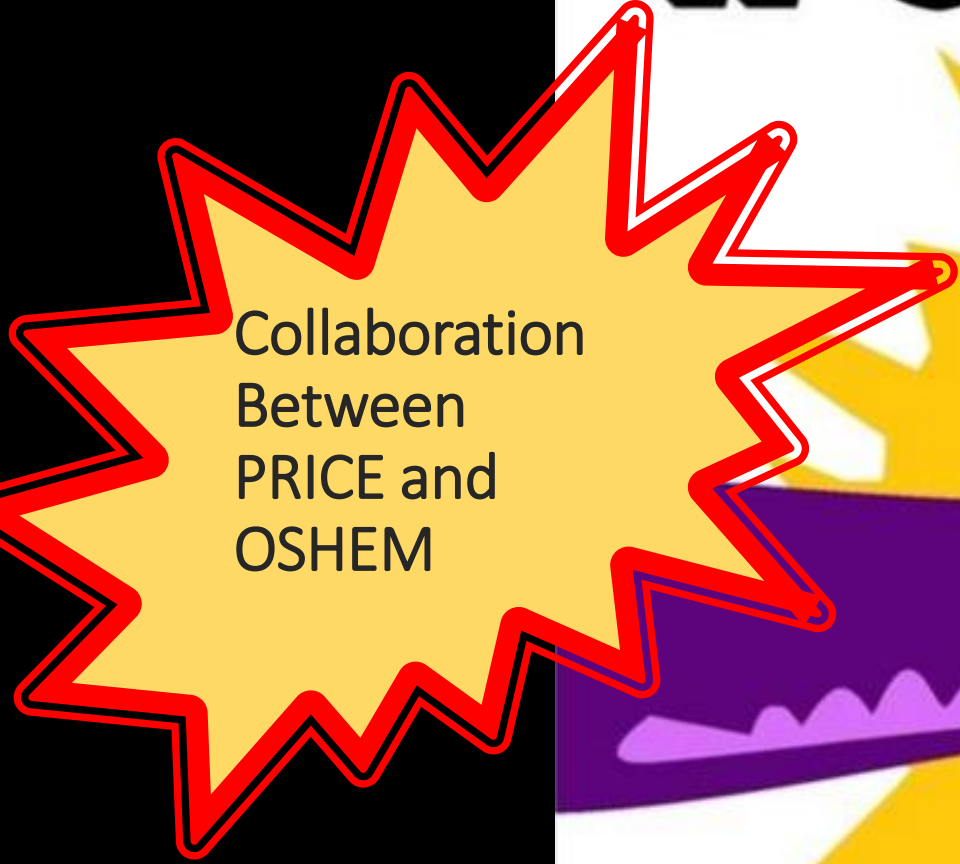




ILPERFRIENDI



# WONDER TWIN POWERS



Collaboration  
Between  
PRICE and  
OSHEM



# ACTIVATE

Presented by:  
Michael Kilby, OSHEM-  
Fire and  
Samantha Snell, NCP



## The Big Picture



- **SF – OSHEM**

- OSHEM assures that the SI organization and facilities operate and sustain a safe and healthful environment for employees, volunteers, and the visiting public, and to assure Smithsonian collections and property are protected.

- **NCP – PRICE**

- PRICE supports unit-level and pan-Institutional collections emergency mitigation, preparedness, response, and recovery capabilities, including policy, procedures, training, and logistics.



