

STANDARD OPERATING PROCEDURES
DIVISION OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

SOP#: 1115.4

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TITLE:	Thermometer/Hygrometer Calibration
SCOPE:	Research and Animal Program Personnel
RESPONSIBILITY:	Facility Manager, All Animal Program Personnel
PURPOSE:	To Outline the Proper Procedures for Calibration of Thermometer and Hygrometers Used in the Animal Facility.

I. PURPOSE

1. This procedure outlines the proper procedure and frequency for evaluating and calibrating thermometers and hygrometers used in the animal facilities.

II. RESPONSIBILITY

1. It is the responsibility of the Facility Manager to ensure that equipment is appropriately cleaned, maintained in good working order, and available to research personnel as requested.

III. EQUIPMENT USE

1. Thermometer and hygrometer units located throughout the animal facilities are used for the environmental monitoring of animal housing areas and areas used to store reagents, pharmaceuticals, biological samples, animal diets, or other substances that could affect the generation, measurement, or assessment of research data. These units are calibrated at least annually and this calibration memorialized by a written label affixed to that unit.

IV. EQUIPMENT CALIBRATION

1. Either the Facility Manager or a licensed subcontractor may perform the annual calibration and/or certification of thermometers and hygrometers.
2. Calibration must be performed using a certified NIST traceable standard or a new or recently certified unit that can be traceable to a NIST standard as a reference.
3. **Each thermometer/hygrometer should be uniquely identified** as to the room and/or area in which it is used. This can be done on the back of the unit with a label and/or permanent marker.
4. **At least annually**, and more often if a unit is suspected of being inaccurate, the Facility Manager, or their designee, collects all units in the facility and brings them to an area for evaluation, calibration, and certification. Units should be decontaminated prior to being removed from or placed in an animal room.
5. The units being evaluated and the reference standard unit are allowed a few minutes to equilibrate to the ambient room temperature and humidity.

6. Temperature and humidity for each unit being evaluated and the reference standard are recorded on the ***Thermometer/Hygrometer Calibration Record*** (CMDC #023).
7. The ***Thermometer/Hygrometer Calibration Record*** includes the following information:
 - a. Date of calibration
 - b. Unit model number
 - c. Unit serial number
 - d. Location of unit
 - e. Temperature of unit
 - f. Temperature of standard
 - g. Percent difference of temperature from standard
 - h. Humidity of unit
 - i. Humidity of standard
 - j. Percent difference of humidity from standard
 - k. Traceable reference number of standard
 - l. Status determined (calibrated, rejected)

8. The percent variation from the referenced standard is calculated by the following method:

$$\frac{V_T - V_S}{V_S} \times 100 = \% \text{ Difference}$$

Where V_T is the value for the test unit and V_S is the value for the reference standard.

9. Units with temperature readings within $\pm 5\%$ and humidity readings within $\pm 15\%$ of the reference standard are considered to be within calibration limits and are certified and **memorialized by a written label affixed to the unit.**
10. Units with temperature readings $> 5\%$ or humidity readings $> 15\%$ of the reference standard are considered out of calibration and are replaced.
11. The certification label should include:
 - a. Date certification expires
 - b. The difference the unit reads either positive or negative in the appropriate units from the standard (this is actual difference not % difference e.g. 3^0 for temperature, 3% for humidity).
 - c. Initials of the person certifying the unit.
12. The Facility Manager maintains the ***Thermometer/Hygrometer Calibration Record*** (CMDC #023) for 6 months in accordance with ***Handling, Storage, and Retrieval of Records and Data*** (SOP #010).

V. MAINTENANCE

1. Clean units periodically by wiping down with a mild disinfectant and a soft cloth.
2. Any additional maintenance/service should be performed by authorized personnel.

VI. REFERENCES

1. Refer to manufacturer's manual for additional information.

Approved:

Date: