Preventive Conservation and the Role of the Environment

IMAGE PERMANENCE INSTITUTE | JULY 25, 2019

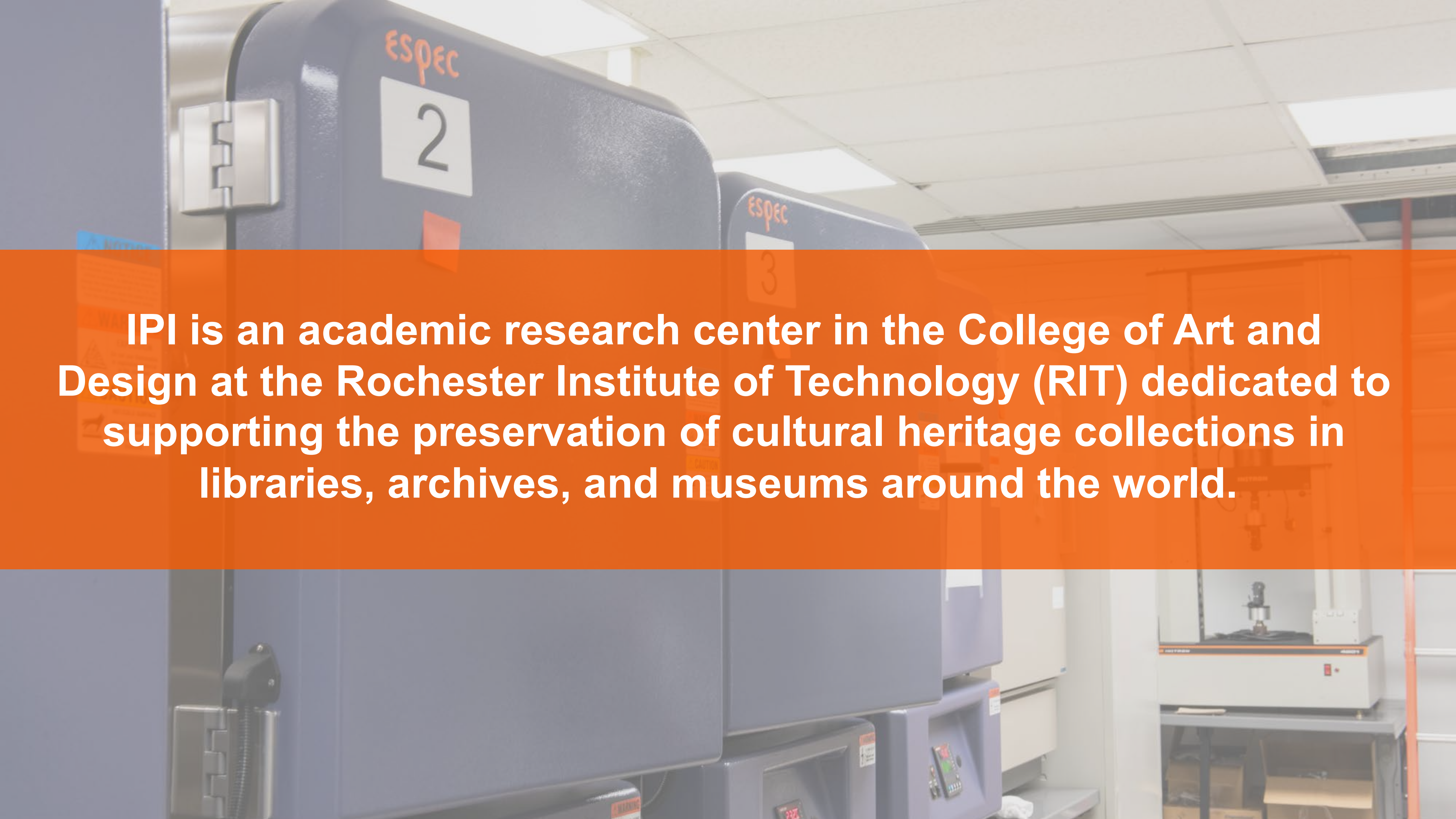
TRAINING SUSTAINABLE ENVIRONMENTAL MANAGEMENT TEAMS FOR CULTURAL INSTITUTIONS

Today's webinar

- Funding provided by the National Endowment for the Humanities Education and Training grant

NATIONAL ENDOWMENT FOR THE Humanities

- Series I: Environmental Management
  - Second webinar: August 15, 2019



IPI is an academic research center in the College of Art and Design at the Rochester Institute of Technology (RIT) dedicated to supporting the preservation of cultural heritage collections in libraries, archives, and museums around the world.

Your Presenter

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Questions

Feedback

Environmental Management: Phases

- Set-up
- Data collection
- Data analysis
- Evaluate options
- Institute actions

Environmental Management: Phases

- Set-up
  - Understand the problem
    - Why is the environment important?
  - Assemble documentation
  - Build team
  - Define objective
  - Deploy instrumentation

Preventive conservation encompasses “actions taken to minimize or slow the rate of deterioration and to prevent damage to collections”.

Society for the Preservation of Natural History collections. 1994. Guidelines for the care of natural history collections. Collection Forum, 10:32-40.

Preventive Conservation

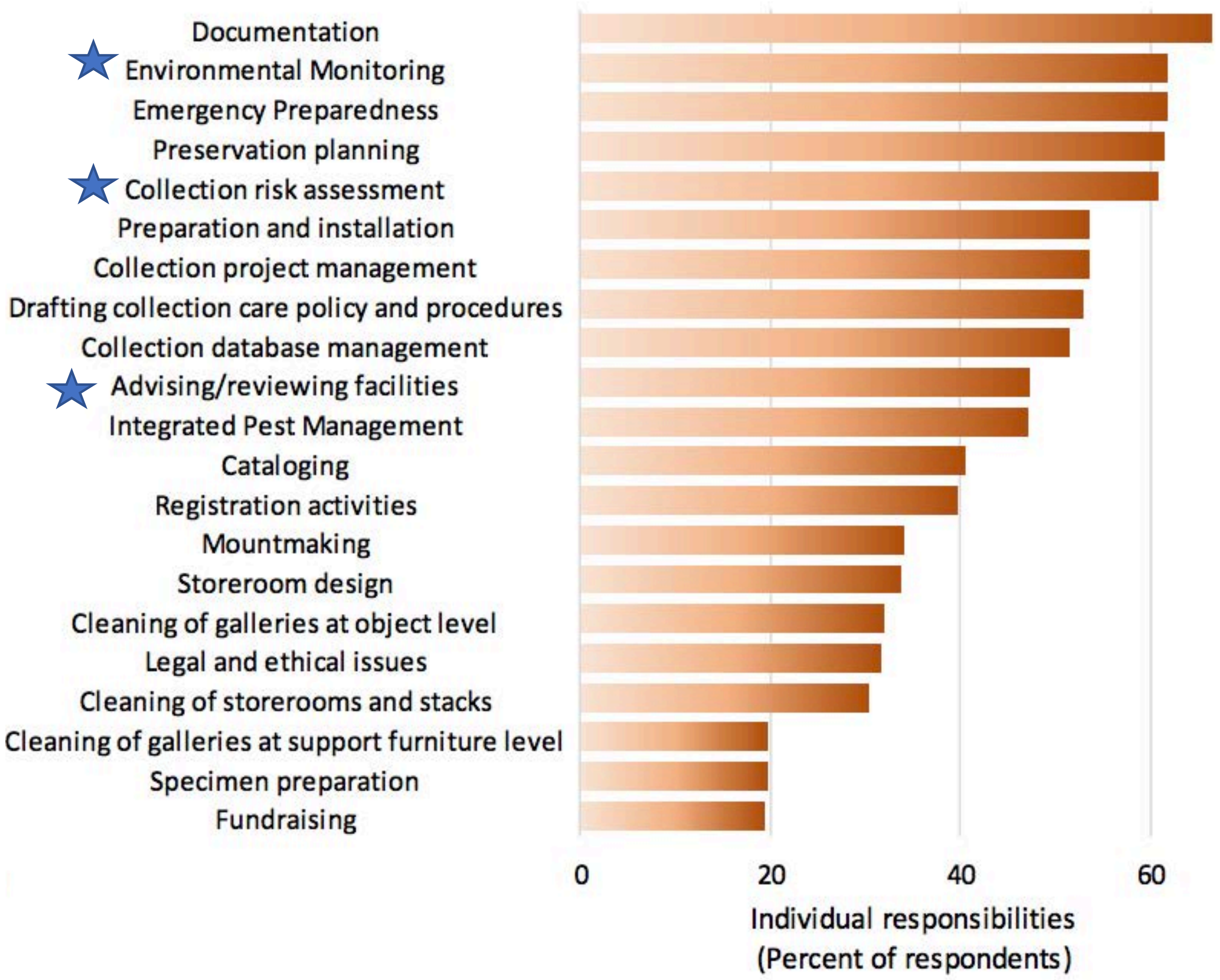


Image credit: https://www.culturalheritage.org/docs/default-source/publications/reports/collection-care-staff-survey-report.pdf?sfvrsn=8

American Institute for Conservation Code of Ethics:

“recognize the critical importance of preventive conservation as the most effective means of promoting the long-term preservation of cultural property.”

