical storage, etc.)*
 - » *Provide for and coordinate all lab safety provisions and requirements.*
 - » *Provide eye-wash, emergency shower and other safety equipment in clinical areas where chemicals, fluids, pathogen carrying materials or other such items or activities warrant safety equipment and provisions.*
 - » *Although important for all aspects of the project, design and construction and construction administration / verification to support specific technical requirements for equipment and activities is particularly critical to wet lab performance and function.*

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7.9.5 Clinical Spaces (Clinical Research, Teaching, Service, and Other Similar Spaces)

- ▶ Clinical spaces can be unique and custom designed spaces to support the activities and research that occur within them. It is typical that clinical spaces will have unique requirements accordingly, and special needs for equipment, building services (i.e. power, water, RO / DI water, data, gas, compressed air, vacuum and other services), shielding, vibration tolerances, HVAC service/ tolerances / redundancy, access control, privacy, structural requirements, and other features. Below are some general guidelines to support the requirements of clinical spaces that are subject to refinement, validation, and further definition based on the specific function, requirements, and activities of a particular clinical space.
- ▶ Floor / Base Finish - Seamless surface, chemical, static, microbial or other resistance, other as required based on program, use, and equipment requirements.

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- ▶ Walls: Paint - Semi-gloss, min. Special / upgraded finishes to address chemical, static, microbial or other resistance, shielding requirements, or other as required based on program, use, equipment requirements.
- ▶ Ceilings: Provide acoustical ceiling tile treatment - 2x2 lay-in with reflective tile min. May be required to be washable, and chemical / stain resistant based on specific space program / use. Special / upgraded finishes to address chemical, static, microbial or other resistance, other as required based on program, use, equipment requirements.
- ▶ Doors: Wood stain grade doors (w/o lite standard) 36" min. Larger as required.
- ▶ Special / Upgraded finishes and performance to address chemical, static, microbial or other resistance, shielding requirements, or other as required based on program, use, and equipment requirements. Lites in doors should be reviewed based on use.
- ▶ Provide fixed furniture and equipment (shelving / cabinets, other fixed systems) in clinical spaces and coordinate with building services (i.e. **power, water, RO / DI water, data, gas, compressed air, vacuum, and other services**) **to provide all required building services in a manner to service clinical spaces.**
- ▶ Provide all building services (HVAC, power, water, RO / DI water, data, gas, compressed air, vacuum, and other services) to support space use and to support equipment to be used in space.
- ▶ Shielding - provide shielding from electrical interference (EMI, RF, and other types) or to contain any radioactivity or other items / activities requiring containment in the space (i.e. shielded walls), to support the operational requirements of equipment and activities in clinical spaces.
- ▶ Vibration resistance / tolerances - ensure vibration tolerances are met for equipment / instrumentation operation and to support clinical activities.
- ▶ Accessibility - Ensure accessibility standards are met in clinical spaces.
- ▶ Provide access control to overall clinic area (i.e. clinical area access should be controlled to manage patient and visitor access), and provide locks as required to specific clinical spaces.
- ▶ Special Considerations:
 - » *Consider donor signage potentials and special signage for functional, safety, or warning purposes in design.*
 - » *Plan clinical spaces on a modular basis to work with furniture and equipment.*
 - » *Design with modularity to allow for future flexibility in space use, arrangement, assignment, and provisions for furniture and equipment.*
 - » *Address all HIPAA, OSHA, and other requirements for the operations of clinical spaces. This may include but not be limited to privacy, acoustical performance, records security, quality of finishes (ability to clean/disinfect, non-porous / resistant to bacterial growth, and other items), and other considerations relative to specialty function / requirements for clinical*

spaces.

- » *Lockable storage in furniture, equipment, and built-in casework, should be provided based on the user needs.*
- » *Management and disposal of biohazards must be addressed, per the requirements of the operations needs of clinical facilities.*
- » *Provide analysis of and provision for any chemical storage and use provisions (fire separations / ratings, control areas, maximum allowable chemical storage, etc.)*
- » *Provide for and coordinate all clinical safety provisions and requirements.*
- » *Provide eye-wash, emergency shower, and other safety equipment in clinical areas where chemicals, fluids, pathogen carrying materials, or other such items or activities warrant safety equipment and provisions.*
- » *Although important for all aspects of the project, design and construction and construction administration / verification to support specific technical requirements for equipment and activities is particularly critical to clinical space performance and function.*

7.9.6 Audio / Visual Guidance

Special consideration must be given to spaces with audio / visual program components. Consultant shall coordinate closely with university IT and Facilities for power requirements and for equipment specifications. This coordination ensures that all components are compatible with university systems and programs. In parallel, use this resource: [Audio / Visual and Information Technology Requirements](#)

7.9.7 ITS Closets

- ▶ NU ITS department to be engaged at earliest stages of on-going projects to ensure exchange and integration of most current requirements and preferences to suit needs of proposed project to be successfully integrated into campus environment.

