Cultural Differences and Potential Setbacks

Team members involved in managing the environment for preservation need to diplomatically educate each other and the people they represent to the range of views involved in the process. They should establish relationships in which cooperation and a shared responsibility for collection longevity cut across functional and organizational units. There will be difficulties as these different "cultures" begin to work together. These groups tend to function very differently and rarely together. When working as a team, some defensiveness and resistance may be encountered, but it should be made clear that each team member brings necessary expertise and their input is appreciated.

Although preservation and collections staff are used to meetings and discussions, building operators and HVAC technicians are not. It can be difficult to get facilities people together in a meeting unless it is short and action-driven, not a lecture or presentation. They are often tied to their buildings and the tasks of the day and may only get involved if their supervisors attend the meeting or let their staff know the topic is important. It may be difficult to find someone who knows, or can understand, the mechanical system holistically. Facilities staff are expected to be problem-solvers focused on the most pressing concern of the day. They are not usually asked to look at or analyze long-term trends.

Collection care staff needs to understand that recent preservation research has fundamentally altered basic approaches to the temperature and relative humidity conditions recommended for collection storage. The old paradigm of defining target temperature and relative humidity settings with limited fluctuation is deeply ingrained in both collection and facilities staff. Changing this outlook requires a re-education process.

Administrative staff should support and encourage the activities of the Environmental Management Team. Allow team members the time to attend regular meetings and follow up on actions taken by the team. Encourage members to work together productively to develop a clear path to problem resolution. Support the development of procedures for responding to complex and/or chronic mechanical system problems that require analysis and thoughtful resolution.

CHAPTER 8:
Specific Activities of the Environmental Management Team

The ultimate goal of the Environmental Management Team is to achieve an optimal environment for preservation—which we have defined as an environment that achieves the best possible preservation of collections at the least possible consumption of energy, and is sustainable over time.

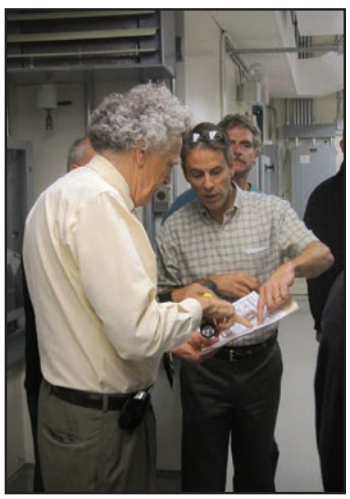
You have achieved an optimal and sustainable storage environment when your existing mechanical system consistently produces the best possible storage environment it is capable of, with the least possible consumption of energy. In other words, do the best that you can with what you have.

8A Define the Optimal Storage Environment for your Institution in Six Steps

There are six primary steps the team should take to define what an optimal storage environment is for

your institution. There may be some variance depending on the systems serving a particular space or the type of collections contained in a space. The steps include:

Step 1 – Document the capabilities and performance of your HVAC system



- Document what each system associated with collection storage is capable of
- Document the storage environment through reliable data collection
- Verify that each of these systems is operating optimally
- Correct any system malfunctions

Chapters 3 – 5 of this guidebook gave you the guidance you need for this step – reliable documentation of the storage environment, an understanding of your climate control system, and an understanding of the role of dew point. The preparation required for this step will take some time and effort, but it can be done concurrently with the steps below.

Step 2 – Define the environment that is best for collections

- Temperature requirements
- Relative humidity requirements
- Acceptable range of T and RH fluctuations
- Potential for different settings based on the heating and cooling seasons

Chapter 1 of this guidebook provided information on the basic elements of the environment and their effect on material decay including material types, modes of decay, and the role of environment in decay. Information in Chapter 2 will help you determine the potential for different settings given your region and the type of mechanical system you have.

Step 3 – Determine the environment acceptable to occupants

- Do union regulations apply?
- Does work take place within the storage area?
- Can work activities be separated from storage spaces?
- What are the occupant schedules within collection spaces?

This information will be unique to your institution and underscores the need to include team members, at least temporarily, who can provide reliable answers to these questions.

Step 4 – Negotiate the optimal environment for each storage area based on:

- HVAC system capabilities
- What is best for the collections in the space
- What is acceptable to staff and occupants

Information provided in Chapter 6 will help the team define optimal conditions for storage and display environments in your institution.