Raising Awareness

Starting Conversations

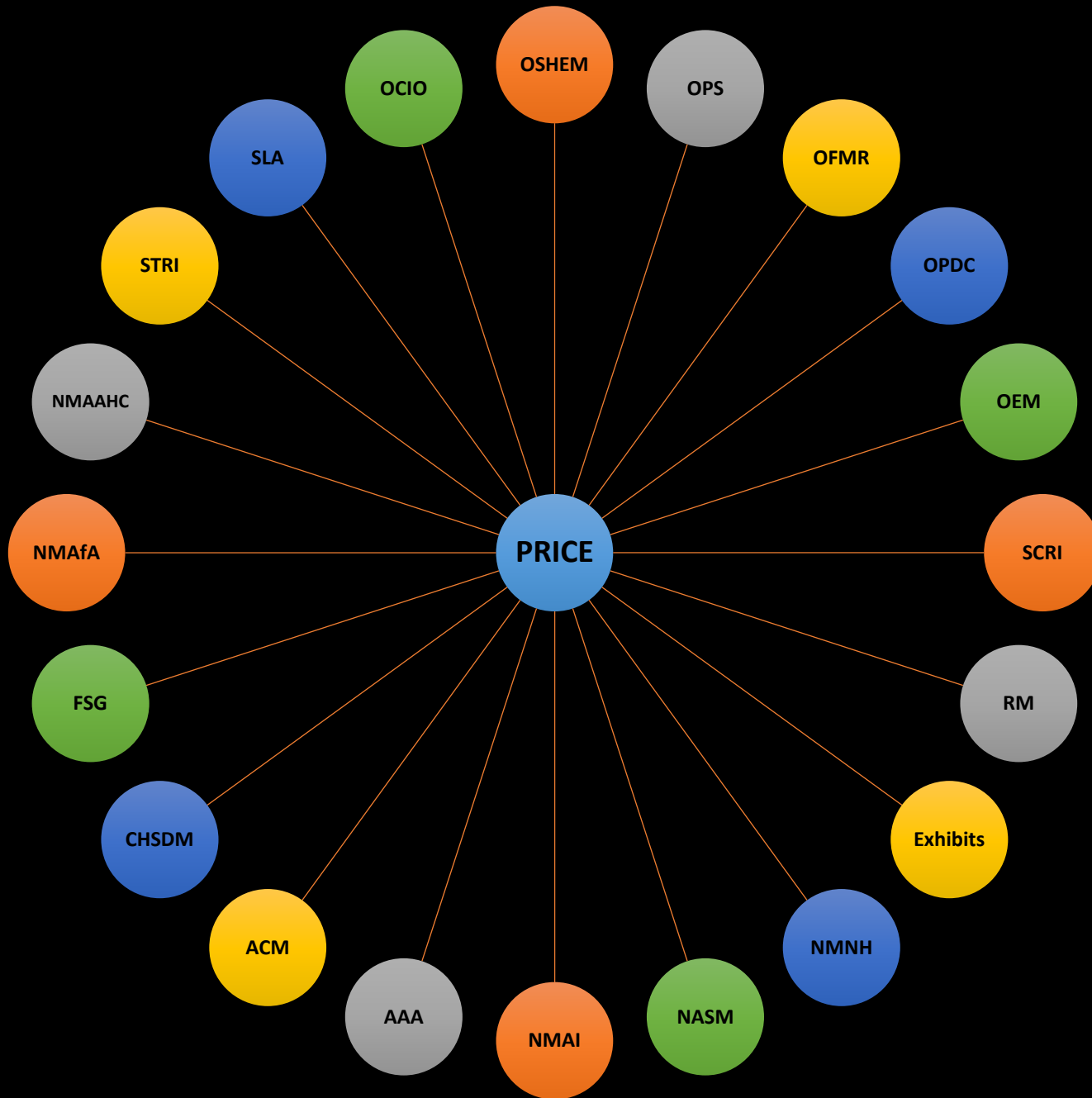


Breaking Down Silos

## Shared Missions and Goals

Provide education, technical support and consultation services to the Smithsonian community.

Keep Smithsonian management informed of applicable standards and best practices affecting Smithsonian operations.

