

11 Equipment

GENERAL

Designers shall verify that all applicable portions of these standards are incorporated into the project's design, drawings, specifications and final construction. Requests for variances from these standards shall be submitted in writing to the DCM Project Manager, using the KU Standards Variance Request Form found in [Appendix A1.1](#), for review and written approval or rejection as indicated on the form.

RELATED DOCUMENTS & REQUIREMENTS

Refer to the following for requirements that also apply to work of this section.

- ❑ [Division 1 - General Requirements](#); specifically refer to the "Design Guidelines – Support Spaces" for additional information regarding the design of loading docks, service areas, lecture halls, classrooms, vending areas and other spaces which incorporate equipment items.
- ❑ [Appendix A1.5 - Classroom Standards](#)
- ❑ [Division 12 - Furnishings](#); Laboratory Casework & Equipment – Design Guidelines; Wood Laboratory Casework (Section 12348)

Definitions: Equipment and furniture have been organized into the following classifications:

Fixed Equipment: Items that are specified by the Project Architect as a part of the Construction Documents or attached to the building, such as chalkboards, laboratory furniture, carpet, blinds, casework, auditorium seating, and items requiring mechanical or electrical connections.

Movable Equipment: Items that are carried on an equipment inventory and/or have a life expectancy of one year or more. The University will be responsible for purchasing movable equipment and furniture.

AUDIO/VIDEO PROJECTION SYSTEMS – DESIGN GUIDELINES

General: A careful review of technical requirements for equipment such as projection screens, overhead projectors, video projectors, lecterns and controls shall be coordinated with DCM, FO, NTS, the KU Media Committee and the Office of Instructional Development Services (IDS).

- ❑ Refer to [Appendix A1.5 - Classroom Standards](#) for specific criteria re: rough-in requirements, conduit bundles, future expansion criteria, etc.

KU Media Committee: For projects which include A-V systems, drawings of those spaces are to be given to DCM's Project Manager at the Design Development stage, who will forward them to the DCM Media Committee rep (currently: Mark Reiske), for review and comment by this committee.

- ❑ This committee generally meets every two to four weeks, and is charged with coordinating the design of multimedia classroom spaces and equipment in these types of spaces across campus.
- ❑ It is University policy that faculty should be able to use any A-V multimedia teaching space on campus and find consistent equipment and capabilities at any location.

Special Consultants: Designers shall include the services of acoustical, A-V and/or lighting consultants as needed to provide the level of design and achieve the functional outcomes outlined in the architectural program, so that each space is properly designed to meet it's intended use.

A-V Equipment Installation: KU's FO or IDS departments shall install video projection equipment and controls for equipment that are procured separately by the University, outside of the construction contract.

LOADING DOCKS AND EQUIPMENT – DESIGN GUIDELINES

Loading Dock Heights: Verify types of vehicles which will be using loading docks with user groups. Design docks with appropriate height(s), as approved by user groups, FO and DCM.

Dock Levelers: If the range of vehicle heights requires it, provide built-in dock plates or levelers that will accept the range of heights required.

Loading Dock Edges: Protect top edges with not less than a 3"x3" steel angle, hot-dip galvanized, embedded in the concrete dock's exposed upper edge, full-width.

Trash and Recycling Containers: Identify location(s) for all trash or recycling containers that are proposed to be stored near loading docks. Show and note their locations, to-scale, on site plan construction documents. Verify that access routes in and out of this area for vehicles serving these containers are appropriately provided.

FOOD SERVICE EQUIPMENT – DESIGN GUIDELINES

General: Food service equipment shall meet all the requirements of the National Electrical Code, National Sanitation Foundation and shall be UL listed. Carefully review the requirements for accessibility, especially for reach limitations at self-serve stations.

Accessibility shall include the possibility for handicapped employees to work in the food preparation areas.

- ❑ Designers shall include the services of food service consultants as needed to provide the level of design and achieve the functional outcomes outlined in the architectural program, so that each food service preparation space is properly designed to meet its intended use.

VENDING EQUIPMENT – DESIGN GUIDELINES

General: The requirements for vending services shall be reviewed with the Office of Design and Construction Management and the University Director of Administration (currently: Theresa Klinkenberg). Verify that the following are provided at each vending location.