Preventive Conservation

- Reduces loss
- Reduces interventive treatment
- Extends effectiveness of treatment

10 Agents of Deterioration

Physical forces

Thieves and vandals

Fire

Water

Pests

Pollutants

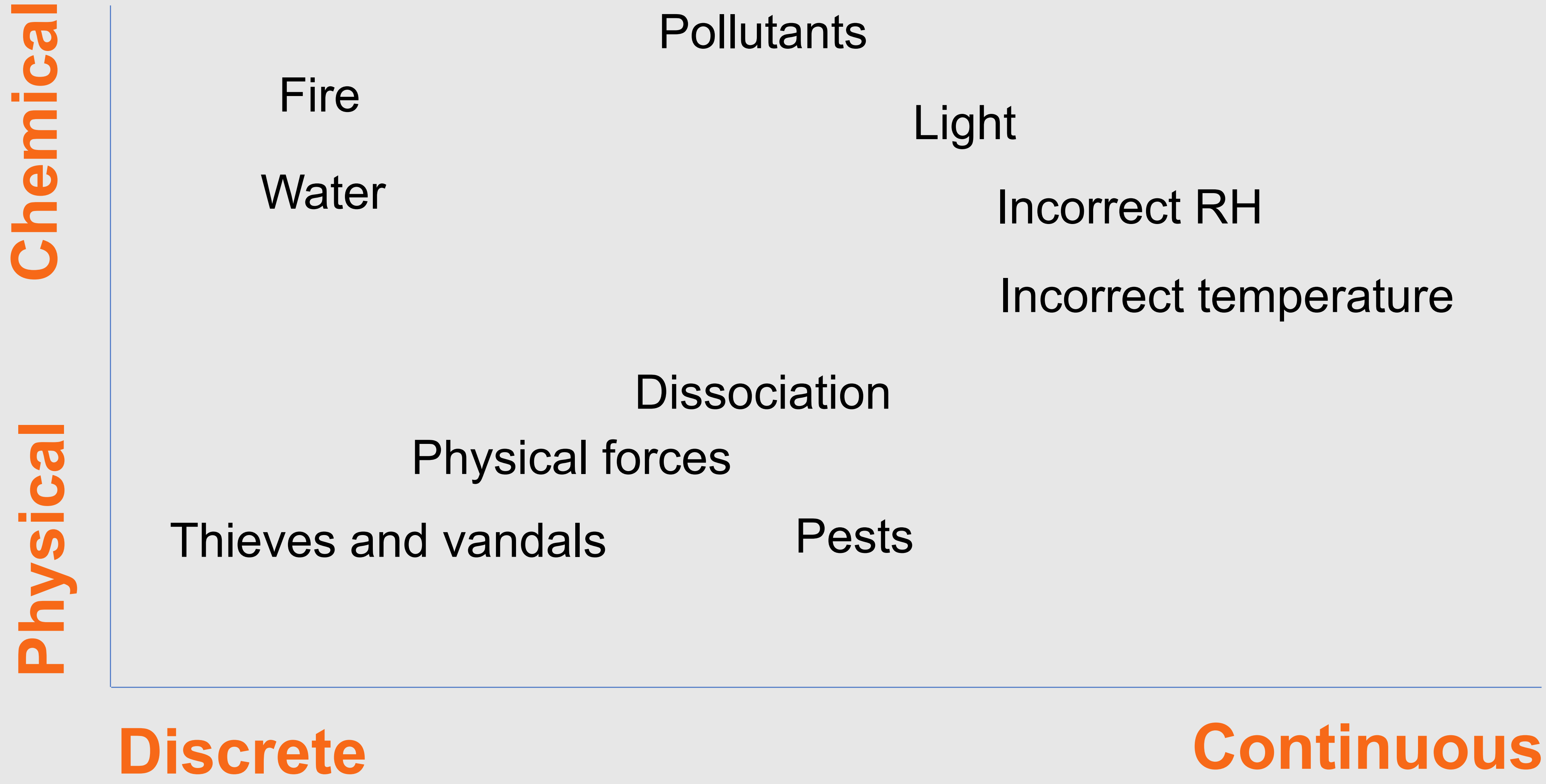
Light

Incorrect temperature

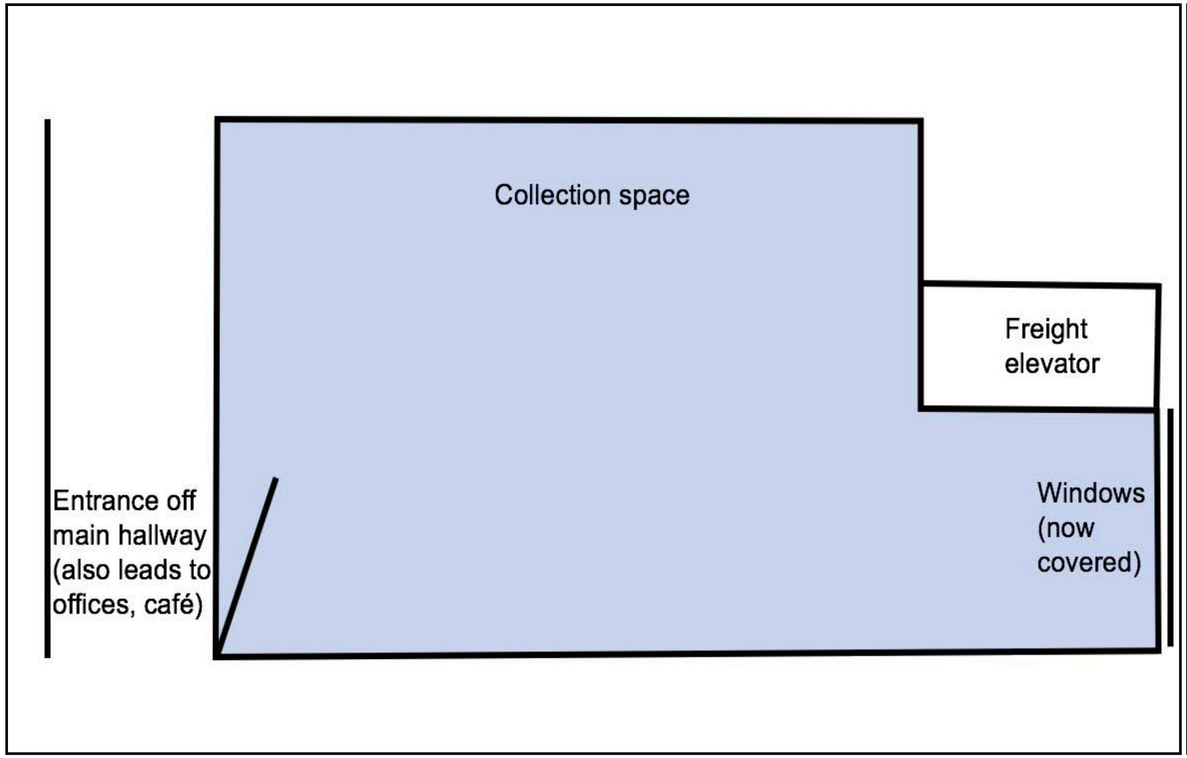
Incorrect RH

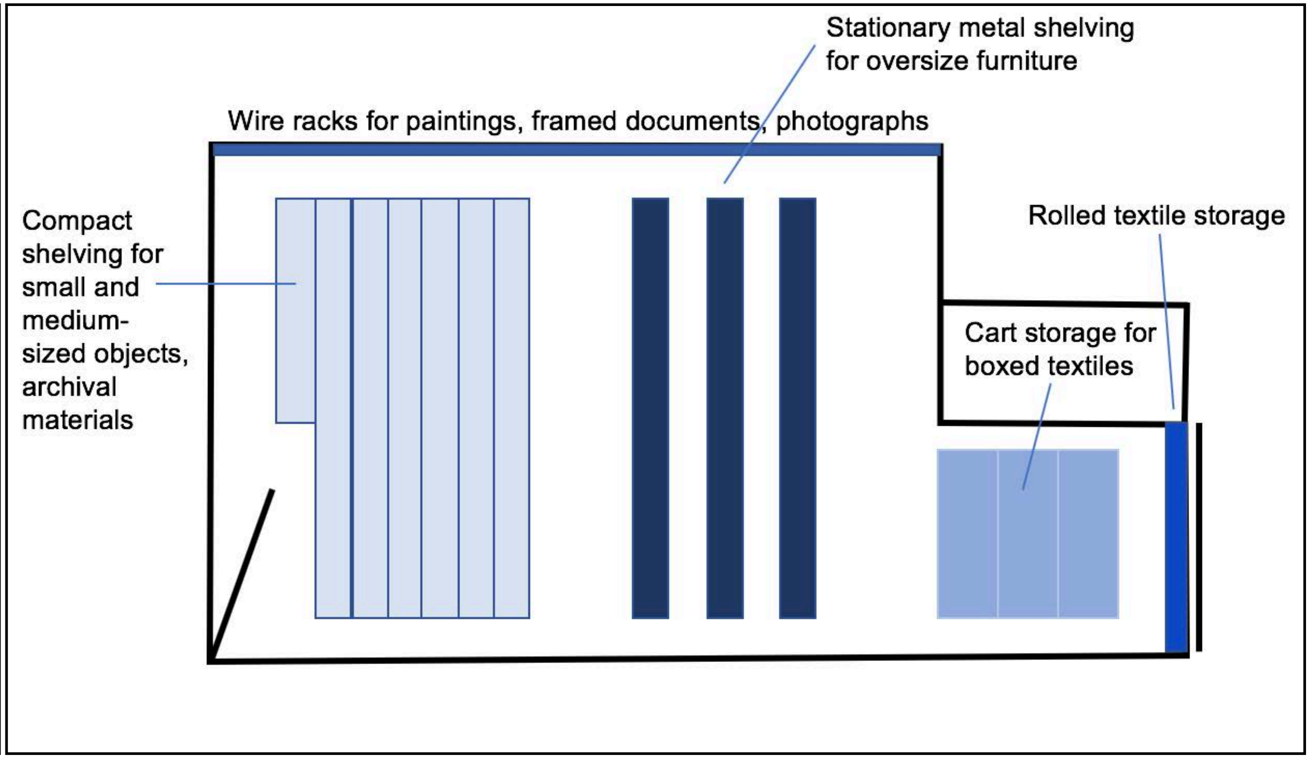
Dissociation

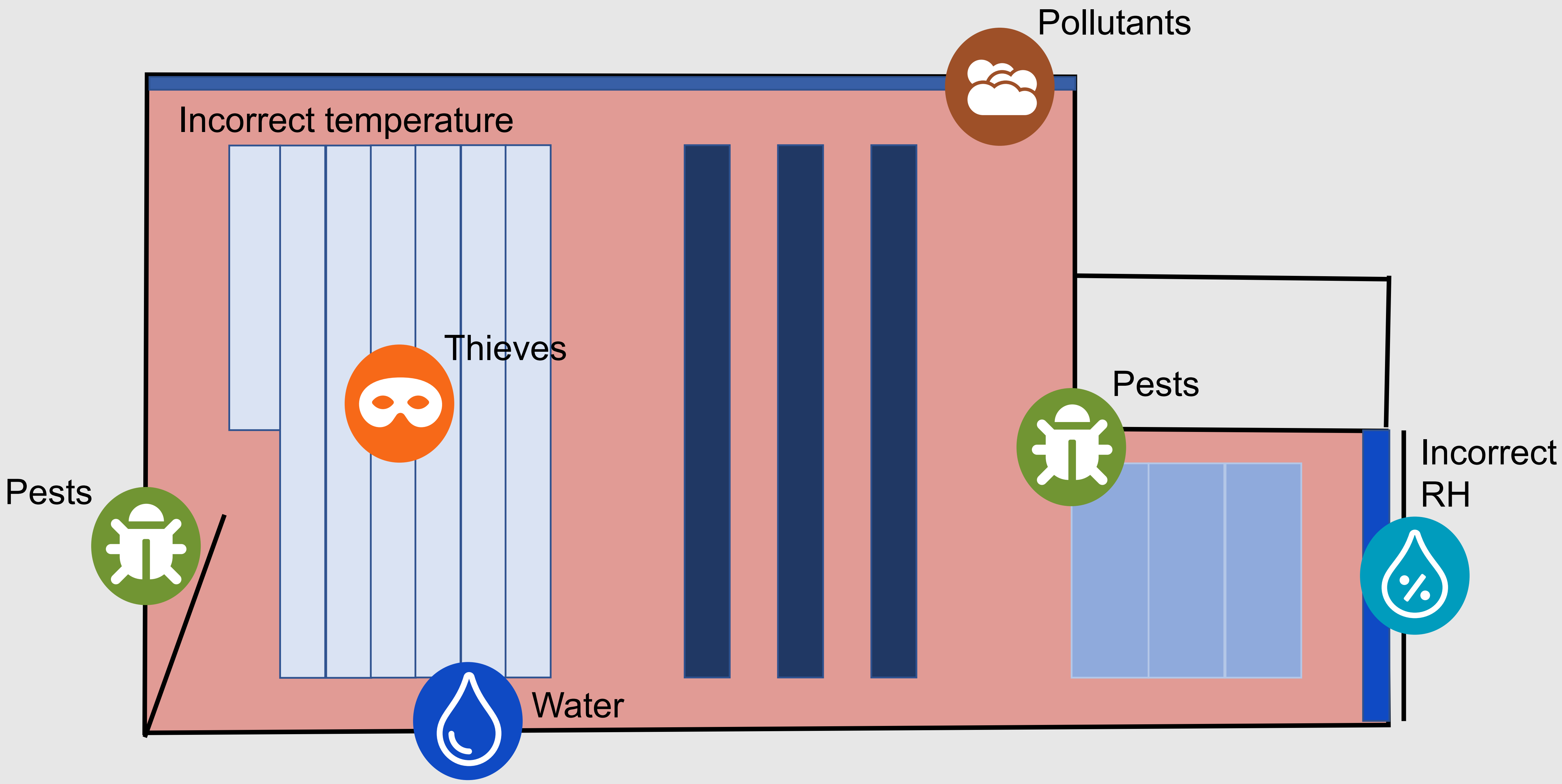
Inherent vice


