

EQUIPMENT

This section of the Washington University School of Medicine (WUSM) Design Standards addresses the following requirements for Equipment and its application in WUSM projects:

MISCELLANEOUS EQUIPMENT SCHEDULE KITCHEN APPLIANCES LABORATORY FUME HOODS

The Design Team shall coordinate items in the following section with Owner, WUSM Project Manager, and EH&S (where applicable), including the completion of the Miscellaneous Equipment Schedule, early in the design process. The Miscellaneous Equipment Schedule shall be a part of the Design Development and Construction Document packages.

References:

[American Society of Heating, Refrigerating and Air-Conditioning Engineers \(ASHRAE\)](#)

[National Environmental Balancing Bureau \(NEBB\)](#)

Standards References:

[ACCESSIBILITY](#)

[EH&S](#)

[LABORATORY FUME HOODS \(STANDARD 22\)](#)

[APPENDIX – MISCELLANEOUS EQUIPMENT SCHEDULE](#)

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIGN GUIDELINES

1. The Equipment Schedule serves as a common reference tool for the Owner, Architect, Engineers and the Contractor(s) throughout the project. Early identification of all equipment by the department and the development of the equipment listing shall assist in ensuring that the preliminary design properly addresses and accommodates all the known and anticipated miscellaneous equipment for the project scope. This includes both Owner furnished equipment and Contractor furnished equipment. In addition, the Equipment Schedule shall assist the Architect and Engineer during their equipment survey and through document completion. This should result in better coordination between disciplines.
2. It is the Architect's responsibility to incorporate into the contract documents the WUSM developed Standard Miscellaneous Equipment Schedule. Use of any other format for identification of miscellaneous equipment is by exception only and shall be on a per project basis as approved by the WUSM Project Manager. WUSM will provide the miscellaneous equipment schedule form along with CAD drawing files to the architect for incorporation and completion for each project. The importance of accurately completing this schedule cannot be over emphasized.

PRODUCT REQUIREMENTS

1. Complete the [Miscellaneous Equipment Schedule](#).

MISCELLANEOUS EQUIPMENT SCHEDULE																																																			
*New / Future Equipment. Exact equipment to be determined at a future date. Equipment / utilities assumed for design purposes.												C - CONTRACTOR D - DEPARTMENT O - OWNER OX - OWNER EXISTING ON - OWNER NEW OF - OWNER FUTURE				EXISTING EQUIPMENT			ELECTRICAL										GASES					UTILITIES						REMARKS											
NO.	ITEM	TRD	LOCATION	ROOM NO.	PRG	MODEL	SIZE W.D.&H	WEIGHT LB.	FURN BY	COIN BY	TITLED / CERT BY	DECOMP BY	DISCONN BY	RELOC / RET BY	EXIST LOCATION	WAVE	WOLF	WUP	NZ	PLAS COMPANION	EMERGENCY POWER	RESEARCH / CONF	TEL. (L) DATA	MAP / WAVE	G	O	A	V	BC	BG	BA	DO	DR	DAH	BP	BR	SI	PAW	CH	CTH	CFH	OFH	PSI								

KITCHEN APPLIANCES

DESIGN GUIDELINES

1. The Architect shall be responsible for incorporation of the Owner's appliances into the overall design. This includes incorporation of relocated existing, new, and future anticipated appliances. Appliances include but are not limited to: refrigerators, microwaves, coffee makers, etc.
2. Appliances shall be manufacturer's standard models. The use of undercounter appliances is by exception only, and must be reviewed with WUSM Project Manager. If undercounter appliances are approved on project, raise portion of casework to counter height of 36-inches if possible, to allow for standard appliance heights. ADA height undercounter appliances shall be by exception only.

PRODUCT REQUIREMENTS

1. Equipment, responsibility for procurement, and installation responsibility shall be reviewed with the WUSM Project Manager on a per project basis. The below appliance schedule indicates the WUSM basis of design / responsibility for review.

