

Transcript of "Monitoring Your Environment"

[Text on screen: CCI Videos]

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Narrator: "You may have wondered why you're collecting all this data on temperature and relative humidity.

The answer is that both temperature and relative humidity (or RH) affect the preservation of objects in your collection, so it's important to have a good understanding of your facility's climate to help you make good decisions for your collection."

[Image on screen: piles of hygrothermograph charts are being flipped through; "relative humidity and temperature values" are illustrated by hands drawing lines on a graph; a mixed collection storage space]

Narrator: "Environmental monitoring identifies current conditions, and provides a record of past conditions, which can be used to predict conditions in the future."

[Image on screen: spot-reading device taking measurement of current conditions; RH and temperature chart for a calendar year]

Narrator: "By keeping records on temperature and RH in your facility, you have the data readily available if you need to seek advice on climate control.

These records also become essential when applying to various heritage programs that require evidence of your facility's conditions."

[Image on screen: "Are temperature and relative humidity levels monitored continuously in all collection areas?" is highlighted on a form]

Narrator: "Now that you know why you are monitoring your environment, how do you do this?"

There are three steps: one, gather the data, using a recording device.

Two, review the data and interpret what it means for your facility.

Three, maintain the equipment used to gather the data to ensure the data is reliable. "

[Image on screen: 1. Gather the data]

Narrator: "To understand your collection's environment, a combination of spot-reading and recording devices can be used."

[Image on screen: a spot-reading device and data logger in use]

Narrator: "Spot-reading devices allow you to take a quick reading of current conditions."

[Image on screen: a spot-reading device is used to take a measurement of RH]

Narrator: "Recording devices automatically record many readings and can capture rapid changes that may last only a few minutes, as well as long-term trends over many months."

[Image on screen: a conservator and facilities manager sit together reviewing temperature and relative humidity data for their facility displayed on a computer monitor]

Narrator: “Monitoring includes making note of unusual circumstances that have affected temperature and RH, such as power failures or scheduled maintenance events, so that you or others can recall these abnormalities when reviewing the data.”

[Image on screen: An annotation “power outage” is added to a calendar year of RH and temperature data.]

[Image on screen: 2. Review the data]

Narrator: “It is important to regularly upload data from your data-loggers or change your hygrothermograph’s paper. And, it’s useful to archive these records. But beyond this, you must review your data to understand your institution’s climate and how it affects your collection.”

[Image on screen: reviewing temperature data on a tablet; calculating average RH and fluctuations over a season of graphed data by hand using a pencil and ruler]

Narrator: “Once you have collected the data and reviewed it, you will have reliable evidence of the conditions your collection experiences.

You may discover that your environmental conditions are entirely appropriate for your collection, or you may discover that you need to make adjustments for specific objects or collections.”

[Image on screen: data logger displaying current conditions in a mixed collection storage space]

Narrator: “Here are some things you should be looking for: RH that is consistently too high (above 75% over time) provides the right conditions for mould growth.”

[Image on screen: Time lapse of mould growing on parchment.]

Narrator: “And for metals to corrode.”

[Image on screen: Time lapse of corrosion forming on an iron key]

Narrator: “RH that is above or below a very specific level can cause damage to some objects. As an example, these glass beads sweat when RH rises above 55% and crizzle when RH drops below 40%.”

[Image on screen: deteriorated glass beads with a fine network of cracks]

Narrator: “RH fluctuations can cause warping and cracking in vulnerable objects, such as paintings.”

[Image on screen: Time lapse of cracks appearing and widening on a painting.]

Narrator: “Some materials, especially those in archival collections, deteriorate faster as the RH gets higher.”

[Image on screen: increasingly yellowed sheets of paper appear.]

Narrator: “And some materials deteriorate faster as temperature gets higher. For some materials, like polyurethane foam and magnetic media, room temperature could be considered too high.”

[Image on screen: pieces of new and aged polyurethane foam are compressed. The new foam recovers its shape, the aged foam is permanently deformed]

Narrator: “In reviewing the data, you may detect instances of incorrect RH and temperature for specific objects or collections in your care.”

[Image on screen: data logger displaying rising RH in a display of metal artifacts]

Narrator: “This allows you to respond appropriately to protect your collection.”

[Image on screen: a dehumidifier is turned on]

[Image on screen: 3. Maintain the equipment]

Narrator: “Remember that monitoring your environment is an ongoing procedure and it is important that your equipment produces reliable information.”

[Image on screen: replacing batteries and charging environmental monitoring devices]

Narrator: “Maintenance of equipment ensures that it will continue to function properly. In general, this means ensuring that batteries are replaced or the device is recharged regularly, and that instruments are calibrated periodically so that the measured values accurately reflect actual conditions.”

[Image on screen: checking calibration of environmental monitoring devices against a psychrometer]

Narrator: “Let’s summarize. Reliable monitoring of your facility’s climate requires three steps.

One, gather the data, using a recording device.

Two, review and interpret the data.

And, three, maintain the equipment so that the data is reliable.”

[Image on screen: “Relative humidity and temperature charts covering a one year period” is circled on a form]

Narrator: “This will allow you to provide records of your conditions to agencies that require them for loans, certification processes or grants, and they will permit you to make informed decisions for your collection and its long-term preservation.”

[Image on screen: a data logger in a mixed collection storage space]

For more information about the effects of RH and temperature on collections, please visit the CCI website.”

[Image on screen: “[Agent of Deterioration: Incorrect Temperature](#)” and “[Agent of Deterioration: Incorrect Relative Humidity](#)” web pages]

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