Step 5 – Express the optimal environment in measurable metrics

By working as a team you will be able to successfully express and communicate your definition of both optimal mechanical system performance and optimal conditions for long-term collection preservation.

Step 6 – Regularly measure the "actual" environment, compare those results to the "optimal" environment you have defined, and promptly correct any malfunctions

This step incorporates ongoing team activities which are detailed in Section 8B.

The goals of this process are to understand what the mechanical systems are supposed to do (what they are capable of), to document and examine what they are actually doing, and to correct sub-optimal operation. Sub-optimal operation results in inappropriate levels of material decay as well as excessive or unnecessary use of energy. Looking at these operational issues as a team will often result in a better environment for long-term preservation at a lower energy cost.

Questions the Environmental Management Team should consider:

1. What climate is the existing system actually delivering on an annual basis?
2. What climate is the existing system capable of delivering on an annual basis?
3. Are all elements of the system functioning as they should? (Systems are prone to sub-optimal operation, which can persist undetected and/or uncorrected unless each of the elements is actually checked.)
4. Who within the institution can request a change in climate settings that impact the storage environment? Who can make these changes? Are changes documented?
5. Is the current process for instituting set point changes in keeping with goals for maintaining an environment for preservation?
6. Is the system consuming more energy than necessary to deliver the actual climate?

7. What steps need to be taken to improve the environment for preservation?
8. Will these steps increase or decrease energy use?
9. Does the institution have a formal process for managing the storage environment?
10. What procedures would ensure continual optimal operation?

8B Maintain Optimal Storage Environments in your Institution

The effort of managing the storage environment and continuously managing risk may seem onerous on the surface. However, the effort will pay off in the long run, and once fully instituted can save a considerable amount of both staff time and energy costs. Ideally, preservation staff will understand when a situation truly requires attention and worry less about minor fluctuations or short spikes in temperature and RH. In addition, facilities staff may be able to defer responding automatically to human comfort calls and focus on staying within realistically defined temperature and humidity parameters. Ongoing environmental management is also preferable to dealing with seasonal mold outbreaks or paying for treatment of damaged collections.

Ongoing Environmental Management Team Activities

As we've noted, environments change and fluctuate continuously and monitoring should be continuous whenever possible. It is important to meet as a team regularly to review unexpected changes, malfunctions, or sub-optimal operation. Conditions and priorities change, equipment will wear down or break, changes in adjacent parts of the building may impact your space, or different storage locations may require special attention. The team should routinely deal with problems that arise and develop proactive solutions that minimize damage, use energy efficiently, and maintain efficient system operation.

Once optimal conditions for preservation and mechanical system performance have been defined, team focus can turn to maintenance activities as outlined in Step 6, Section 8A (p.70) of this guidebook. Some of these tasks are detailed below.

Identify and Correct Sub-Optimal Operation

- Compare the actual environment to your defined optimal environment:
    - Decide when to do a comparison—identify the most critical times and set up a schedule for review
    - Compare key measurable metrics—temperature, relative humidity, dew point, and if available, IPI Preservation Metrics™

- Promptly correct any deviations:
    - Consider the long-term effects of deviations from optimal environment
    - Work closely with facilities team members to develop effective solutions

Some of the sub-optimal scenarios you may encounter and their potential causes include:

Storage space warmer than necessary - potential causes:

- Inappropriate set point selection
- Supply air set point increased due to occupant complaint
- Supply air set point inexplicably increased
- Winter control schedules operating in summer
- Reheat coil malfunctions
- Adjacent space too warm
- Supply air path blocked

Storage space more humid than necessary - potential causes:

- Cooled air set point higher than necessary
- Malfunctions in chilling system, resulting in elevated dew point temperature
- Insufficient reheating
- Unnecessary humidifier operation

Storage spaces drier than necessary - potential causes:

- Insufficient maintenance of humidifier
- Humidifier disabled
- Excess outside air in winter

Communicate Effectively

It's important for Environmental Management Team members to communicate new standards and procedures to other people in their departments. This is particularly true for individuals who have access to any part of the mechanical system. We've seen furniture placed on top of return air vents, valves forced shut or blocked, doors which should remain closed left open all day, etc. As the team takes action to