- ❑ **Location:** Show vending machines, to scale, on construction drawings. Locate machines near main circulation routes and so they are easily located, but at same time design of vending machine area shall control noise and light pollution into adjoining spaces.
 - ❑ Do NOT locate vending machines within stairwells, protected horizontal exits or exit passageways.
- ❑ **Installation:** All vending machines shall be mechanically anchored in-place by vending service provider. Designer shall provide blocking in wall behind or in ceiling / soffit above vending machines, suitable to receive fasteners.
- ❑ **Electrical Power:** Provide appropriate to each piece of equipment. Include outlets for future equipment, if space allows for future units.
- ❑ **HVAC:** Condition vending areas to maintain constant temperatures and to exhaust excess heat produced by equipment.
- ❑ **NTS:** Verify if telecommunication lines will be required for KU Smart Card or other bank card pay systems. Provide dedicated conduit and blank boxes as requested.
- ❑ **Recycling Containers:** Provide space for appropriate recycling containers near vending machines. Show locations on floor plans of construction drawings. Containers will be provided by KU.

Coca-Cola Contract: The University has entered into an exclusive-provider, long-term contract with the Coca-Cola Company to provide soft drink vending machines on the main campus.

- ❑ Verify locations and numbers of vending machines to be incorporated into new or renovated facilities during the Design Development phase of each project. Consult with DCM and appropriate administrators of this contract.

Kansas Union Snack Bar Option: In addition to, or in lieu of, locating vending machines within a building, it is possible that a snack bar administered by the Kansas & Burge Unions could be provided, if the Union Director and KU Administration agree to this approach.

RECYCLING EQUIPMENT – DESIGN GUIDELINES

General: Recycling containers shall be incorporated into the design of all vending areas, and into appropriate locations for the recycling of office waste materials.

- Review proposed vending areas and floor plans with KU's Recycling Coordinator (currently: Victoria Silva, 785-864-2855) to determine types of containers, quantities and locations.
- Standard recommendations and guidelines are available at the KU-EHS, Recycling Program website: <http://www.ehs.ukans.edu/recycling/>

DARKROOMS – DESIGN GUIDELINES

General: All darkroom facilities shall be fully accessible to the handicapped. Provisions for accessibility shall include darkroom doors which fold, pop-out or otherwise provide handicapped egress. The Project Architect shall review and verify the specific requirements for ventilation, make-up air and plumbing systems with DCM, FO, the Director of EHS and the user group of each proposed darkroom.

EHS Approval: All darkroom designs must be reviewed and approved by the Director of KU's Environmental Health & Safety Office (currently: Mike Russell).

Backflow Protection: Water supplies shall be provided with backflow devices.

Waste Metal Collection: Waste water systems may require local collection systems of waste metals; verify type and maintenance plan with EHS.

Exhaust System: Darkrooms shall have dedicated exhaust systems, to prevent fumes bleeding back into other spaces, especially under power failure.

DARKROOM EQUIPMENT – 11470

- Doors into darkrooms may either use an oversized, light-tight, circular darkroom door; a square coiled-curtain darkroom door assembly; or a std. darkroom door with adjacent 3' wide swing door.
- Provide at least one enlarger location with an adjustable-height easel for handicapped use.
- Photographic sinks shall also be open base, accessible type.

LABORATORY FUME HOODS – 11610

General: The State has a negotiated procurement contract in-place for the purchase of fume hoods. Consult with DCM and the user group to verify if fume hoods for each project will be purchased through the State contract or as part of the construction project.

- Verify that the bid documents clearly designate the scope of work to be provided by the Contractor to rough-in or prepare the space, or to install fume hoods that are to be furnished by others.
- The layout of lab equipment shall include accessible fume hood stations in both teaching and research laboratories.
- Fume Hoods shall not be located adjacent to exits from rooms.
- Base cabinets for fume hoods should be specified to match other lab casework within space. Coordinate provision of base cabinets for fume hoods with lab casework specified in Division 12.
- Fume hoods shall be connected to a single, dedicated exhaust fan for each hood, except that fume hoods in the same lab are typically allowed to be manifolded to a single exhaust fan. Manifold exhaust systems will also be considered when it can be shown that this is a more energy-efficient system.
 - No manifold exhaust systems are allowed unless specifically approved by DCM and EHS during the preliminary design phases.
- Fume hoods shall include alarms tied into the building energy management system for failure detection.

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