Chemical
Physical
Pollutants
Fire
Light
Water
Incorrect RH
Incorrect temperature
Dissociation
Physical forces
Thieves and vandals
Pests
Discrete
Continuous

What can harm my collection?



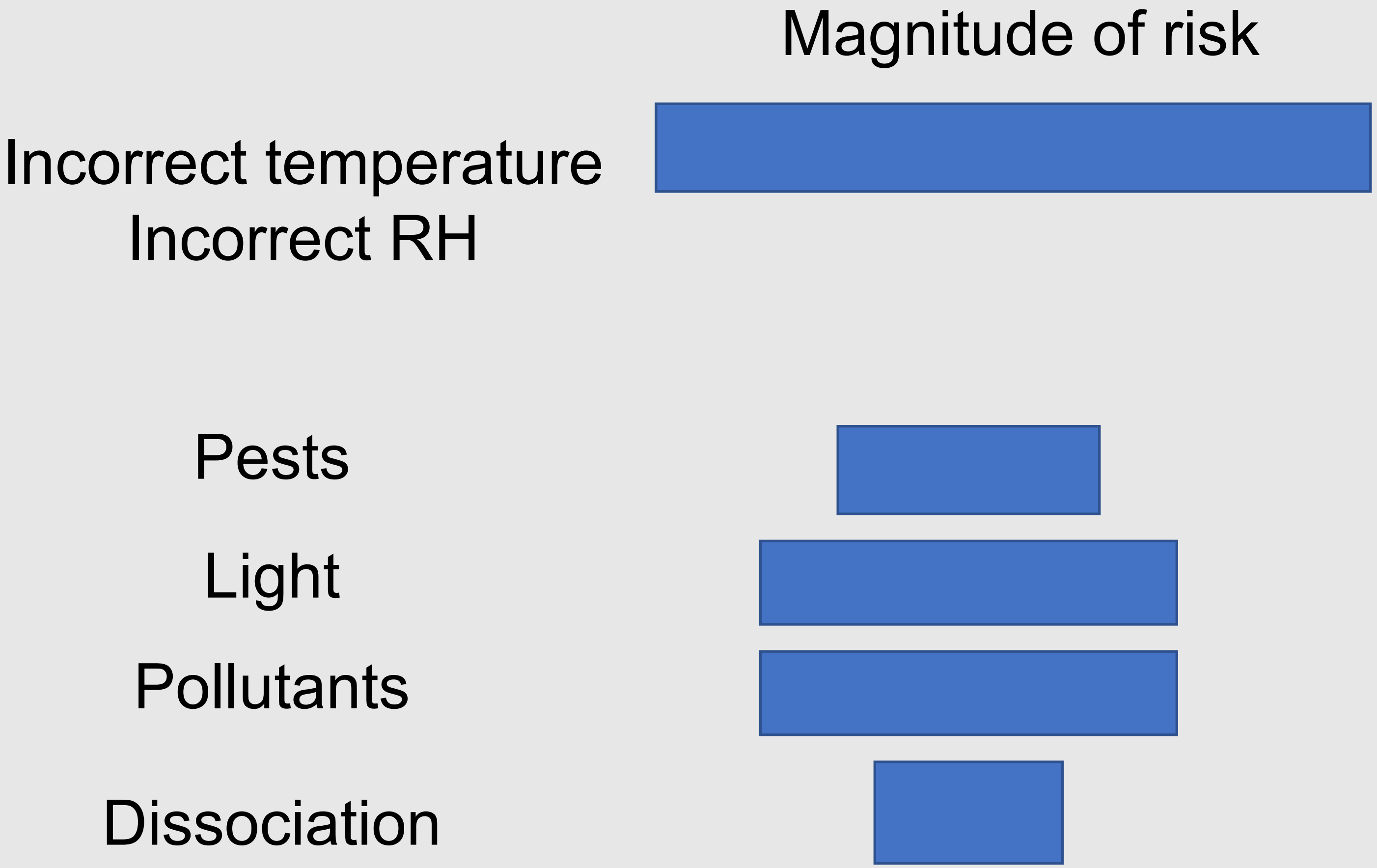



Pollutants
Incorrect temperature
Thieves
Pests
Incorrect
RH
Pests
Water

10 Agents of Deterioration

Physical forces	Thieves and vandals
Fire	Water
Pests	Pollutants
Light	Incorrect temperature
Incorrect RH	Dissociation