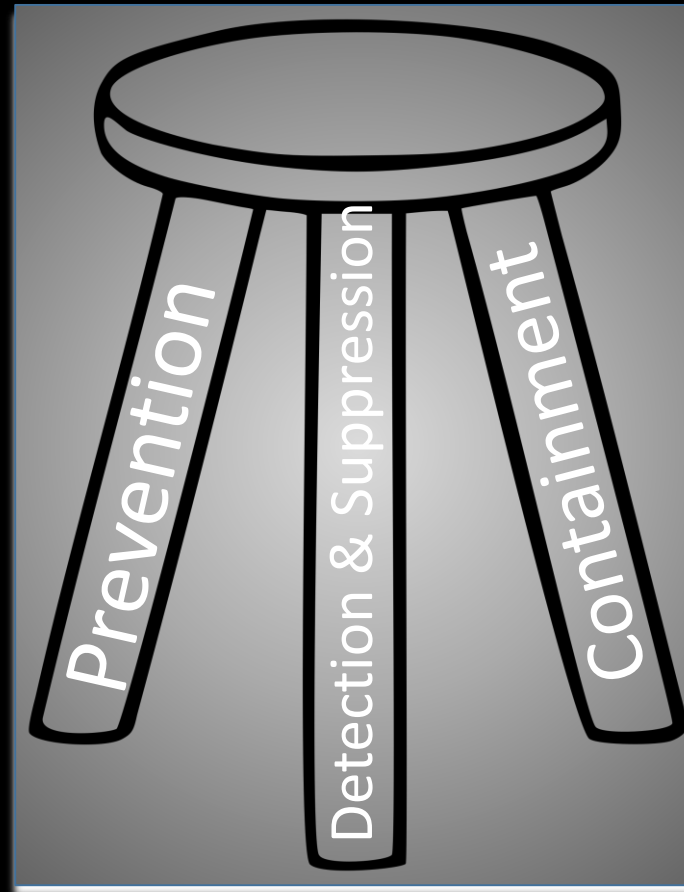


## PRICE & OSHEM Joint Activities

- Developing Standards & Best Practices
  - Collection storage and processing
  - Hazardous materials
  - Emergency planning
  
- Consulting
  - Fire prevention/protection
  - Health - monitoring exposures
  
- Training/Workshops

# Standards & Best Practices

- Collection Spaces
  - Construction & Systems
  - Operations
- Collection Based Hazards
  - Identifying hazards
  - PPE
  - Safe handling practices
- Exhibits



Separate collection storage with 2-hour fire-rated construction

Max size of any collection storage space = 30,000 sq ft

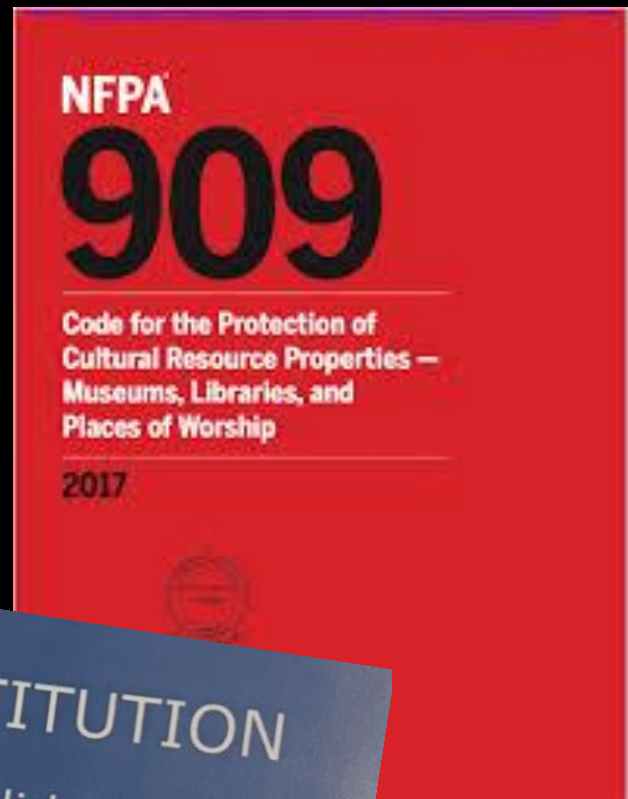
Protect with early warning smoke detection & sprinklers

Protect with additional fire suppression systems when deemed necessary

# Standards & Best Practices

## Fire Protection for Collections

- NFPA 909 – Code for the Protection of Museums, Libraries & Places of Worship
- SI Fire Protection & Life Safety Manual
- SI Safety Manual





