

SECTION 2
DIVISION 11
EQUIPMENT

DIVISION 11 - EQUIPMENT

Note: This is a guide for Designers only. Contents shall not be used in lieu of specifications as part of the Designer’s contract documents.

GENERAL PROVISIONS

- 1.1 CAPITAL IMPROVEMENT PROJECT EQUIPMENT IS IN ONE OF TWO CATEGORIES
- A. Fixed (built-in) Equipment is defined as equipment that will become an integral part of the project by the fact that it will require connections with the structural, mechanical, plumbing, or electrical systems. It is acquired through the construction contract and is in the project construction budget. This includes such items as shelving, food service equipment, unit kitchens, cabinets, laboratory work benches, fumes hoods, and fixed seating. The specifications shall clearly define which contractors have responsibilities relative to equipment receiving, inventory, and installation (including utility hook-ups).
 - B. Moveable Equipment is generally defined as equipment that does not have permanent attachment to the building’s systems. There is a budget for moveable equipment within the total project authorization. This equipment will be purchased by the University directly and is not part of any construction contract. Most of the items will be purchased by the University’s Purchasing Department and, therefore, are governed by state purchasing regulations.
 - C. There may be a list of moveable equipment in the project’s program statement and the designer may be asked to help develop the final moveable equipment list as an additional service.
 - D. Allowances for all equipment need be considered during design. Some equipment may require connections to the project structure or utilities; therefore provisions for connections shall be in the project design (power, waste, water, natural gas, etc.). Both drawings and specifications shall clearly define who is responsible for receiving, installing, and connecting equipment.

VENDING EQUIPMENT

- 1.2 COORDINATION
- A. The owner’s representative will coordinate vending area requirements to be included in the design. Connection requirements of equipment (power, water, etc.) shall be provided to the designer and included in the design. Equipment shall be provided by the University or vending companies having contracts with the University. Requirements for a typical vending area are as follows:
 - 1. Drink, sandwich, and candy require a 20 amp duplex receptacle.
 - 2. All water and electrical outlets should be 18 inches A.F.F.
 - 3. Floor finishes should be hard surface (ceramic tile, etc.).
- 1.3 VENDING MACHINES PROGRAM SPECIFICATIONS
- A. Purpose: To provide students, faculty and staff convenient access to snack and beverage vending machines whenever the facility is open for operation. Machines should be located inside the facility in an easily accessible location but visual presentation and minimization of noise transference is important. If the facility includes covered outside areas and patios, consideration should be given to locating additional vending machines in this location if it can be done tastefully. If workrooms, kitchenettes, or lounges are included in the program

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

consideration should be given to locating vending machines in or near these areas also. Power and data outlets for vending machines shall be mounted at 78" AFF.

- B. Quantity Needed:
1. Faculty/Staff Office Building
 - a. Minimum: 1 snack and 1 beverage machine per building per 100-150 people.
 - b. Optimal: 1 snack and 2 beverage machines per building per 100-150 people.
 2. Combination of Classrooms & Office Building
 - a. Minimum: 1 snack and 2 beverage machines per building per 100-150 office people & 10 classrooms.
 - b. Optimal: 2 snack and 4 beverage machines per building per 100-150 office people & 10 classrooms.
- C. Design Factors
1. Typical Weight of Loaded Machine: @ 1000 lbs for bottle beverage Diagrams – (Attached?)
 2. Space Needed Per Machine:
 - a. Space for machine—79" high X 37" to 55" wide X 41" deep
 - b. Space need to service—37" from front of the machine
 - c. Spaced needed for facade—96" high; 2 end caps at 10" each
 - d. Space for convenient customer clearance—44 inches beyond the service space ideal.
 - e. Total Spaced needed per machine: 10.77 sq ft to 15.89 sq ft machine only
 - f. Total Space Recommended: 79 "high X 185 "wide X 78" deep - Space for typical vending set-up of 3 machines, 1 microwave, and 1trash/recycle. If a glass front bottle machine is used, add 5" to the width. If an "elevator" machine is used, add 15".
 3. Service Access
 - a. Type/Size of Access Needed for Installation and Servicing: Width and Height of door openings needed for machine clearance – 36" wide X 79" high
 - b. Preferred access without use of elevator or stairs: If elevator must be used to install, insure width, height and weight rating – 36" w X 79" h—weight empty: up to 680 lbs.
 - c. Spatial Relationship of Spaces and Access: Location of vending near fountains and bathrooms, high traffic areas (lounges, labs, concentration of classroom, or other high density utilization spaces), and/or high traffic entrances is optimal. Storage and access to loading dock or other outside unloading area is preferred both for installation and routing servicing.
 4. Utility Requirements
 - a. Power – Dedicated 20 amp/110 volt circuit for each beverage machine.
 - b. Snack machine can be plugged into outlet with beverage machine.
 - 1) 49er Card Access – Standard network connection
 - c. Sanitary Sewer drains in tiled areas to facilitate cleaning
 5. Special Considerations (Noise, Aesthetics, etc.):
 - a. Floor and Wall treatments – This will be a high use area. Tile floor is recommended around the machines to facilitate cleaning of spills; if carpet is utilized near machines color/pattern should be selected to hide stains.
 - b. Sheetrock wall corners should have bumpers or edge protectors to prevent damage during machine filling. Wall finish around machines should facilitate cleaning, i.e. gloss paint.
 - c. Noise – Machines should be located as to minimize noise transference to other areas of the facility. This may include placing machines in a room, alcove, or otherwise creating noise barriers.
 - d. Aesthetics - We would like as possible to integrate machines with facades so they appear planned versus just stuck together in a space. See Owner for facade approach. Although we would like the machines very accessible, they should be visually attractive. This may require some screening, etc.