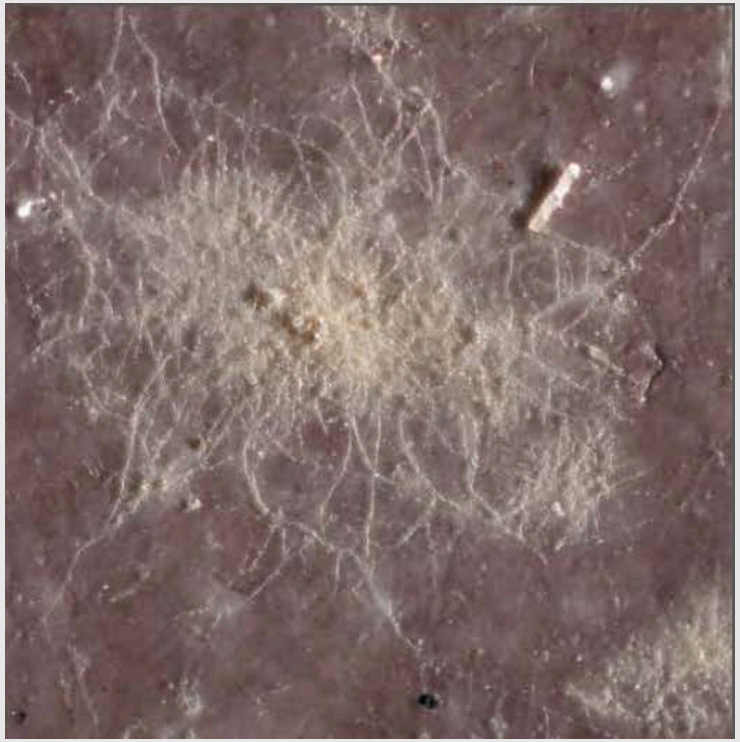
10 Agents of Deterioration



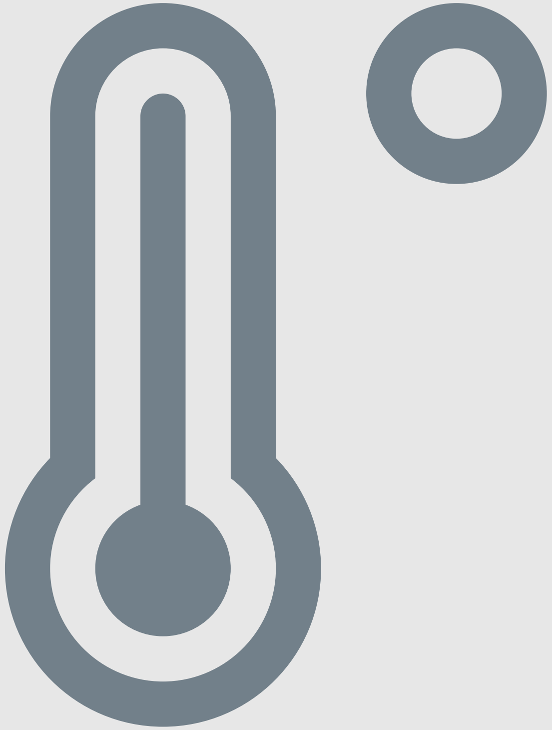
Chemical

Mechanical

Biological



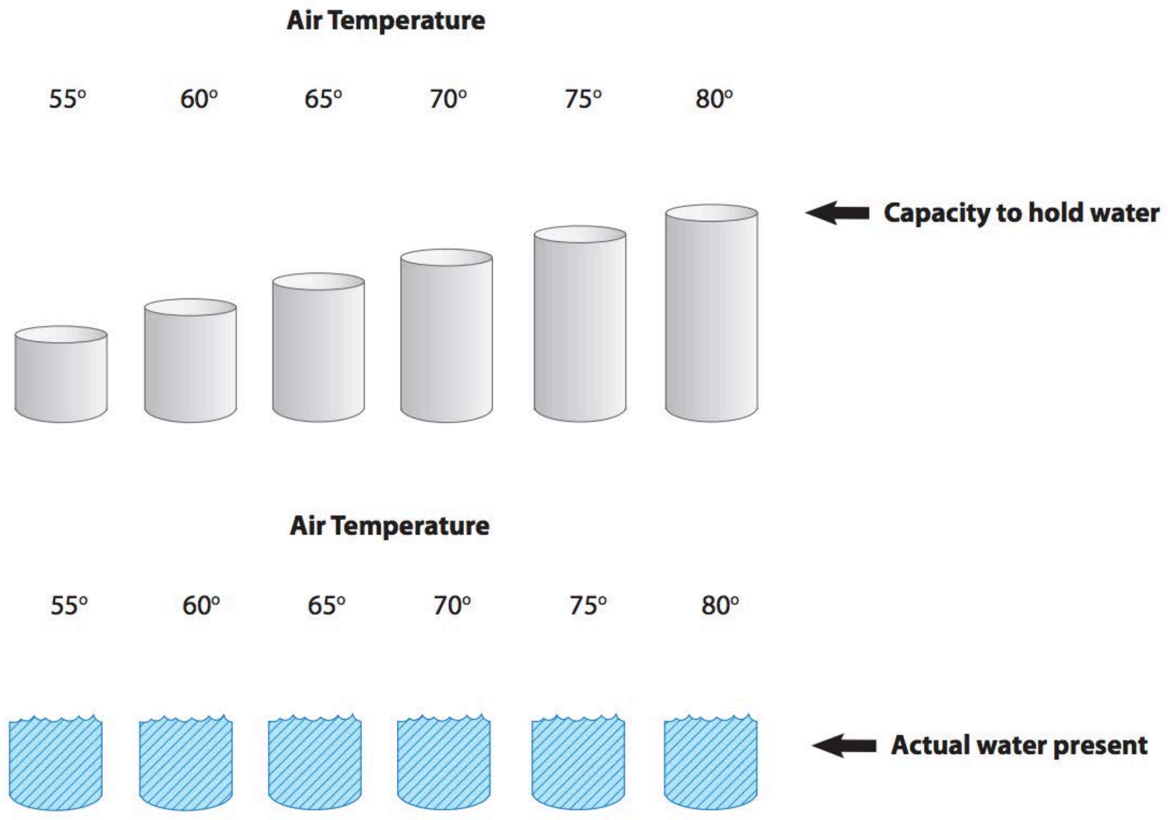
Temperature



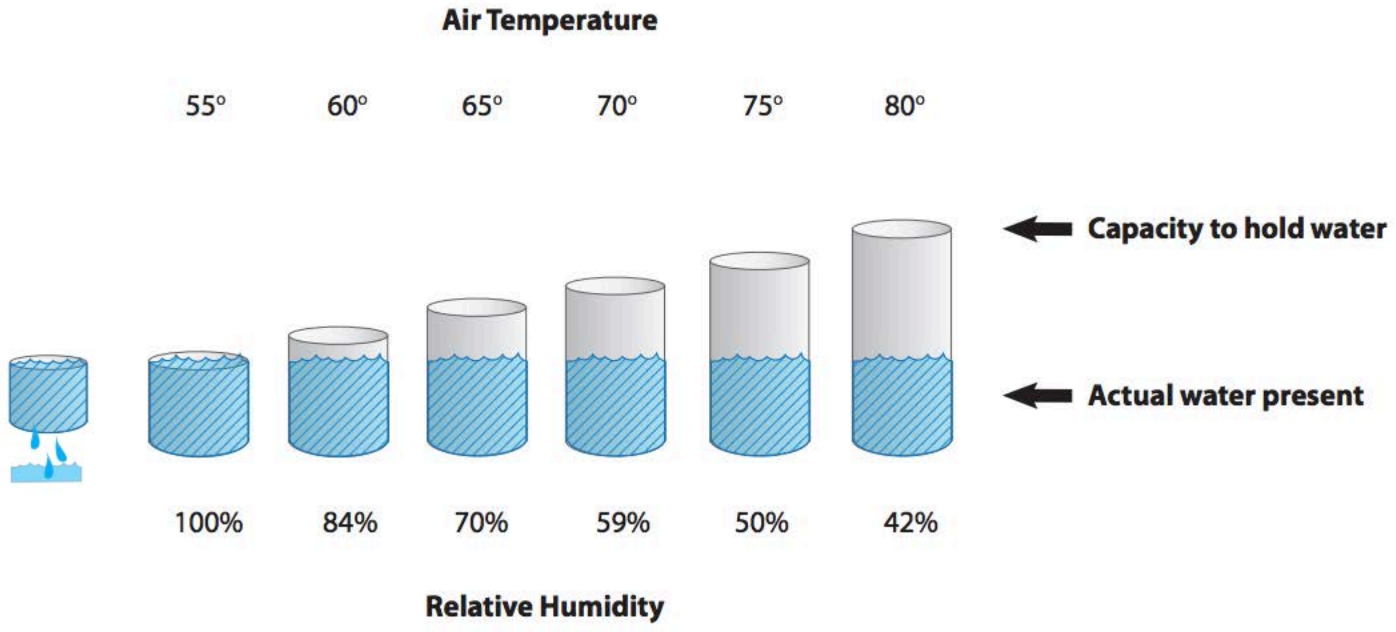
Relative Humidity (RH)

Dew Point

Environment: Dew Point

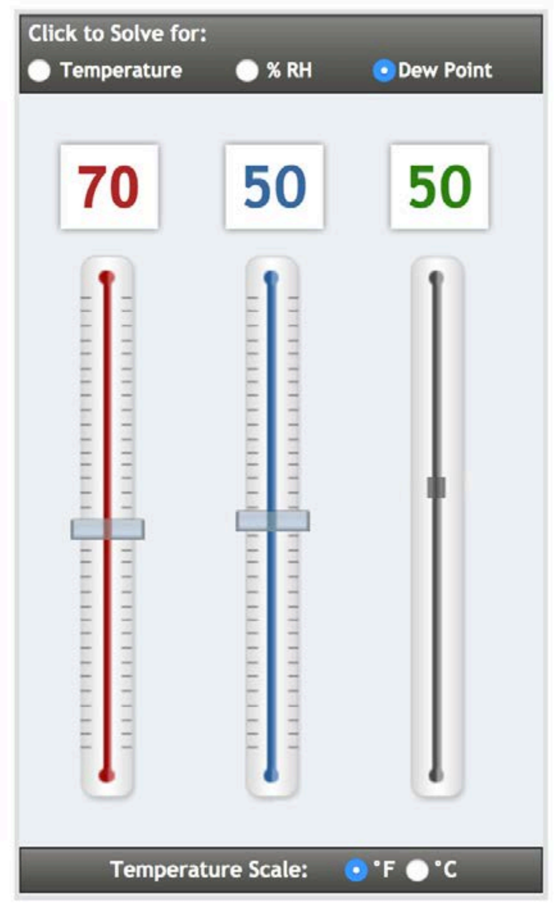


Environment: Dew Point

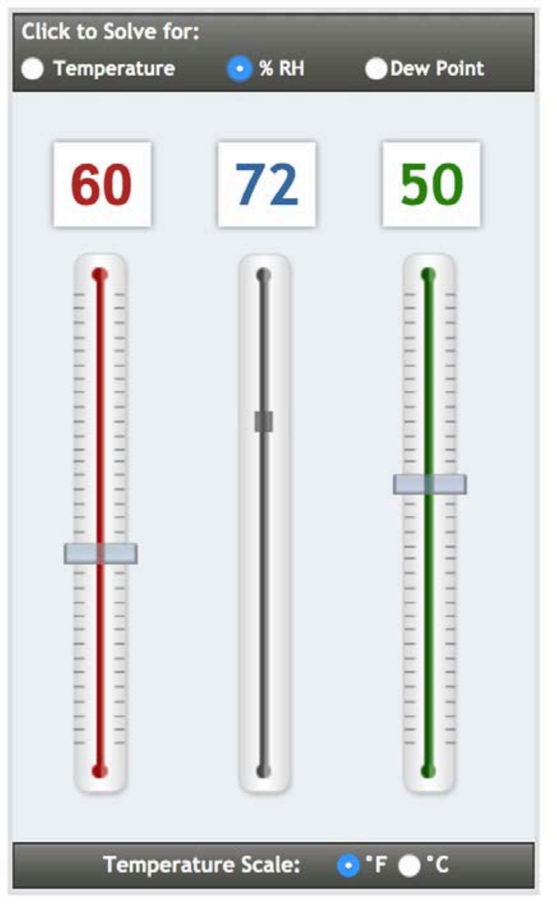


Dew Point Calculator (dpcalc.org)