# Standards & Best Practices

## Fire Protection Levels

Protection Level	Fire Protection Feature				
	Fire Barriers	Suppression	Detection	Size (ft <sup>2</sup> )	Smoke Control
Low	1-hr fire/smoke	OH2 sprinkler	Spot Smoke	No Limit	Space Isolation
Medium	2-hr fire/smoke	OH2 sprinkler	VESDA or Spot Smoke	30,000	Space Isolation
High*	2-hr fire/smoke	OH2 sprinkler	VESDA (High Sensitivity)	15,000 / 7,500	Space Isolation
Very High	3-hr fire/smoke	Special Suppression and OH2 sprinkler	VESDA (Very High Sensitivity, Spacing)	1,500	Positive Pressure

# Standards & Best Practices

## Fire Vulnerability

- Low (Stone, Wet specimens in NOVEC or similar):
  - Noncombustible
  - Easily cleaned or repaired
  - Low porosity - inhibits permanent staining
  - Resistant to heat damage (spalling, cracking, repairable deformation)
- Medium (Bone, Ivory, Shell):
  - May be Combustible
  - Susceptible to heat damage (plastic deformation, melting)
  - Moderate effort required to clean
- High (Textile, Wood, Skin, Paper, Plastics):
  - Highly combustible
  - Melt or deform at minimally elevated temperatures
  - Difficult or impossible to clean fire/smoke damage



# Standards & Best Practices

## Fire Prevention

- Controlling ignition sources
- Managing combustibles
- Exhibits
- Hazardous Operations/Construction



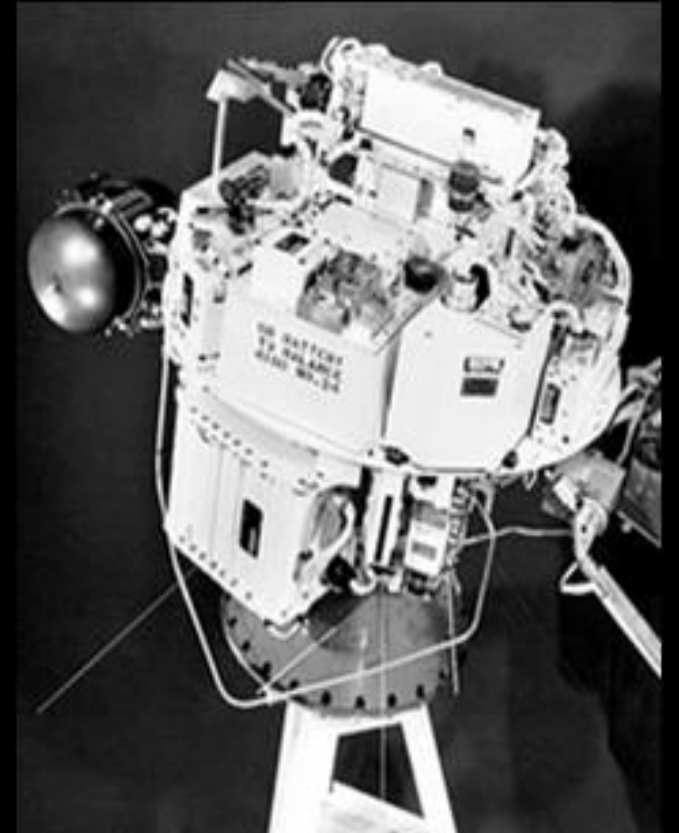
# Consulting

- Asbestos & lead testing
- Indoor air quality surveys
- Fire detection and suppression for collection areas
- Collection storage systems
- Fire prevention for collections operations



