

# **Energy Policy for Transylvania University**

**Policy Implementation Date: October 4, 2010**

**REVISION-1 - January 11, 2011**

**Revision 2 – October 2012**

## **Policy Statement**

Transylvania University Physical Plant Department, depending upon the time of the year, sets forth targeted interior space temperature ranges in commonly (temperature controlled) zoned areas for academic, administrative spaces and residence halls. For the purpose of this guideline, the Physical Plant Department will be referred to as the "PPD"

## **Reason for Policy**

The policy provides the University a number of benefits. Pragmatically, the policy provides a formalized standard of indoor temperature ranges to be expected by building occupants depending upon season. It provides PPD a documented policy to stand behind in addressing indoor environmental comfort complaints with regard to temperature. These temperatures are consistent with policies of our peer institutions and with research performed by the American Society of Heating, Refrigeration and Air conditioning Engineers (ASHRAE). More importantly, enforcement of the policy will prevent inefficient and wasteful operation of centralized equipment from occurring.

The policy is a change from current practice where the temperature has been allowed to be several degrees warmer in the winter and cooler in the summer.

The policy supports the University's educational mission and commitment to sustainability. Energy reduction resulting from this measure helps curtail global social and environmental impacts including the country's dependency on foreign fossil fuels and the production of greenhouse gases that contribute to global warming.

## **Primary Policy to Which This Policy Responds**

There is no current formal University policy to which this policy responds.

## **Responsible University Office & Officer**

At Transylvania University, indoor temperature control falls within the responsibilities of the Physical Plant department. The Physical Plant Director and Operations Manager are the responsible officers for this policy.

## **Who is Governed by This Policy**

All Transylvania University Operated, Academic, Administrative, Athletic and Residential Facilities

## **Who Should Know This Policy**

This policy should be universally known to building management, faculty, staff, contract employees and occupants governed by it, as well as the greater University community as a sustainability initiative.

## **POLICY TEXT**

### **Exclusions**

Computer rooms, server rooms, telephone rooms, elevator machine rooms, laboratory spaces, Athletic Facilities, Performing Arts Theaters and sensitive document areas with specific design criteria will be excluded from the parameters of this guideline.

### **Building Heating and Cooling Indoor Space Temperature Guidelines**

#### **Heating Season**

The heating season will be defined as October 15<sup>th</sup> thru April 15<sup>th</sup>. On October 15<sup>th</sup> the 15 day weather forecast will be consulted. If predictions are for mild temperatures (55 degrees or above) the switch from air conditioning to heating will be delayed. However, the switchover will be made no later than November 1<sup>st</sup>. When high temperatures are expected to be below 55°F for two or more days prior to October 15<sup>th</sup>, the long-term forecast will be reviewed. If temperatures are expected to remain exceptionally cool, the administration MAY decide to enter the heating season early. If the decision is made to enter the heating season early, Transylvania will not return to cooling season operations until sometime between April 15<sup>th</sup> and May 1<sup>st</sup>.

Heating will be provided to maintain interior space temperatures at approximately 68° F during normal occupied hours. In implementing this policy, PPD seeks to ensure that all heated spaces are as close to 68° F as possible. In practical terms, this means temperatures may be in the 66°F-72°F range. During off-hours, temperatures may be allowed to drop to as low as 55°F.

An indoor space temperature of 68°F has been researched by ASHRAE (Standard 55 - Thermal Environmental Conditions for Human Occupancy) to be comfortable for most people (10% dissatisfaction rate) who are dressed appropriately for the season. Space temperature will be determined by temperature readings taken at the thermostat or desk level. The PPD will use their calibrated temperature and humidity measuring devices for the purpose of determining space temperature. Personal faculty, staff and student thermometers will not be used as a reference to actual space temperature. Floor level temperatures will not be used as a factor in determining actual space temperature as outlined in this policy. If the system is operating within its design parameters and the temperature in a space is within the specified range of this guideline, no action will be taken in response to a temperature complaint.

#### **Cooling Season**

The cooling season will be defined as April 15<sup>th</sup> thru October 15<sup>th</sup>. On April 15<sup>th</sup>, the 15 day weather forecast will be consulted. If predictions are for temperatures to be 55 degrees or below, the switch from heating to air conditioning will be delayed. However, the switchover will be made no later than May 1<sup>st</sup>. When high temperatures are expected to exceed 76°F for two or more days prior to April 15<sup>th</sup>, the long-term forecast will be reviewed. If temperatures are expected to remain exceptionally warm, the administration MAY decide to enter the cooling season early. If the decision is made to enter the cooling season early, Transylvania will not return to heating season operations until sometime between October 15<sup>th</sup> and November 1<sup>st</sup>.