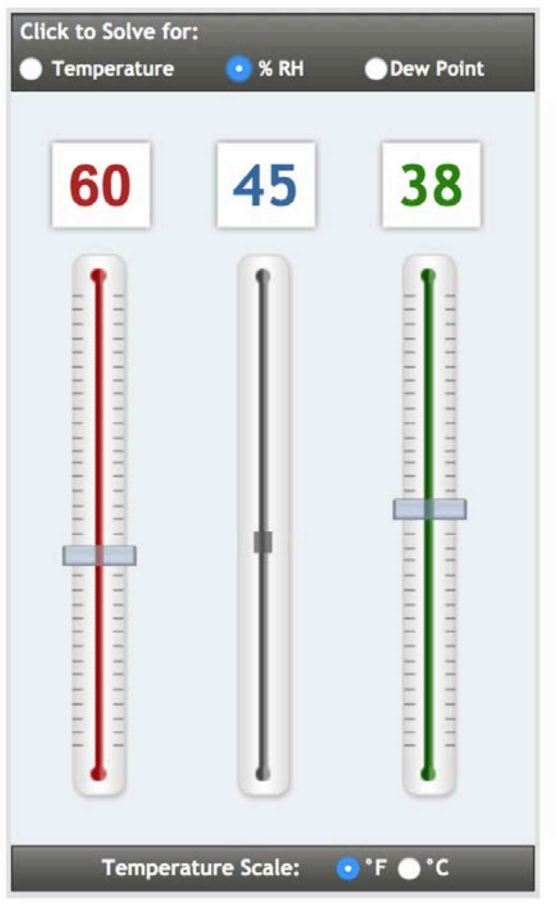
Starting



Temp only



With DP



Environmental Management: Phases

- Set-up
  - Understand the problem
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Risk Assessment

Vulnerability **Exposure** **Likelihood**

Risk Assessment: Vulnerability

- **Object itself**
  - Materials
  - Assembly
  - History/ current state of deterioration
- **Context of object**
  - Access
  - Use
  - Significance

Risk Assessment: Materials

High temperature

- Acidic papers
- Natural materials
- Modern materials
- Adhesives

Low temperature

- Certain paintings
- Modern media
- Rubber, plastics, polymers
- Drums

Risk Assessment: Materials

High RH

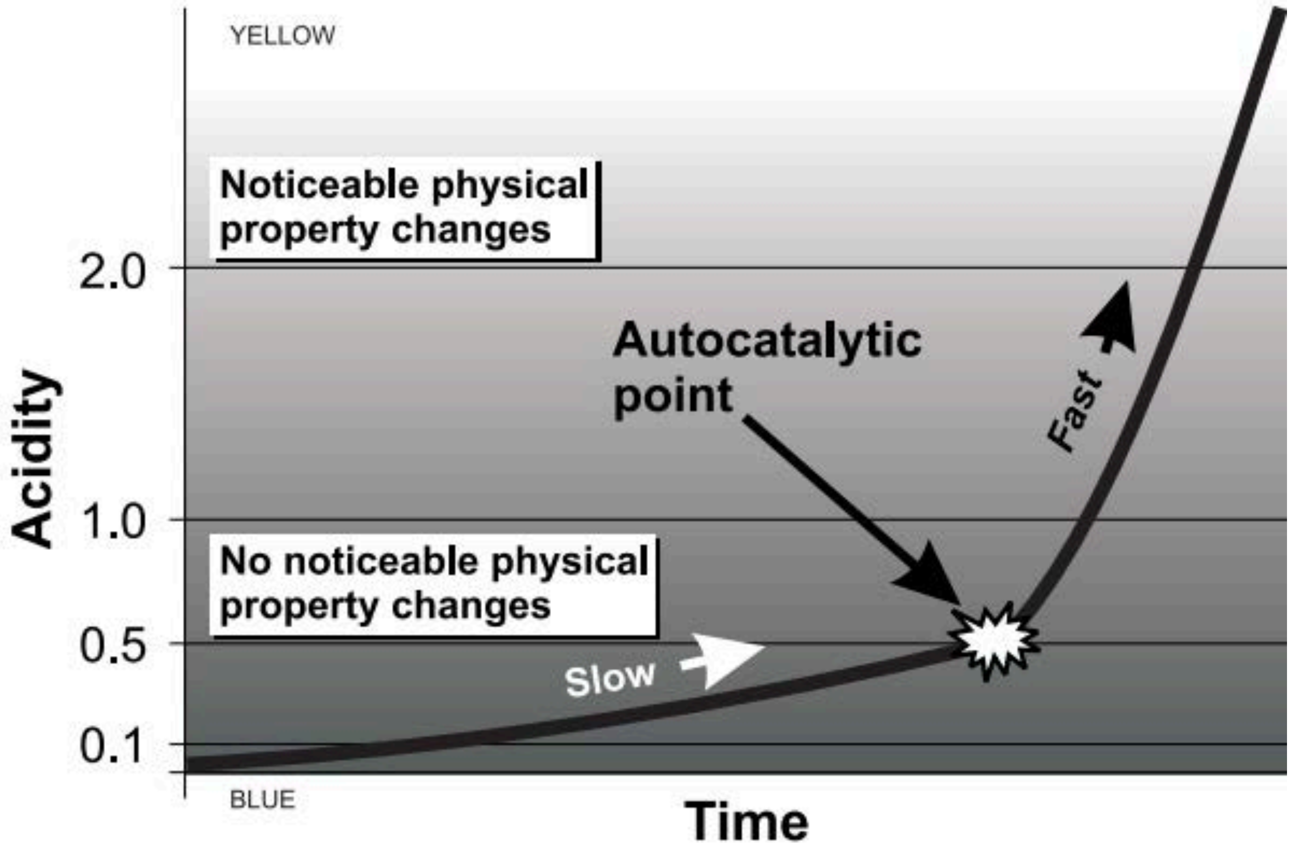
- Natural materials
- Metals
- Adhesives
- Glass, minerals

Low RH

- Ivory
- Composite objects

Risk Assessment: Assembly

Risk Assessment:
History/Deterioration



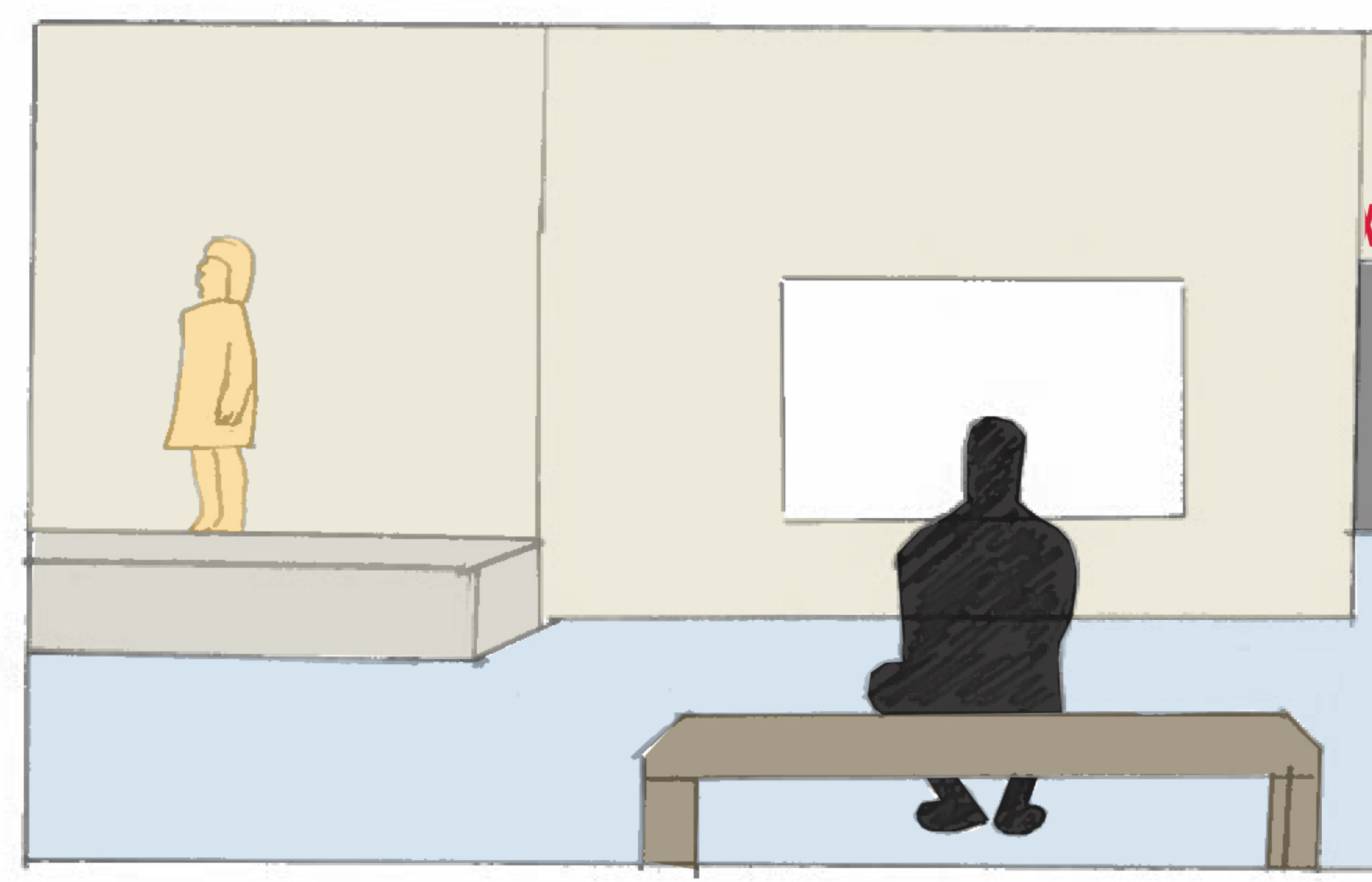
Risk Assessment: History/Deterioration

The concept of **proofing** states that any future pattern of fluctuations similar to a past pattern will likely not cause significant **physical damage**.