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

- 6. Trash
 - a. Large and attractive Trash and Recycling containers should be located near all vending areas and should be integrated into the wall lines as possible, i.e. not appear to be an afterthought, stuck in a hallway.
- D. Amenities
 - 1. As space permits the following items would be included with a central vending area, as possible in distributed location:
 - a. Space, utilities, and counter for a commercial grade Microwave.
 - b. Counters for patrons to set their materials/packs, etc on while they use the machine, or consume their purchase.
- E. Other Program Considerations:
 - 1. Avoid placing machines in locations in which usage will block hallway access. If staff workrooms/kitchenettes or staff and student lounges are included in the program, consideration should be given to locating vending machines in these locations also, i.e. one beverage and snack machine per workroom/lounge. Facility tenants/owners should be consulted before placing vending machines in these areas.

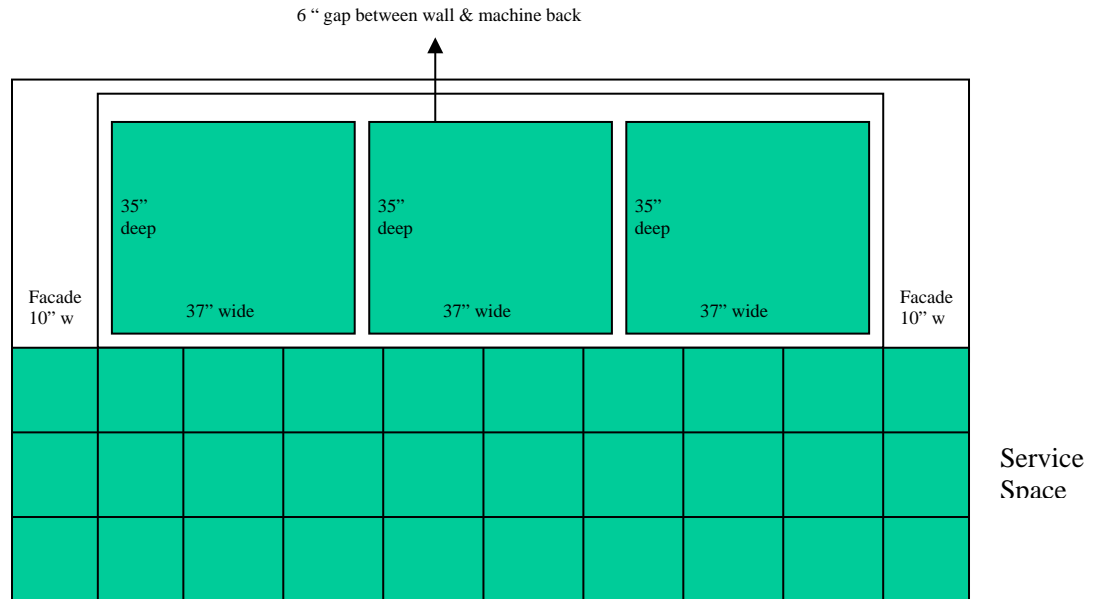
1.4 CAMPUS CONTACT

- A. For Additional Information and Design Review:

Name Auxiliary Services
Address Auxiliary Services Bldg.
 UNC Charlotte
 9201 Univ. City Blvd.
 Charlotte, NC 28223-0001

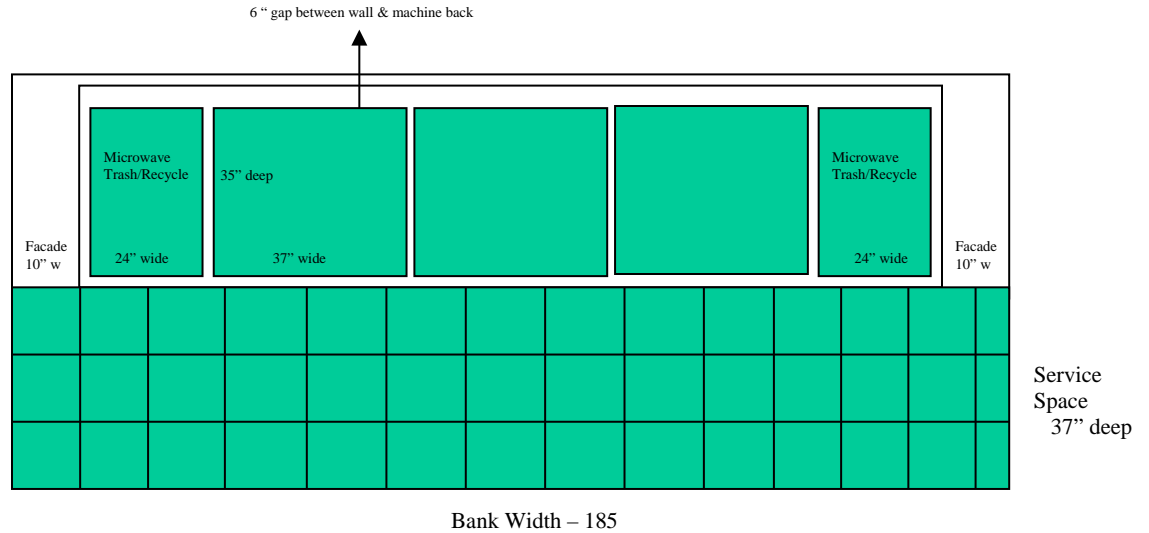
Phone 704.687.2413
Fax 704.687.6828

1.5 SPACE DIAGRAMS



Bank Width – 136 "

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment



COPY MACHINES PROGRAM SPECIFICATIONS

1.1 PURPOSE

- A. To provide students, faculty and staff convenient access to copiers whenever the facility is open for operation.
- B. Machines may be located in publicly accessible areas and inside departmental workrooms.
- C. Should a copier be located in a publicly accessible area presentation and adherence to safety codes is important. Also, most companies have guidelines or requirements for service work zones that need to be accommodated.
- D. Care should be taken to not place copiers too close to built-in cabinetry, as copier equipment is changed every 3-5 years and new equipment may vary in size from the initial machine.
- E. A small supply cabinet or small worktable is required close to the equipment. Office paper recycling system should also be located close to machine.

1.2 QUANTITY NEEDED

- A. Faculty/Staff Office Building
 - 1. Minimum: 1 publicly accessible copier per building
 - 2. Optimal: 1 copier per department with 1 publicly accessible copier per building.
- B. Combination of Classrooms & Office Building
 - 1. Minimum: 1 publicly accessible copier per floor
 - 2. Optimal: 1 copier per department with 1 publicly accessible copier every other floor

1.3 DESIGN FACTORS

- A. Typical Weight of Loaded Machine: @ 250 lbs
- B. Space Needed Per Machine:
 - 1. Space for machine: 42.5" high X 59" wide X 28" deep
 - 2. Space need to service
 - a. Front: 30"
 - b. Right Side: 10"