Cooling will be provided to maintain interior space temperatures at approximately 76° F during normal occupied hours. In implementing this policy, PPD seeks to ensure that all cooled spaces are as close to 76° F as possible. In practical terms, this means temperatures may be in the 74°F-78°F range. During off-hours, temperatures may be allowed to rise to as high as 80°F.

An indoor space temperature of 76°F has been researched by ASHRAE (Standard 55 -

Thermal Environmental Conditions for Human Occupancy) to be comfortable for most people (10% dissatisfaction rate) who are dressed appropriately for the season. Space temperature will be determined by temperature readings taken at the thermostat or desk level. The PPD will use their calibrated temperature and humidity measuring devices for the purpose of determining space temperature. Personal faculty, staff and student thermometers will not be used as a reference to actual space temperature. If the system is operating within its design parameters and the temperature in a space is within the specified range of this guideline, no action will be taken in response to a temperature complaint.

### **Residential Dormitories and Campus Housing**

Temperature control for the dorm rooms is determined by the occupants of each room/house, based on the thermostat setting for their specific area. This allows the occupants to operate either in the cooling mode or the heating mode at any given time, under normal operating conditions.

Though occupants in most residence halls have the full range capability of their thermostat, as stewards of Transylvania University, and participants in our economic and sustainability initiatives, they are encouraged to adhere to the heating and cooling temperature guidelines as implemented in this policy.

Residence halls in which the thermostat ranges are controlled by PPD will have their range set to the heating and cooling ranges outlined above, 66°-72°F in the heating season and 74°-78°F in the cooling season.

It is the responsibility of the occupants of the room to ensure that the return air portion of the room unit, which is at the base of the unit, does not become blocked with furniture, clothing, bedding or any other obstacle that would prevent normal operation of the unit. Continual failure to maintain this space free and clear of obstructions will be brought to the attention of the Director of Residence Life for resolution.

If occupants are leaving their room for extended periods of time, they are encouraged to turn their unit off or select a seasonally appropriate temperature setting that will utilize less energy than the standard occupied temperature.

### **Cowgill Business and Economics, Haupt Humanities and Lucille Little Theater**

These facilities are similar to residence halls in that they are zoned heat pump systems. Each specific zone is equipped with a thermostat, which allows occupants to set their own temperature set-point.

Though occupants have the full range capability of their thermostat, as stewards of Transylvania University and participants in our economic and sustainability initiatives, they are encouraged to adhere to the temperature guidelines as related to heating and cooling as implemented in this policy, Winter 68°F and Summer 76°F.

When leaving your area at the end of the work day, weekend or Holidays, occupants are encouraged to adjust their heating or cooling set-point on the thermostat to an unoccupied temperature of 55°F Winter and 80°F Summer. These units recover quickly and should be able to reach your daytime operating set-point in short order once you adjust it back when you return to the office.

### **Humidity Control**

Though many of Transylvania University's facilities were not designed to control humidity specifically, our typical humidity ranges fall within, or are close to, the ASHRAE standard guideline. In cases where a facility cannot achieve humidity as defined by the standard, the PPD will follow the appropriate temperature guideline.

## **Campus Building Academic Year Business Hours**

### **Residence Halls and Student Housing**

Residence Halls and Student Housing will operate 24 hours a day during the academic year. They will be shut down during winter break. In the summer, efforts will be made to consolidate remaining summer student helpers and summer campers into as few residence halls as possible. All remaining halls will be fully shut down.

### **Academic & Administrative Buildings**

Monday thru Friday	7:00 am – 5:30 pm
Saturday and Sunday	Closed

### **Campus Center**

Monday thru Thursday	8:30 am - 11:00 pm
Friday	8:00 am - 8:00 pm
Saturday	12:00 Noon – 8:00 pm
Sunday	1:00 pm – 11:00 pm

### **J. Douglas Gay Jr. / Frances Carrick Thomas Library**

Monday thru Thursday	8:00 am – 12:00 midnight
Friday	8:00 am – 6:00 pm
Saturday	10:00 am – 6:00 pm
Sunday	1:00 pm – 12:00 midnight

### **Glenn**

Monday thru Friday	8:00 am – 5:00 pm
Saturday and Sunday	Closed

### **Beck Center**

Monday thru Thursday	7:30 am – 10:30 pm
Friday	7:30 am – 7:00 pm
Saturday	12:00 Noon – 4:00 pm
Sunday	4:00 pm - 9:00 pm

Areas within the building that are not being used during open hours or are not part of the activity schedule will be turned off unless they are needed. The building will be opened for home sporting events and other scheduled activities outside of regular operating hours, to be arranged with the Physical Plant Department.

Beck Center will be closed on holidays and during winter break. Shorter hours will be set in the summer, and the operating schedule will reflect these shorter hours.