Access

Use

Significance



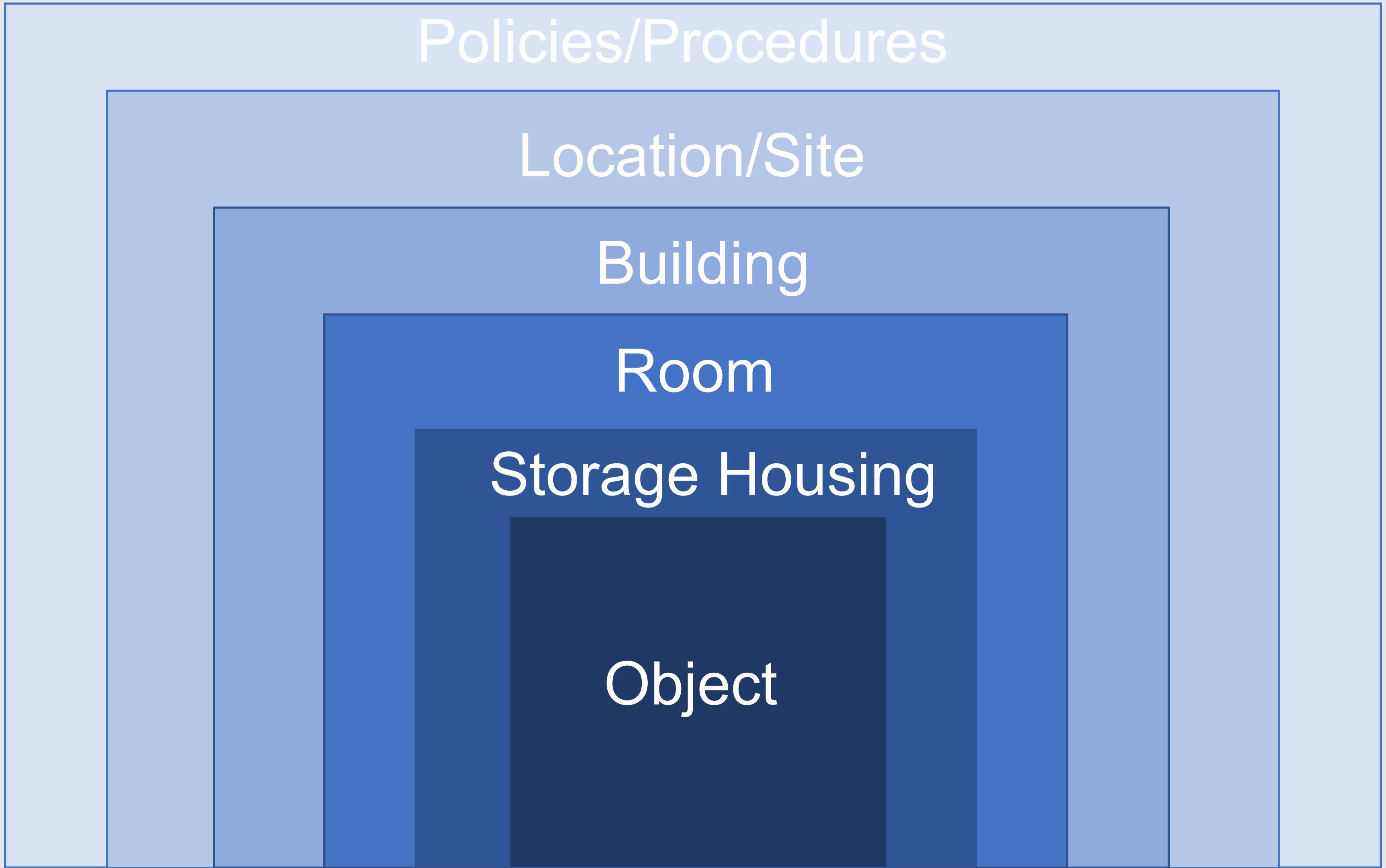
Risk Assessment

Vulnerability Exposure Likelihood

Risk Assessment

Vulnerability **Exposure** **Likelihood**

Risk Assessment: Exposure



- Severity versus frequency
- References
- Observations

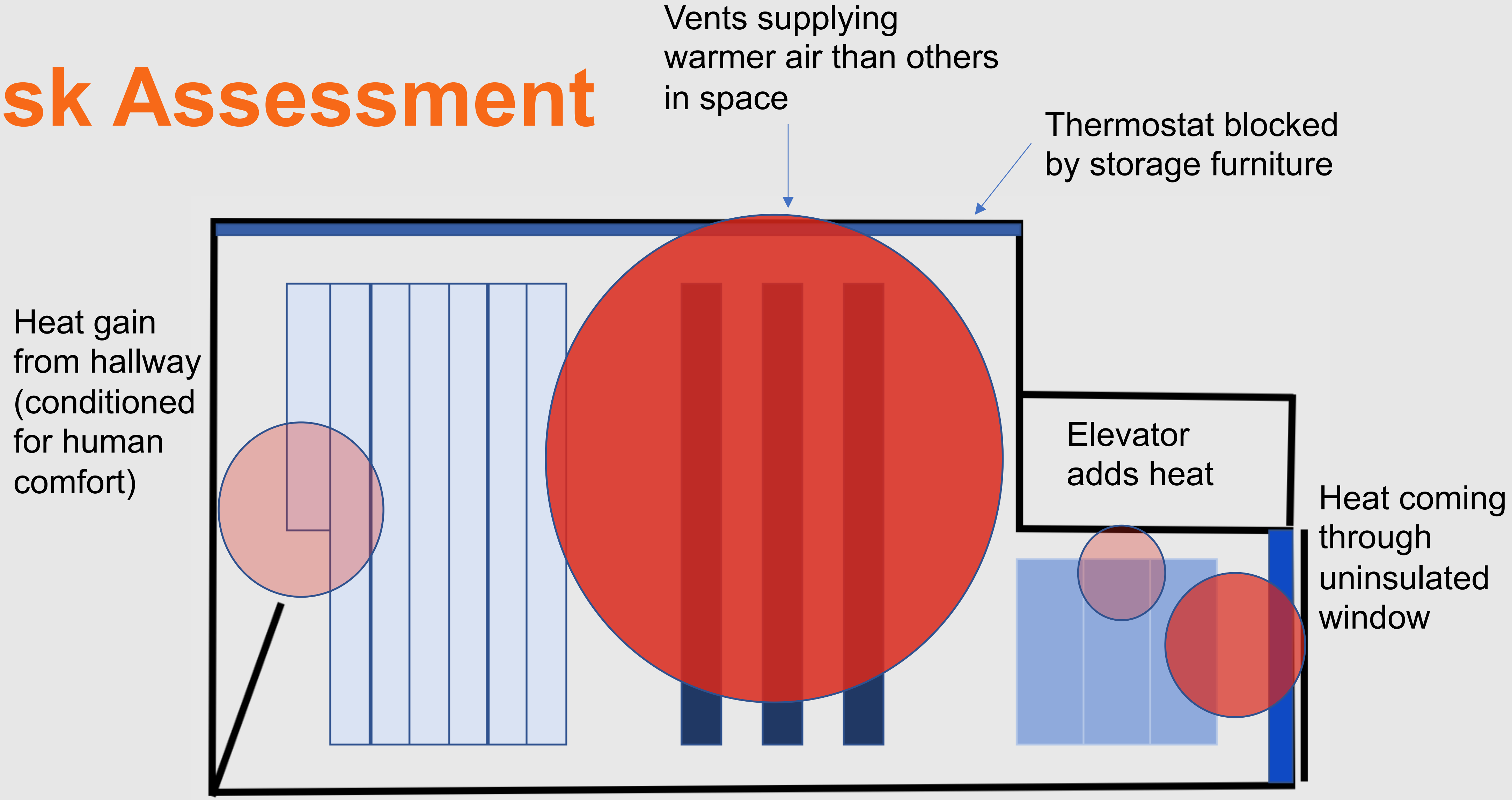
Risk Assessment

Vulnerability Exposure Likelihood

Risk Assessment

Agent	Situation	Collections	Frequency	Severity
Incorrect Temperature	Light from nearby window falling on nearby shelf	mostly metal objects	continuous	low
	Reheat seems to be firing warmer in NE corner of storage space A	textiles are chemically deteriorating at faster rate	~ every 5 years	moderate
	Freezer failure	film collection is chemically deteriorating at faster rate	~ every 10 years	high

Risk Assessment



Resources

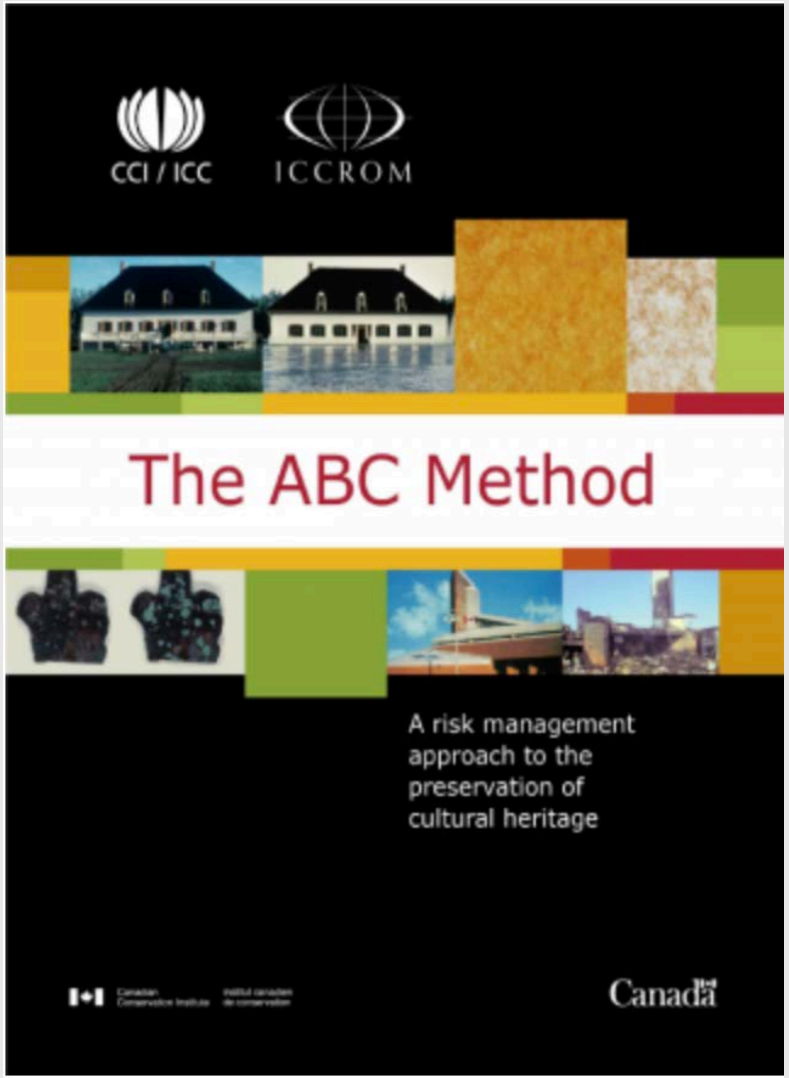
Canadian Conservation Institute (CCI)