7.9.8 Toilet Rooms

- ▶ In addition to all public restrooms required by code, each university facility shall include (whenever possible as part of a major renovation / expansion and required in new facilities), at least (1) one gender neutral restroom. This room shall comply with all applicable codes and standards for a single occupancy public restroom.
- ▶ Sight lines should screen the toilet room interior from public view.
- ▶ Floors to be of a durable material; easy to maintain.
- ▶ Walls and wall base to be of a durable material, such as tile or terrazzo, to coordinate with wall and floor finishes.
- ▶ Provide at least one floor drain per toilet room and slope the floor to the drain.
- ▶ Ceiling hung toilet partitions (supported from the structure above the ceiling) are preferred. Floor mounted toilet partitions are acceptable if structural or

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budgetary constraints prevent the use of ceiling mounted partitions. Ceiling mounted partitions must be coordinated with the structural engineer. Partition material should be solid surface. Solid core, such as phenolic resin, can be used as a lower cost alternative, and is to be approved by university Project Manager. No metal or painted metal partitions should be specified.

- ▶ Countertop material to be solid surface or durable stone surface for long term ease of maintenance.
- ▶ Toilet room accessories - Northeastern Facilities Building Services will provide accessories for toilet areas, including:
 - » *Soap dispensers*
 - » *Paper towel dispensers*
 - » *Toilet paper dispensers*
 - » *Feminine product dispensers*
 - » *Trash receptacles (In-wall undesirable)*
- ▶ Provide accessory shelves / hooks for personal items to be stored during sink use. They shall be 1' deep min.
- ▶ Toilet stalls to contain flat shelf surface, integrated with accessories such as roll dispenser, or located behind toilet. Determination based on project space allowance and design preference to be discussed with NU PM during design development phase.
- ▶ Moisture resistant plywood backing is required in wet areas. (i.e. Dur-a-rock or equal). Provide a light fixture over each stall.
- ▶ A continuous recessed light fixture at the back wall of the stalls and over the mirrored wall of the sink area is preferred. Coordinate access and service provisions with university for ease of access.
- ▶ Lighting shall be carefully considered in toilet and restrooms to provide minimum required lighting levels per code and to be functional. Lighting shall also be specified and located for ease of access and maintenance.
- ▶ Drinking fountains (wall mounted electric water cooler type) should be in the proximity of the toilet rooms.

7.9.9 Lactation Rooms

- ▶ Northeastern University has both a federal and ethical responsibility to provide lactation space for nursing mothers returning to work, students returning to course work, and visitors to campus.
- ▶ The Patient Protection and Affordable Care Act (P.L. 111-148, known as the "Affordable Care Act") amended section 7 of the Fair Labor Standards Act (FLSA) to require employers to provide "reasonable break time for an employee to express breast milk for her nursing child for 1 year after the child's birth each time such employee has need to express the milk." Employers are also required to provide "a place, other than a bathroom, that is shielded from view

and free from intrusion from coworkers and the public, which may be used by an employee to express breast milk." See 29 U.S.C. 207(r). The requirement became effective when the Affordable Care Act was signed into law on March 23, 2010.

- ▶ Long-term goal is to have a small dedicated "wellness" room in every building on campus.
 - » *Strategy - Locate enough wellness rooms at various locations throughout the campus to allow accommodation in a building in close proximity to virtually anywhere on campus.*
 - » *Include wellness room space in existing project scope when possible.*
 - » *Secure funding for three renovations annually until goal is accomplished*
- ▶ **Scope**
 - » *Locking door and number combination on outside*
 - » *Signage and labeling as "Lactation" room unless space is provided within single sex bathroom suite*
 - » *Chair and small table*
 - » *Sink with counter top and base cabinet (ideal, but depends on location)*
 - » *Mirror over sink*
 - » *Paper towel dispenser*
 - » *Accessible electrical plugs*
 - » *White noise machine (depending on location)*
 - » *Privacy curtain (depending on location)*
 - » *Room Wizard for scheduling*