### **Graham Cottage**

Graham Cottage is used on a scheduled basis only. HVAC will not normally be in operation. Use of this facility must be scheduled through the accounting office. PPD will be notified and heating or cooling arrangements will be made as required.

### **Holiday Operations**

When the university closes for the holidays, every effort should be made to “Un-Plug Transy.” Certain appliances consume electricity at all times, such as microwaves, commercial water coolers (ones that use the 5 gallon jugs of water), personal radios with clocks, etc. Commercial coffee makers are also a large energy consumer. During extended unoccupied periods, these coffee makers continually heat the water, making it ready for the next pot. This is a waste of electricity and water, as the water that is being heated continually evaporates.

**To the extent possible, “ALL” facilities will be shut down or adjusted to a night-setback temperature setting, during unoccupied hours and holidays as defined above.**

### **Personal Electric Space Heaters**

Personal space heaters use significant amounts of energy, and interfere with set temperatures in the buildings. They also pose a fire hazard, and have been known to cause outages by overloading electrical circuits. This results in a loss of productivity and potentially the loss of valuable computer documents.

The use of personal space heaters in residential or office areas is prohibited unless a space cannot be maintained at the 66°F-72°F range during heating season. In such instances, Physical Plant will provide an energy-efficient, electric heater to remedy the situation. PPD will determine which heater is most appropriate based on size and use of the space. Radiant space heaters will be given preference, as they are the most energy-efficient type of electric heater. If a radiant heater is insufficient, a thermostatically-controlled, convection heater with a heat-transfer liquid and tip-over safety switch will be provided. The occupant(s) of the space with the heater is responsible for turning the heater off when s/he vacates the space – even for short periods of time. Failure to do so may result in loss of the heater. This protocol is based on information provided by the US Department of Energy (<http://energy.gov/energysaver/articles/portable-heaters>).

Space temperature will be determined by temperature readings taken at the thermostat or desk level. The PPD will use their calibrated temperature and humidity measuring devices for the purpose of determining space temperature. Personal faculty, staff and student thermometers will not be used as a reference to actual space temperature. If the system is operating within its design parameters and the temperature in a space is within the specified range of this guideline, no action will be taken in response to a temperature complaint.

Under no circumstance should a space heater be used during cooling season.

## **OTHER ENERGY POLICIES:**

### **Lighting**

Halogen Torchiere-type floor lamps are not allowed in any campus buildings.

All exterior lighting will be turned off after dawn until dusk.

As part of the incandescent light-bulb phase out program, as mandated by the US Government to be effective in 2014, university funds cannot be spent on incandescent lights unless other, more energy efficient options will not work with the fixture. In such cases, the fixture should be replaced as soon as fiscally possible.

### **Lights out for the incandescent bulb**



The Energy Independence and Security Act of 2007 provides for phasing out today's general service incandescent light bulbs in favor of lower-wattage, energy-saving bulbs. Lighting accounts for about 15 percent of the electrical use in homes.

Phase-out dates	(effective Jan. 1)	2012	2013	—2014—	
ENERGY USED	(watts)	100W	75W	60W	40W
LIGHT PRODUCED	(lumens)	1,690	1,170	850	475

## Replacement options

These bulbs use less energy to emit the same levels of light as the incandescent bulbs.



### CFLs

20-25W	18-20W	13-15W	11W
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Compact fluorescent light bulbs are expected to be the leading replacements for standard incandescent light bulbs, at least at first. In CFLs, electric current energizes argon and mercury vapor, which in turn causes a phosphor coating inside the bulb to emit light.



### Halogen

70-72W	53W	43W	28-29W
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New halogen bulbs look like the incandescent bulbs people are used to buying. Halogens are a more energy efficient form of incandescent, but they are the least efficient of the incandescent replacement technologies. The filament is encased in a bulb made of fused quartz or high silica glass containing a halogen gas.



### LEDs in light bulbs

12W	8W
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LEDs are the gizmos that have been around for years lighting up digital clocks and calculators. They use semiconductors that emit light when electrons move around. Recent innovation has allowed engineers to make them bright enough for light bulbs.

The University will occasionally sponsor a Compact Fluorescent Light (CFL) bulb swap, during which the less efficient incandescent bulbs may be exchanged for a CFL. CFL bulbs use roughly 1/4th the energy of incandescent bulbs.

In new construction or renovation, lighting levels recommended by the Illuminating Engineering Society Lighting Handbook shall be used as guidelines to avoid over-lit spaces. Increased use of day lighting and day lighting controls shall be considered because use of day lit spaces decreases energy costs and may improve productivity. Additionally, reflection values of paint should be considered, as higher reflection values can reduce the amount of artificial light necessary to achieve the IESL standards. All lighting installed will be T-8, T-5 or better. Occupancy sensors are to be installed when economically feasible.