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

- c. Left Side: 10"
 - d. Back: 7"
 - e. Height: 72" from floor
 - 3. Space for convenient customer clearance—44 inches beyond the service space ideal.
 - C. Total Spaced needed per machine: 36 sq ft of floor space for machine only
 - D. Total Space Recommended: 72 " high X 135 " wide X 65" deep - Space for copier with duplex and high capacity feeder/finisher attachment, adequate service space, 36" table/storage cabinet, and 2 10" wide office paper recycling bins.
 - E. Type/Size of Access Needed for Installation and Servicing:
 - 1. Width and Height of door openings needed for machine clearance – 32" wide; height not an issue
 - 2. Preferred access without use of stairs
 - 3. If elevator must be used to install, insure width and weight rating – 32"w—weight empty: up to 250 lbs not including personnel
 - F. Spatial Relationship of Spaces and Access:
 - 1. Location of publicly accessible copiers near high traffic areas (lounges, labs, concentration of classrooms, or other high density utilization spaces), and/or high traffic entrances is optimal.
 - 2. Location of departmental copiers near central office or in departmental workroom is optimal.
- 1.4 UTILITIES REQUIREMENTS
- A. Power: Dedicated 20 amp/115 volt circuit
 - B. 49er Card Access
- 1.5 ENVIRONMENTAL REQUIREMENTS:
- A. Temperature: Greater than 50 F and less than 90 F
 - B. Humidity: 10% RH minimum and 85% RH maximum
- 1.6 SPECIAL CONSIDERATIONS (NOISE, AESTHETICS, ETC)
- A. Built-in shelving/cabinetry – Care should be taken to not place copiers too close to built-in cabinetry, as copier equipment is changed every 3-5 years and new equipment may vary in size from the initial machine.
 - B. Heat – Copiers generate heat both at rest and during operation. Proper ventilation should exist to handle 612 BTU per hour when at rest and 2,407 BTU per hour when operating.
 - C. Noise – Machines should be located as to minimize noise transference to other areas of the facility. This may include placing machines in a room, alcove, or otherwise creating noise barriers.
 - D. Aesthetics - We would like as possible to integrate machines so they appear planned versus just stuck together in a space. We would like the machines very accessible and they should be visually attractive. This may require some screening, etc.
 - E. Trash – Small and attractive Trash and Recycling containers should be located near all copier areas and should be integrated into the wall lines as possible, i.e. not appear to be an afterthought, stuck in a hallway.
 - F. Amenities – As space permits the following items would be included with a copier area, as possible in distributed location.

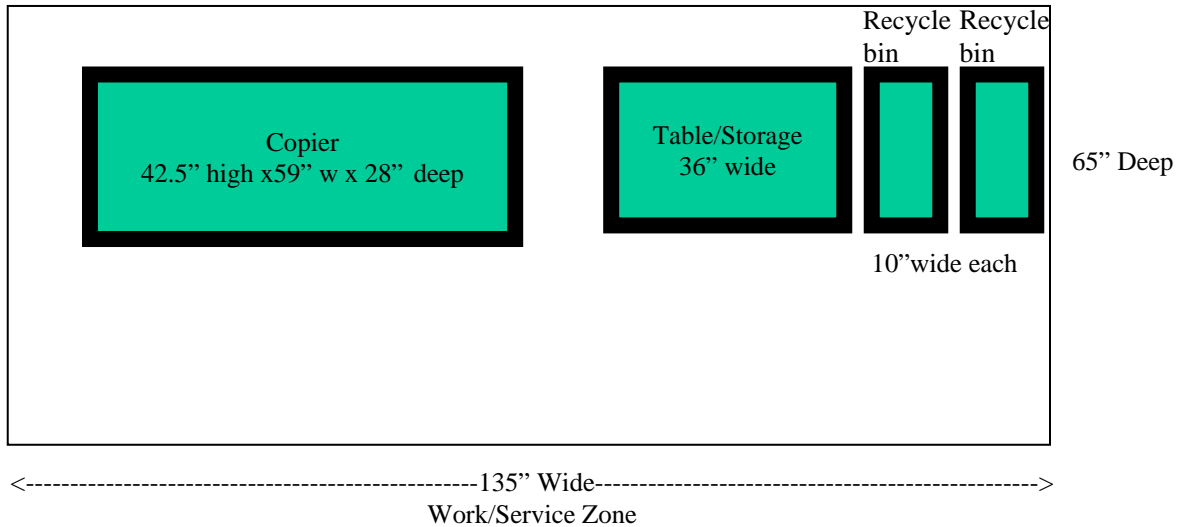
University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

- G. Table for patrons to set their materials/packs, etc on while they use the machine
- H. Other Program Considerations: Avoid placing machines in locations in which usage will block hallway access. If staff workrooms/kitchenettes or staff and student lounges are included in the program, consideration should be given to locating copier equipment in these locations also, e.g. one machine per workroom/lounge. Facility tenants/owners should be consulted before placing copiers in these areas.

