

Operational Guidelines

The following summarizes key operational guidelines.

- A. Optimized BAS schedules to meet classroom and office needs, specialized equipment needs, plant or animal needs, and laboratory needs. These schedules are not altered without due and proper consideration of the criticality of the function, and the economic impact.
- B. Maintain calibration on thermostats, instrumentation and controls, and proper operation of energy conservation devices such as economizer dampers/actuators.
- C. Setback and Shutdown routines are implemented for unoccupied periods, with special attention for weekend and holiday periods. During holiday periods, Campus Services personnel will execute aggressive system shut-back protocols with adequate provisions made for system and equipment integrity. Deviations from shut-backs should not be altered without due and proper consideration of the criticality of the function and the economic impact.
- D. Central thermostat guidelines are 73 degrees with 2 degree individual adjustment and 2 degree deadband. For Setback during unoccupied periods, the central thermostat is lowered 15 degrees in winter, and raised 15 degrees in cooling season.
- E. General deck temperature guidelines: Cold deck 55°F - 65°F (Reset based on outside Air temperature), Cold deck (Humidity Control) 55°F (when zone RH is above set point), Hot deck (During heating seasons only and exempting those buildings requiring reheat for moisture control, using reset schedule) 80°F at 72°F outside dry-bulb temperature, 140°F at 20°F outside dry-bulb temperature and 65°F based on the outside air temperature.
- F. Where applicable, the BAS will reset supply air temperatures 55F and 65°F) based on the return air temperature.
- G. Heating is in effect when outside air temperature is below 60 degrees, and indoor air is less than 70 degrees. Cooling is in effect otherwise, with outside-air economizer in operation when outside air permits.
- H. Follow established Preventive Maintenance Schedules within budget. Ensure filters are changed, coils are cleaned, and all bearings are lubricated at scheduled intervals.

- I. Domestic hot water guideline is 140°F unless needed for food preparation or lab use.
- J. Boilers should be operated at the lowest temperature adequate for meeting the service needs. Hydronic boilers shall be operated based on an outdoor air temperature reset scheme. Effort should be made, particularly with condensing boilers, to maintain the supply temperature below 140F and the return temperature as low as practical.
- K. Monitor chiller efficiencies at part load; reconfigure operations where more efficient operation available. The Johnson control system is configure to cycle Central Plant chillers according to loop temperature/flow – with manual intervention according to previous electrical demand within the month and considering upcoming weather changes (i.e., do not turn on another chiller to correct slightly elevated loop temperature if outside air temperature is soon to decrease).
- L. Units under BAS control will remain in the automatic position. Alarm summary reports will be reviewed daily to identify priority concerns.
- M. Override reports will be run on a regular basis to identify devices and systems that are operating outside of guideline conditions.

Maintenance/Repair Guidelines

- A. Damaged insulation on HVAC piping/duct will be repaired as required as soon as possible within schedule boundaries so as to prevent condensation, mildew, and energy loss..
- B. Damaged weather stripping will be replaced as soon as discovered.
- C. Broken windows will be repaired as soon as possible within schedule boundaries.
- D. Motion detectors will be utilized wherever possible to control lights in class-rooms, conference rooms, hallways, and bathrooms.
- E. Replace motors with energy efficient models instead of rewinding a standard-efficient motor. If an energy efficient motor has been rewound previously, evaluate replacement in lieu of rewind.
- F. Replace burned out lamps with energy saving lamps; wherever possible, lamps should be replaced with a compatible LED solution. When LED is not feasible, a long life and low wattage florescent option should be selected. PDCA's Engineering Services can provide guidance on retrofit and replacement of existing fixtures and lamps.

- G. When ballast replacements are required, high-efficiency and low ballast factor ballasts should be given a priority.
- H. All boilers are to be analyzed annually with respect to combustion efficiency, and tuned accordingly so as to ensure optimal performance.