Faculty, staff, students, contract employees and all patrons of Transylvania University shall

make every effort to reduce the amount of energy associated with lighting in all University facilities by:

- Turning lights off in unoccupied spaces.
- Discontinuing the use of incandescent lighting wherever more efficient lighting is possible such as when compact fluorescent or light emitting diode (LED) bulbs can be used.
- Maximizing the use of natural light and turning off all nonessential lighting whenever possible.
- Utilizing task lighting in lieu of overhead lighting when appropriate.

### **Office Equipment**

All powered office equipment shall be turned off or placed in standby when not in use, unless it is detrimental to the operation of the equipment to do so. Items such as copiers, printers, calculators, shredders, etc., should be turned off at the end of the work day.

Office equipment quantities shall be reduced through consolidation to central locations for shared use whenever possible.

Office equipment purchased with University funds is required to be ENERGY STAR labeled unless approved by the responsible budget executive. Exceptions are authorized only if there are no Energy Star rated appliances manufactured that meet the user's needs.

### **Computers**

Computers purchased with University funds are required to be ENERGY STAR labeled unless approved by the responsible budget executive. Exceptions are authorized only if there are no Energy Star rated appliances manufactured that meet the user's needs.

Faculty, staff, students, contract employees and all patrons of Transylvania University shall make every effort to reduce the amount of energy associated with computing in all University facilities by:

- Turning off computers anytime they are not in use. A computer left on all day uses nearly 1,000 kilowatt hours of electricity a year, producing more than a ton of carbon emissions.
- Activate the power saving settings on your computer, such as turning off the hard disk and putting the monitor in standby when you have not touched the PC for a few minutes. Modern operating systems have settings to do this stuff automatically and it will come back up and be ready to use within a few seconds of moving the mouse or pressing a key. See [\(link\)](#) for instructions.

### **Appliances and Other Electronics**

#### **Employees**

Non-University provided appliances (such as printers, coffee makers, refrigerators, freezers, microwaves, toasters, lamps, televisions, and scanners) may only be used if approved by the department head or supervisor in charge of the area. Most of these items should be available in a university-maintained shared space.

The quantities of University purchased appliances shall be reduced through consolidation to central locations for shared use whenever possible.

All new or replacement appliances purchased with University funds are required to be ENERGY STAR labeled unless specifically approved by the responsible budget executive. Exceptions are authorized only if there are no Energy Star rated appliances manufactured that meet the user's needs.

All new or replacement televisions shall be LCD or LED unless there is a justifiable need for the tube based display.

All appliances, including digital displays, shall be turned off when not in use, unless it is detrimental to do so (e.g., a refrigerator or freezer).

Employees are encouraged to use surge protectors or Smart Strips to reduce the amount of energy lost through phantom load (energy used by electronics even when the device is turned off.)

### **Students**

All appliances shall be turned off when not in use unless it is detrimental to do so (e.g., a refrigerator or freezer).

Students are encouraged to bring to campus only appliances with the ENERGY STAR label.

Students are encouraged to turn off and unplug gaming consoles when not in use. (Some brands use almost as much energy turned off as when turned on).

Students are encouraged to use surge protectors or Smart Strips to reduce the amount of energy lost through phantom load (energy used by electronics even when the device is turned off.)

### **Fume Hoods**

Fume hood sashes are to be closed when not being accessed to minimize energy use and provide improved lab safety.

Fume hoods that won't be used for a long period of time should be brought to the attention of PPD for shutdown.

### **New Construction**

When considering the design of new buildings, the University's goal will be to meet, at a minimum, the standards of LEED Silver certification, though the actual certification may or may not be pursued. New buildings should be designed and built to minimize energy use by earning at least 40% of the available points for energy performance under the LEED Credit for Optimization Energy Performance. The design process shall include energy life cycle costing analyses. Alternative energy sources such as passive solar heating and heat recovery shall be considered, as well as day lighting and other strategies for decreasing building energy consumption. All new buildings shall include extensive utility metering (electricity, natural gas, steam, and water) and sub-metering (lighting, HVAC, lab services, other) in order to determine how much and where energy is being consumed. Buildings shall be designed to run efficiently, and allow users to live/work/learn in an energy efficient manner.

Where practical, newly constructed buildings will include a Building Energy Management System. These new systems will be incorporated into the existing Campus Building Energy Management System network and will include all points necessary to remotely Start, Stop, Monitor and Control all connected Heating, Ventilating and Air-conditioning Equipment, and Indoor and Outdoor Lighting systems, in an effort to streamline the building systems operations and ensure a more efficient and economical university environment.