For the 10 Agents:

- https://www.canada.ca/en/conservation-institute/services/agents-deterioration.html

For the risk guidebook:

- https://www.iccrom.org/publication/abc-method-risk-management-approach-preservation-cultural-heritage



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Teamwork

Team members:

- Those who create the environment (Facilities staff)
- Those responsible for preservation of collections (Collections staff)
- Those who work in and around collections (Curatorial, Interpretation)
- Those responsible for administration and finances (Administration, Finance)
- Those who direct the sustainability mission and goals (Sustainability officers)

Environmental Management: Phases

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An **optimal storage environment** is one that achieves the best possible preservation of collections with the least possible consumption of energy, and is sustainable over time.

Sustainability

- **Depends on:**
  - Local climate
  - Building envelope
  - Mechanical system
  - Collection needs
  - Institution’s goals

- **Achievable with:**
  - Knowledge of collections
  - Team approach
  - Reliable data
  - Experimentation

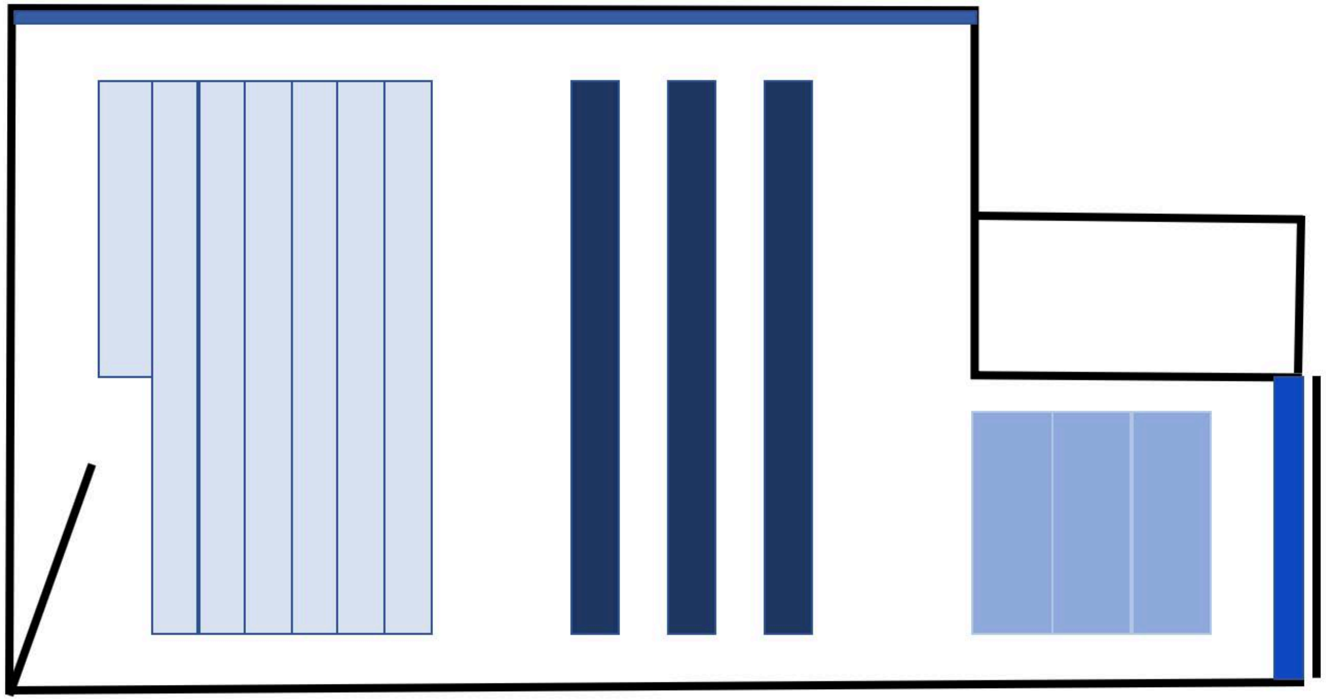
Environmental Monitoring

The goal depends on what question you are trying to answer

- **General Sense**
  - What conditions is the collection experiencing?
  - How does the mechanical system create the environment in my space?
- **Specific Issues**
  - Why does this space always seem warmer than others?
  - Why are we seeing mold outbreaks on this wall?

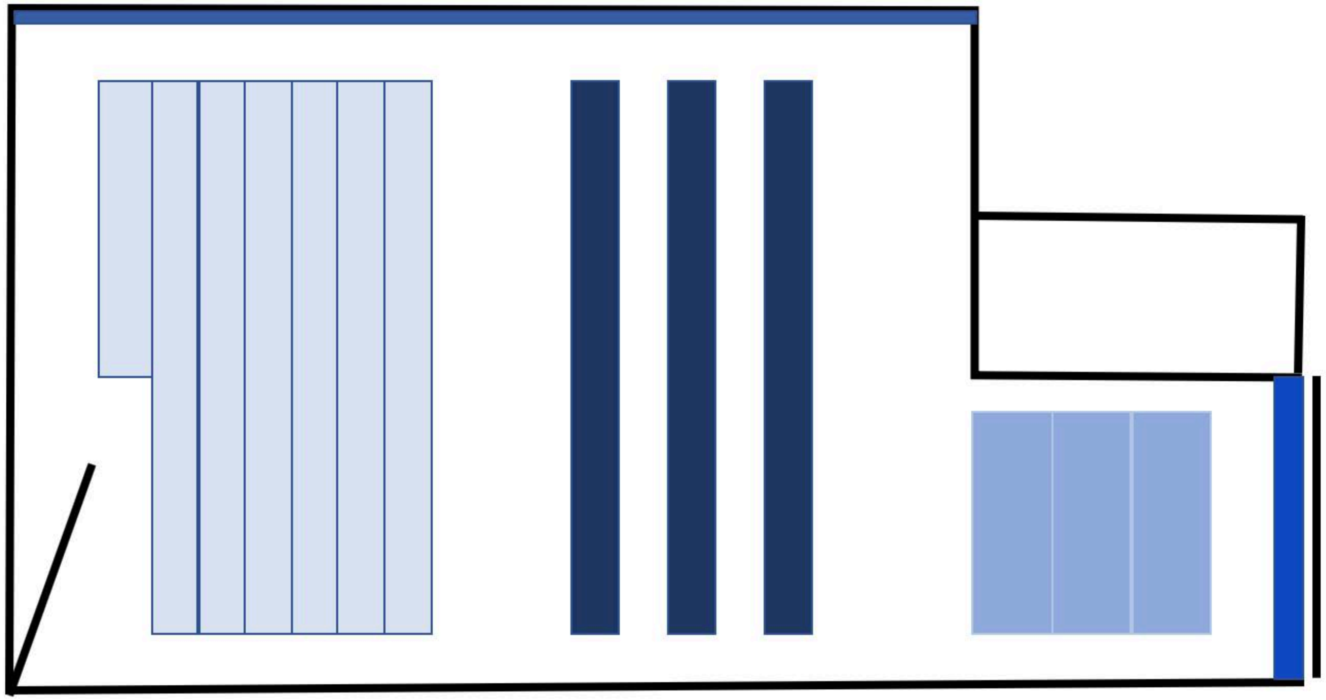
Environmental Monitoring: General

- **Is one datalogger enough?**
  - Avoid placement near outside doors, air vents, radiators, cold walls, fans, computers, or other sources of heated, cooled, dehumidified or humidified air
  - Where the collection lives