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7.9.10 Elevators

- ▶ Walls around elevators should be finished in a hard durable surface (i.e. wall tile to match or coordinate with floor surfaces / tile or ceramic tile, other options). The surface should be cleanable, stain resistant, and able to withstand impact from equipment.
- ▶ Equip elevators with an emergency telephone that connects directly to the university Police Dispatch.
- ▶ Emergency telephones installed in elevators and areas of refuge telephones must be "hands free" type and ADA accessibility compliant, including such accessibility items such as visual signaling indicators for the hearing impaired.
- ▶ Doors should be stainless steel.
- ▶ Floors shall be rubber with a non-skid raised pattern in service or exterior elevators (i.e. garages) or upgraded flooring (i.e. terrazzo tile, ceramic tile, other materials) in all other elevators.
- ▶ Interior cabs shall be of metal, solid surface, or other durable and high quality finishes that will discourage and hide vandalism and provide an attractive

elevator cab finish.

- ▶ Elevator controllers and door operators shall not be proprietary.
- ▶ Elevator equipment rooms, in addition to meeting all code requirements, shall have access to allow for equipment and technicians to reasonably service room and its equipment. Access to room shall be direct and shall be located in a discrete fashion to not appear as a publicly accessible room. Co-location of any non-elevator equipment (mechanical, electrical, data / telecommunications, facility / other storage, etc.) is not acceptable.
- ▶ Elevators may require access control, either for elevator access (outside the elevator) or for specific floor access (inside the elevator). Coordinate requirements with university.
- ▶ Coordinate requirements for elevator equipment rooms. This may include location, access off service corridors (similar to other service spaces), proximity to elevator chase, building service requirements (power, data, telephone, HVAC / venting, other items), and other considerations.
- ▶ Elevator ceiling shall be finished with vandal resistant coating and / or surface with sufficient lighting for visibility.

7.9.11 Custodial Closets

- ▶ Provide minimum one per floor.
- ▶ Custodial closets shall be separate spaces not intended for joint use or any other purpose. Co-location of any non-custodial equipment (mechanical, electrical, data / telecommunications, facility / other storage, etc.) is not acceptable.
- ▶ Custodial closets shall be directly accessible from a corridor or service hallway.
- ▶ Custodial closets shall not be accessed through intermediary spaces (restrooms, electrical rooms, others) unless approved by university.

7.9.12 Mechanical Spaces / Rooms

- ▶ Mechanical spaces shall have the floor painted with a two part urethane epoxy.
- ▶ Mechanical spaces shall be separate spaces not intended for joint use or any other purpose. Co-location of any non-mechanical equipment (custodial, electrical, data / telecommunications, facility / other storage, etc...) is not acceptable.
- ▶ Mechanical spaces shall be directly accessible from a corridor or service hallway.
- ▶ Mechanical spaces shall not be accessed through intermediary spaces (restrooms, electrical rooms, others) unless approved by the university. In some instances, mechanical spaces are preferable to be accessed through doors to the exterior or service yards. This shall be coordinated with the university Project Manager and Department Program requirements.

- ▶ Building HVAC controls should be located in these spaces, and not the electrical rooms or ITS rooms.
- ▶ Mechanical spaces and elements within shall be treated with sound, vibration and other attenuation measures to ensure they do not adversely impact the performance of the building and its spaces / elements / FF&E.
- ▶ All mechanical equipment is to be located in mechanical rooms. No mechanical equipment shall be located in rooms not specifically designated as mechanical rooms (i.e. storage areas and other areas.)
- ▶ Provide any standard or special building services to support mechanical room operations, conditions, and other factors for performance. This may include but not be limited to considerations for power, data, telephone, HVAC / venting, and other considerations to address unique issues and performance requirements.
- ▶ House keeping pads shall be provided for all equipment. When possible, conduit and piping penetrations into the mechanical space shall be made at the floor level and not the ceiling level. Floor sinks shall be located in appropriate areas and sized for full flow. Floor sinks shall be below the level of the surrounding area to allow for gravity flow.

