Air Conditioning Policy

(NEW March 3, 2005)

Introduction and Purpose:

Many of MSU's facilities were constructed in an era when internal environmental space conditioning was limited to heating and ventilation systems. Consequently, many of our facilities do not have internal, built-in air conditioning capabilities. In the past, relatively small equipment and lighting loads, large operable windows (taking advantage of generally cooler climatic conditions) and reduced building occupancies during summer periods, worked in combination to allow the facilities to adequately serve building occupants. However, recent trends have offset those once favorable factors and pressure is steadily increasing for the University to accommodate the installation of retrofit air conditioning systems to meet the demands of current building users.

Unfortunately, important factors such as energy use/efficiency, maintenance costs, visual appearance/aesthetics, noise, ease of installation and life cycle costs immediately conflict with the lowest desired initial purchase and installation costs of retrofit systems.

The intent of this policy is to establish a framework within which the University can address changing demands as they relate to interior building environments under the direction of a general set of guiding principles.

Policy:

Requests to install, expand or upgrade air conditioning systems in existing buildings shall be submitted to the Office of Facilities Services (OFS) and proposed designs shall be developed in accordance with the design factors noted herein. This policy includes the continued prohibition of individual, window-mounted air conditioning units. Air conditioning systems included in new building designs shall conform to applicable energy and mechanical codes. Air conditioning aspects of residence facilities will be governed by pertinent Residence Life policies.

Procedures:

Designs to install, expand or upgrade air conditioning systems in existing systems shall consider the following factors:

a. Need : The demand for air conditioning may be driven by increased equipment loads, an increase in human occupancy, changes in other building systems, specified tolerances for activities housed in the space, or a desire of the occupants for a more comfortable work environment. Assessment of air conditioning requirements shall include compliance with applicable energy conservation codes, standards and mandates. Regardless of the identified need, the cost for design and installation of a new or expanded air conditioning system in an existing facility will generally be the responsibility of the requesting department.

b. Type of System : While requests for additional cooling will often center around individual or several adjacent spaces as opposed to whole facilities, multiple installations of individual air conditioning units quickly result in significant negative cumulative impact, on a building and institutional scale, with respect to energy/resource use, energy demand charges, and building electrical and/or water capacity. The ability to expand an existing system to accommodate a marginal increase in load may also be a consideration. At an undefined point, economy of scale regarding long-term energy consumption generally favors the installation of a whole-building system retrofit as opposed to continued diverse individual unit solutions. Type of controls and controls communications or interference with other building systems may also be a consideration.

c. Window Units Prohibited : Individual, window mounted air conditioning units are prohibited, due to their inherently short useful life; extreme energy inefficiency and high energy use profile; potential negative impacts on power quality; significant environmental impacts; refrigerant mitigation and disposal costs; objectionable appearance and noise levels; potential damage to adjacent building surfaces; interference with window operation, maintenance and cleaning; abuse of available building secondary electrical capacity; and their high potential for breach of building security.

The University Facilities Planning Board (UFPB) may recommend approval of an individual exception after thorough review of the individual situation and extenuating circumstances. Exceptions shall be reserved for specific areas of campus that have been designated for temporary/modular facilities and for situations for which no other viable solution is possible (simple initial first cost savings relative to other reasonable cost options, e.g., interior portable units, is not an acceptable parameter for exception). Exceptions shall stipulate conditions such as installation details, electrical circuit/service requirements, attachments, etc. Installation and removal of individual window air conditioning units shall be performed by Facilities Services at the user's expense. Such approvals shall expire three (3) years after initial approval. Installations may be re-authorized upon subsequent application by the appropriate department and UFPB approval in accordance with this policy. Exceptions shall not be granted for any windows facing on the Centennial Mall.

d. Energy/Resource Use : Due to steadily increasing utility costs, potential impacts to the institutional utility budgets must be treated as a primary consideration in the solution process, in order to ensure sensible outcomes relative to the University's overall mission and responsibilities. Proposed designs shall conform to applicable energy and mechanical codes.

e. Installation Factors : Installations shall be accomplished in accordance with the University's Construction Activities Policy (/policy/construction_activities_policy.htm - Construction Activities Policy) and applicable provisions of the Campus Design Guidelines. Other factors or building limitations may influence the desired choice of system options - e.g., ceiling/under-floor space, availability of vertical chases, necessary ceiling penetrations, etc.
capacity and space available for electric service, noise and vibration transmission potential, adequate structural capacity, potential for electromagnetic or radio frequency interference, exterior site availability (e.g., rooftop, ground, etc.), removal/restoration impacts, and impacts to water pressure and supply capacity.

f. Aesthetics: Since the exterior appearance of the campus is one significant factor prospective students judge when selecting a university, impacts to the exterior campus environment must also be treated as a primary consideration in the solution process. Impacts to landscape elements, pathways, adjacent exterior spaces, adjacent buildings, the campus historical fabric and specific historic elements, etc., may appear marginal for any single installation but can quickly result in significant negative cumulative impact. Insensitive installations can violate the architectural integrity, balance or continuity of existing structures and important campus spaces.

g. Maintainability: Installations must be reasonably and safely accessible for repair and routine maintenance. The regulation of refrigerants, and the general illegality of refrigerant releases, requires that service work be performed by appropriately licensed and trained personnel. Installations must also be located in a manner to minimize the risk of damage from weather, snow removal operations, icefall, etc. Requirements for seasonal shut-down/start-up shall also be considered.

h. Ownership of A/C Installations: For state-owned buildings, OFS is generally responsible for operation and maintenance (O&M) costs and the eventual capital replacement costs (i.e., system ownership) for central building systems or other air conditioning systems that are permanently attached to the building structure (systems that normally include ducting or other features that render them an integral part of the building, i.e., systems that are not readily removable or relocate-able). OFS responsibility for capital replacement of these systems is subject to overall campus maintenance priorities, budgets/funding, and related limitations.

Departments are typically responsible for O&M costs and the eventual capital replacement costs for portable cooling units that generally serve individual spaces and systems that are not ducted nor an integral part of a building. In addition, OFS will typically perform manufacturer-recommended annual preventive maintenance on such systems at the expense of the owning department.

For non-state-owned building entities (e.g., Auxiliaries, Residence Life, AES, etc.), all cooling system costs (capital and O&M) are the responsibility of the owning entity, except as may be specified otherwise in formal, auditable Use/Benefit Agreements.

i. System Cost: Analysis of cost shall consider the projected life-cycle costs of purchase, installation, operations, maintenance, energy use, energy demand, removal/restoration impacts, final disposal, etc.

Control/Enforcement:

An initial inventory of existing window units will be made by OFS in April, 2005. Any units found to be facing on the Centennial Mall will be reviewed by UFPB and remedial action may be specified. Units allowed to remain shall be grand-fathered for a period of three (3) years and are thereafter subject to the provisions of Item C above. After the initial inventory is completed, any illicit window unit that appears will be subject to review/action by UFPB. If the unit is disallowed, UFPB may specify that the unit be removed by OFS at dept expense and other solutions be developed if cooling is desired.

If any building system modifications or installations are found to be in breach of this policy, after the effective date, OFS will work with the responsible executive of the entity that created the situation to develop a solution that responds to the requirements of this policy. The department involved shall present the proposed solution to the UFPB for action/approval.