1.7 **CAMPUS CONTACT FOR ADDITIONAL INFORMATION AND DESIGN REVIEW:**

Name Auxiliary Services
Address Auxiliary Services Bldg.
 UNC Charlotte
 9201 Univ. City Blvd.
 Charlotte, NC 28223-0001
Phone 704.687.2413
Fax 704.687.6828

1.8 **DIAGRAMS:**



PAY-FOR-PRINT PRINTING PROGRAM SPECIFICATIONS

1.1 **PURPOSE**

- A. To provide students, faculty and staff convenient access to printers whenever the public or departmental lab is open for operation. Machines may be located in publicly accessible areas and inside departmental labs. Care should be taken to not place printers in or too close to built-in cabinetry, as equipment is changed every 3-5 years and new equipment may vary in size from the initial machine. A small supply cabinet is required close to the equipment. Office paper recycling system should also be located close to machine.

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

1.2 QUANTITY NEEDED

- A. Public Lab:
 - 1. Minimum: 1 publicly accessible printer per building
 - 2. Optimal: 1 printer per lab.
- B. Classroom/Departmental Lab:
 - 1. Minimum: 1 publicly accessible printer
 - 2. Optimal: 1 printer per lab

1.3 DESIGN FACTORS

- A. Typical Weight of Loaded Machine: @ 114 lbs (Printer) & @ 80 lbs (Computer)
- B. Space Needed Per Machine:
 - 1. Printer:
 - a. Space for machine—24.4" high X 18.7" wide X 24.6" deep
 - b. Space need to service
 - 1) Front: 30"
 - 2) Right Side: 10"
 - 3) Left Side: 10"
 - 4) Back: 7"
 - 5) Height: 72" from floor
 - 2. Print Release Station:
 - a. Space for machine—17" high X 29.5" wide X 27" deep
 - b. Space need to service
 - 1) Front: 30"
 - 2) Right Side: 10"
 - 3) Left Side: 10"
 - 4) Back: 7"
 - 5) Height: 72" from floor
- C. Space for convenient customer clearance—44 inches beyond the service space ideal.
- D. Total Spaced needed per machine: 36 sq ft of floor space for machine only.
- E. Total Space Recommended: 72 " high X 135 " wide X 67" deep - Space for printer with Pay-for Print Release Station, adequate service space, 36" table/storage cabinet, and 2 10" wide office paper recycling bins.
- F. Type/Size of Access Needed for Installation and Servicing:
 - 1. Width and Height of door openings needed for machine clearance – standard size interior door; height not an issue
 - 2. Preferred access without use of stairs
 - 3. If elevator must be used to install, insure width and weight rating 32" w—weight empty: up to 215 lbs not including personnel
- G. Spatial Relationship of Spaces and Access: Location of publicly accessible printers in or near public computer labs and departmental labs used as classrooms is optimal.

1.4 UTILITIES REQUIREMENTS:

- A. Power – Two (2) Dedicated 20 amp/115 volt circuit
- B. Network Line
 - 1. Two (2) campus network drops
 - 2. 49er Card Access --Twisted pair back to Telecommunications Room

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

1.5 ENVIRONMENTAL REQUIREMENTS:

- A. Temperature: greater than 50 F and less than 90 F
- B. Humidity: 10% RH minimum and 85% RH maximum

1.6 SPECIAL CONSIDERATIONS (NOISE, AESTHETICS, ETC.):

- A. Built-in shelving/cabinetry – Care should be taken to not place printers in or too close to built-in cabinetry, as equipment is changed every 3-5 years and new equipment may vary in size from the initial machine.
- B. Heat/Mechanical Ozone – Printers generate some heat and mechanical ozone. Proper ventilation should exist to handle 612 BTU per hour.
- C. Noise – Machines should be located as to minimize noise transference to other areas of the facility.
- D. Aesthetics - We would like as possible to integrate machines so they appear planned versus just stuck together in a space. We would like the machines very accessible and they should be visually attractive.
- E. Trash – Small and attractive Trash and Recycling containers should be located near all printer areas and should be integrated into the wall lines as possible so that they appear to be planned for the space.
- F. Amenities – As space permits the following items would be included with a printer area, as possible in distributed location:
 - 1. Table for patrons to set their materials/packs, etc on while they use the machine
 - 2. Small storage area for paper and toner supplies

1.7 OTHER PROGRAM CONSIDERATIONS:

- A. Public labs are often open 24/7 and sometimes do not have attendants on duty. Allowances should be made to accommodate devices to secure the equipment to the tables/cabinets.