7.9.13 Electrical Spaces / Rooms

- ▶ Electrical spaces shall be separate spaces not intended for joint use or any other purpose. Co-location of any non-electrical equipment (custodial, mechanical, data / telecommunications, facility / other storage, etc...) is not acceptable.
- ▶ Electrical spaces shall be directly accessible from a corridor or service hallway.
- ▶ Electrical spaces shall not be accessed through intermediary spaces (restrooms, mechanical rooms, others) unless approved by the university. In some instances, electrical spaces are preferable to be accessed through doors to the exterior or service yards. This shall be coordinated with the university Project Manager and Facilities Department.
- ▶ Electrical spaces and elements within shall be treated with shielding, sound, vibration and other attenuation measures to ensure they do not adversely impact the performance of the building and its spaces / elements / FF&E.
- ▶ All electrical equipment and panels are to be located in electrical rooms. No electrical equipment shall be located in rooms not specifically designated as electrical rooms (i.e. storage areas and other areas.)
- ▶ ITS / Data rooms are separate rooms from electrical rooms / spaces and shall be addressed per the Owner's data / telecommunications standards for all aspects (i.e. building services / infrastructure, finishes, security / access control, and other items).
- ▶ Provide any standard or special building services to support electrical room operations, conditions and other factors for performance. This may include but not be limited to considerations for power, data, telephone, HVAC / venting, and other considerations to address unique issues and performance requirements.

7.9.14 Storage Spaces / Rooms

- ▶ Storage spaces shall have sealed concrete or resilient flooring unless an alternate flooring material is approved by the university Project Manager.
- ▶ Storage spaces shall be designed with module, sizing, and building services in mind for potential future conversion to office space. See office requirements for additional information.
- ▶ Storage rooms may have special requirements based on the contents to be stored in the room (i.e. security, temperature / humidity control, venting, etc.) Coordinate any special requirements with Owner.
- ▶ Provide built in storage items (i.e. casework, shelving, others) per university Project Manager and Department Program requirements.

7.9.15 Parking Structures

- ▶ Parking structure shall include minimum stall size and aisle width requirements to comply with local regulatory requirements unless otherwise approved by the university. Stall sizes shall not be less than 8'-6" wide by 18'-0" deep and aisle widths shall not be less than 24'-0" wide, with a total bay width of 60'-0", unless approved otherwise in writing by the university.
- ▶ Parking structures shall be designed to effectively move traffic in and out of the structure and surrounding access. Service levels for vehicle access and egress shall be coordinated with Owner.
- ▶ Floor / Ground Finish - Concrete with striping
- ▶ Interior Finish - Concrete: Pre-cast or cast-in place concrete with white or light colored Tnemec Paint. Paint shall be applied to all interior surfaces 4'-0" from lowest bottom edge of perimeter beam or spandrel minimum (e.g. to include ceiling beams, and 4'-0" down on columns from bottom edge of deepest perimeter beam or spandrel), including but not limited to interior sides of spandrel panels, beams, slab, columns, and other surfaces.
- ▶ Interior Finish - Masonry (CMU)
- ▶ Interior Finish : Other: All material finishes in a parking garage must be durable, low maintenance, and resistant to vandalism. They typically will be concrete (pre-cast or cast-in-place) or CMU masonry. Other materials are to be approved by the university Project Manager, whether they are significant in use or limited in use (i.e. upgraded finishes at circulation cores or other areas).
- ▶ Exterior Finish: Exterior finishes must be durable, low maintenance, and resistant to vandalism.
- ▶ Doors: Metal exterior paint grade doors. Glass lites in doors should be reviewed based on use and security.
- ▶ Provide all building services (HVAC, power, water, data, other services) to

support facility use and to support equipment to be used in facility. Where rooms / elements are required to support these items (i.e. ITS rooms, electrical rooms, mechanical rooms, elevators / elevator equipment rooms, security equipment rooms, etc.), address the standards / requirements for those rooms.

- ▶ Provide fixed furniture and equipment (security cameras, directional signage, other signage, etc.), and coordinate with building services.
- ▶ Provide provisions on exterior of structure, two sides minimum, for electronic signage to be mounted to exterior at upper levels of garage. Provide all directional signs, interior and exterior, for vehicles and pedestrians (i.e. entry signage, accessible signage, vehicle wayfinding / directional signage, pedestrian vehicle / wayfinding signage, other signage). Coordinate all signage with power and data services to support signage operations. Use of branding images and logo to be coordinate with university graphics and signage program.
- ▶ Accessibility - Ensure accessibility standards are met in parking garages.
- ▶ Campus parking and access system for locations, quantity, etc. All parking structures are to provide accessible parking.
- ▶ Security / Safety - coordinate all safety measures and precautions including camera systems and locations with NUPD and ITS **during initial** facility planning stages.
- ▶ Lighting, both exterior and interior, must be carefully considered to provide adequate lighting for safety, wayfinding, security camera operation in night conditions, and other considerations.
- ▶ Provide concrete pedestrian walkways from all parking structure exits to the exterior. Provide managed and safe pedestrian access and movement within and outside of parking structures that does not conflict with vehicular movement.
- ▶ Special Considerations:
 - » *Consider donor signage potentials and special signage for functional, safety, or warning purposes in design.*

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