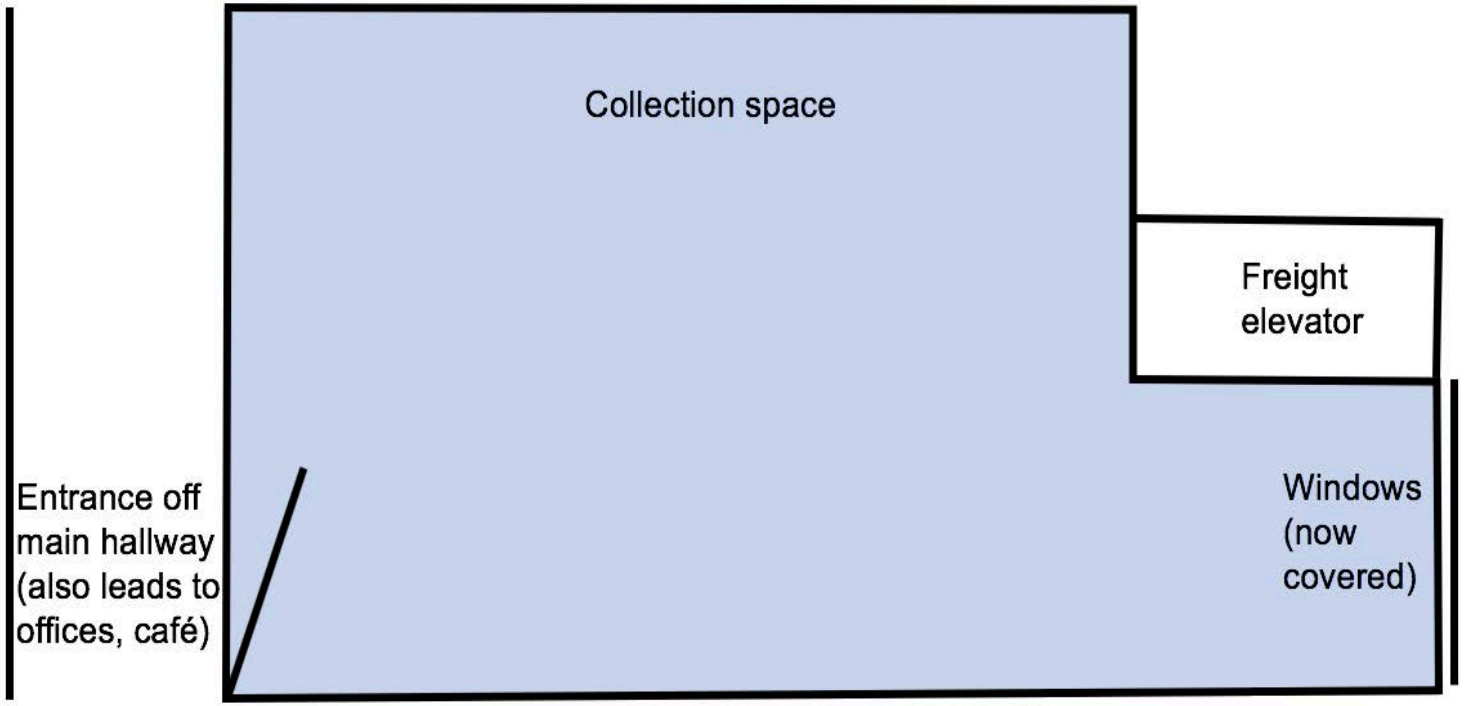
Environmental Monitoring: General

- **Variations within and between spaces**
  - Stratification
  - Different floors have different environmental challenges, operationally different
  - Levels of control (ex. different housing)



Environmental Monitoring: Specific

- **Environmental problems**
  - Proximity to heat and moisture sources

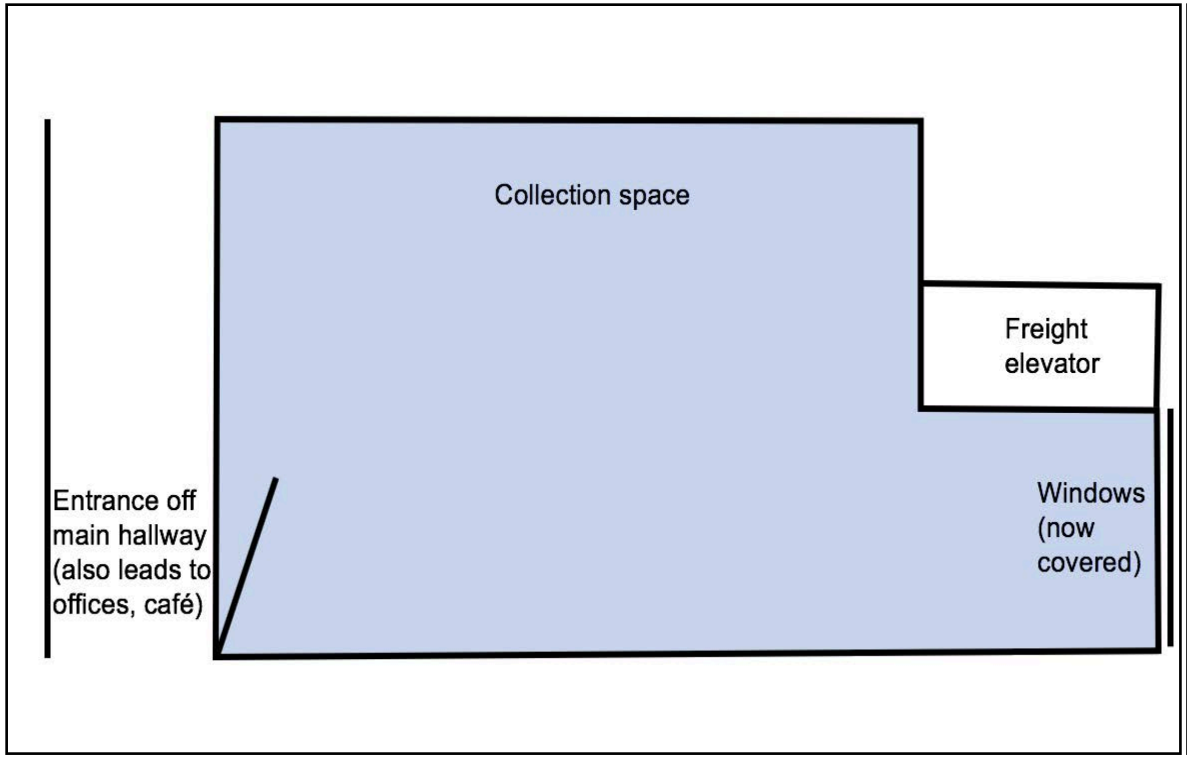


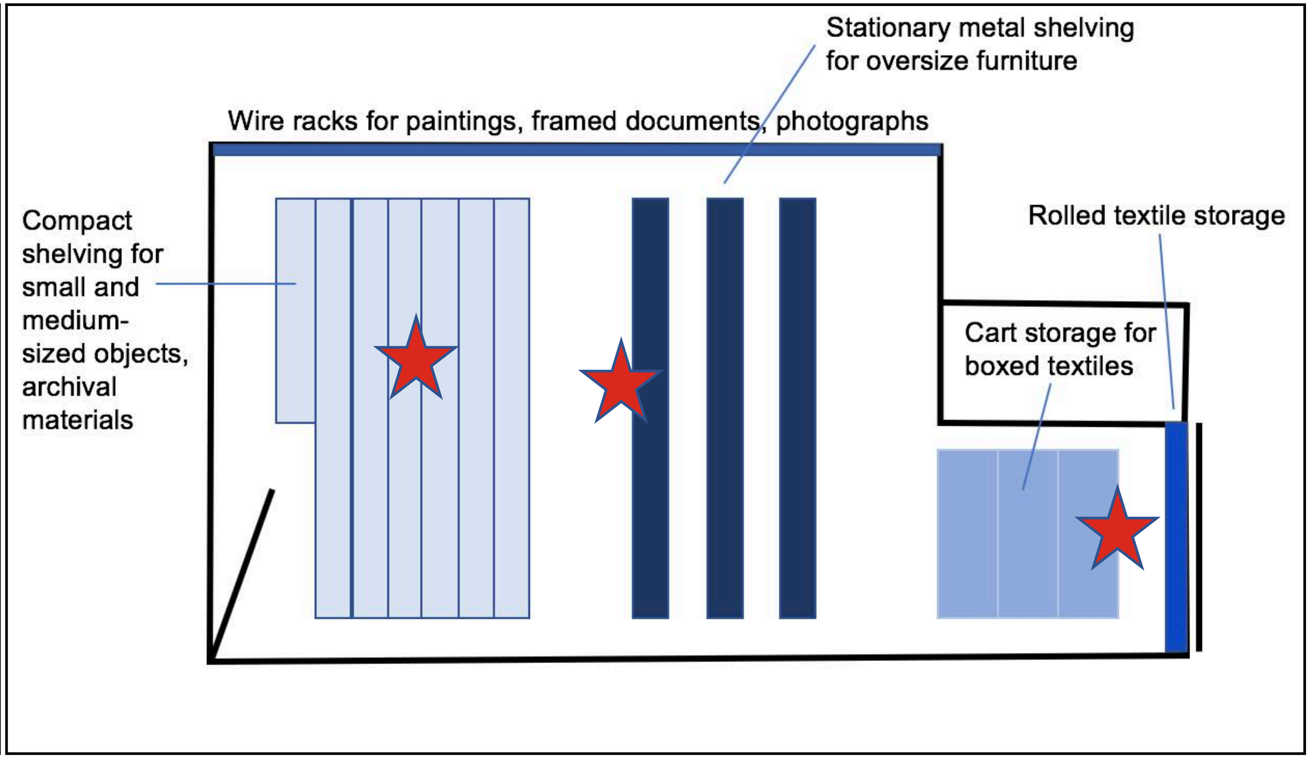
Environmental Monitoring: Specific

- Mechanical systems

- Collections
  - Most vulnerable materials
  - Objects on loan or exhibition spaces

How many dataloggers do I need?





When should I look at data?

- Data should be pulled and evaluated routinely
- One full year before moving datalogger for seasonal changes
- Periods of outdoor weather extremes, significant events

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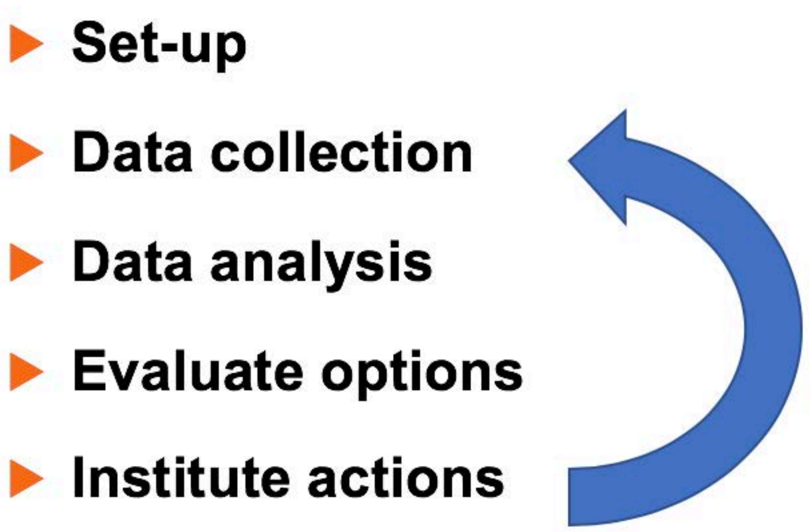

Thank you!

https://ipisustainability.org
https://www.imagepermanenceinstitute.org/

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