1.8 CAMPUS CONTACT FOR ADDITIONAL INFORMATION AND DESIGN REVIEW:

Name	Auxiliary Services
Address	Auxiliary Services Bldg. UNC Charlotte 9201 Univ. City Blvd. Charlotte, NC 28223-0001
Phone	704.687.2413
Fax	704.687.6828

CENTRALIZED MAIL ROOM PROGRAM SPECIFICATIONS

1.1 CENTRALIZED MAIL ROOM

- A. Location: Mail is moved about campus in bins transported with small pick-up trucks or cart vehicles. To facilitate pick-up and delivery centralized mail rooms should be located near or adjacent to the loading dock area, or be otherwise easily accessible from an exterior location by mail service personnel using campus motor vehicles. Additionally they must be easily accessible to departmental staff within the building.
 - 1. Door Access Control: The room must contain a secure door to be accessible only by mail delivery and designated faculty and staff of each department housed in the building. The

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

access control mechanism should be a card reader system tied into the campus wide Lenell card access system per the approved University standard with accompanying master key accessible hardware.

2. Size: The scale 8'X 10' drawn above is a maximum size requirement, which will vary depending upon the number of departments occupying the building. Each room should have enough space to place outgoing bulk mail trays or tubs being sent from departments for processing. Shelving should be of such that will allow sorting of newspapers, flats and some small boxes. This design may be modified as space is allowed in each building and based on the number of departments/offices requiring mail services. Size and layout should be coordinated during schematic design with the Director of Mail Services.
3. Room finishes:
 - a. Shelving: A good working sample of the shelving is located in the College of Education building.
 - b. The floor should be finished with tile if possible
 - c. Lighting needs to be adequate to insure that users can see and read small print on mailing materials
 - d. Since the space will be accessed by building users it is preferable that the space be interior to the facility and conditioned (air and heat) versus requiring building users to be exposed to the outside elements.
4. The following existing mailrooms would serve as a good example of what is needed, again depending on the number and type of departments and individuals occupying the facility: College of Education Mailroom Woodward Hall Mailroom.
5. When the mail service area also functions as the recycling area for the department, the recycling area must be large enough to accommodate two paper containers (each 3 feet by 6 feet in plan).

RESTROOMS

1.1 FLOORS, WALLS, CEILINGS AND PARTITIONS SHALL BE EASY TO CLEAN, NON-POROUS, AND ACID RESISTANT. FLOORS SHALL BE A WATERPROOF, SLIP RESISTANT NO-WAX CERAMIC TILE.

1.2 ALL TOILETS, URINALS AND THEIR RESPECTIVE PARTITIONS SHALL BE WALL HUNG.

1.3 ONE HOSE SPIGOT SHALL BE PROVIDED UNDER THE LAVATORY COUNTERTOP FOR EACH RESTROOM.

1.4 EACH RESTROOM SHALL HAVE A MINIMUM OF ONE FLOOR DRAIN LOCATED AT THE LOW ELEVATION IN THE FLOOR, PREFERABLY AWAY FROM CIRCULATION SPACE.

1.5 TOILET PAPER, PAPER TOWEL AND SOAP DISPENSERS WILL BE SUPPLIED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.

1.6 A WET HOUSEKEEPING CLOSET IS REQUIRED DIRECTLY ADJACENT TO EACH RESTROOM. THE CLOSET SHALL BE EASILY ACCESSED FROM A CORRIDOR OR OTHER PUBLIC CIRCULATION AREA. THERE SHALL BE NO SOFT FLOOR COVERINGS ALLOWED BETWEEN THE WET HOUSEKEEPING CLOSET AND THE RESTROOM(S) IT SERVES.

University of North Carolina at Charlotte Design and Construction Manual
Section 2, Division 11 – Equipment

1.7 EACH HOUSEKEEPING CLOSET SHALL BE A MINIMUM OF 6 FEET BY 8 FEET IN PLAN AND HAVE SHELVING FOR SUPPLY STORAGE AND WALL MOUNTED TOOL HOLDERS FOR MOPS AND BROOMS.

DESIGN GUIDELINES FOR CLASSROOM PLANNING AND DESIGN

1.1 PLEASE SEE APPENDIX A, DESIGN GUIDELINES CLASSROOM PLANNING AND DESIGN