Appliances shall be furnished and installed as follows:

Appliance	Furnish by	Install / Connect by
Refrigerator (undercounter)	Contractor	Contractor
Refrigerator (top freezer)	Contractor	Contractor
Refrigerator (side-by-side)	Contractor	Contractor
Refrigerator w/ ice maker (by exception only)	Contractor	Contractor
Ice Machine (undercounter or countertop)	Contractor	Contractor
Ice Machine (chest – non-human consumption)	Contractor	Contractor
Microwave Oven	Contractor	Contractor
Range (by exception only)	Contractor	Contractor
Dishwasher (by exception only)	Contractor	Contractor
Coffee Maker	User	User
Coffee Maker w/ water supply	User	Contractor (waterline only)
Garbage Disposals (not permitted)		

INSTALLATION

1. Provide waterlines for refrigerators with automatic ice / water, ice machines, dishwashers, and coffee machines that require water taps. Waterlines for counter appliances such as ice machines or coffee makers should be installed in wall boxes above the countertop.
2. Verify the drain connection requirements for all proposed equipment. Where available, provide a dishwasher drain type connection to an adjacent sink. Provide floor drains for larger stand-alone ice machines. Advise the WUSM Project Manager of any appliance requiring installation of a back flow preventer for code compliance prior to proceeding.

LABORATORY FUME HOODS

DESIGN GUIDELINES

1. On renovation projects, the fume hood selection needs to be verified / confirmed to work within the existing building's exhaust system. Typical size for fume hoods is 4-feet. Specialty or larger hoods should be reviewed and approved by WUSM Project Manager.
2. Retrofitting constant volume to VAV hoods requires close coordination with EH&S.
3. Include notes on the drawings for EH&S to be notified for decommissioning of hoods and exhaust ducts that are to be removed or relocated. The exhaust ducts will also be tested by EH&S for radioactivity.
4. Verify services (gas, air, vacuum, water) on a project basis. All services may not be required.

PRODUCT REQUIREMENTS

1. Standard fume hood should be the Kewaune Supreme Air Venturi hood or approved equal.
2. Fume hoods should be selected from approved vendor list. Please contact Resource Management.
3. Laboratory fume hood airflows (for new installations and for renovation projects) shall be designed based on a sash full open position of 14" for vertical sashes. Hoods to include the ability to raise the sash to 18" as needed for loading / unloading. Hoods with dual sashes are not preferred. Laboratory fume hoods may require more stringent airflow, direct external exhaust, and / or specialized filtration depending on the expected hazard present (e.g. volatile radiation) in the hood. If dual sash design is requested, this requires review and approval by WUSM Project Manager.
4. Laboratory fume hoods that are ducted to exhaust air systems shall be provided with an extra 3" behind fume hood for venting.
5. Hood to have velocity audible/visual alarm for low velocity or if sash is raised above 14". Hood to have digital readout with velocity at fume hood.
6. The use of occupancy sensors on new hoods for energy savings shall be discussed during design to evaluate life cycle cost. Motorized sashes to be discussed on a project basis. EH&S review is required for both.
7. Glass doors are required. Plexiglass is not allowable on hoods unless required for radioactivity use.
8. Inside liners to be determined based on use of hood. Liners to be discussed during design.
9. Hood to have stainless steel exhaust duct collar.
10. Drains are not allowed in the hood unless requested by the WUSM Project Manager.
11. Acid storage cabinets to be vented into hood. No holes are to be made through the work surface. A retention flange shall be installed on the pipe penetration to ensure the pipe stays in place, operational, and creates a sealed chamber. Provide one adjustable lined shelf, of similar material and thickness as interior liner, supported with nylon "locking" clips to avoid inadvertent removal. A 1-inch deep liquid tight drip pan shall cover the entire floor area of the lined cabinet compartment.

12. Under hood flammable storage cabinets may require venting. This should be evaluated based on the chemicals used within a lab; some flammable chemicals are odiferous, and venting may be desirable for health and safety reasons. Consult with EH&S prior to making a determination on venting. If venting is considered, it must meet the design guidelines outline in NFPA 30 9.5.4.2.