# Consulting

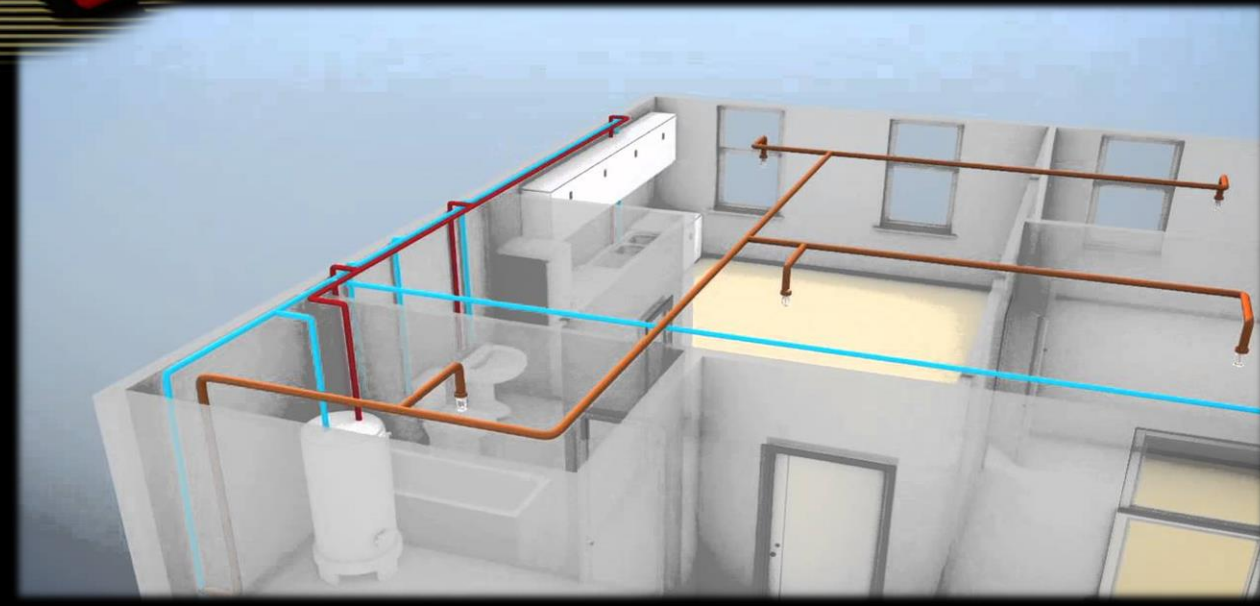
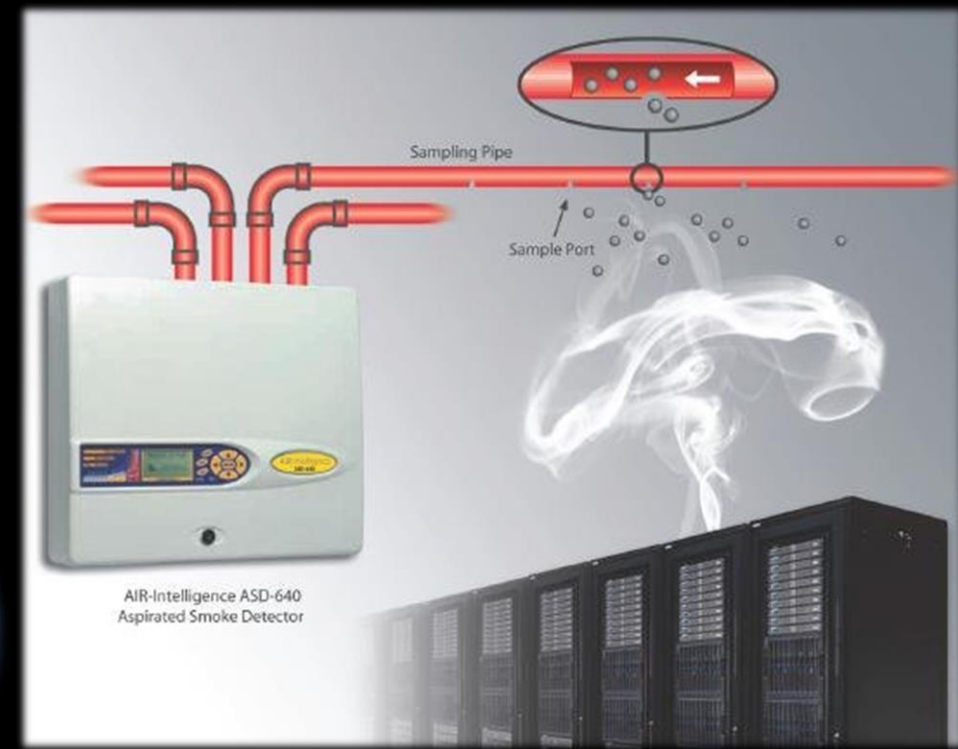
## Asbestos & Lead Testing



# Consulting

## Fire Detection & Suppression

- Sprinkler Systems
  - Wet pipe
  - Dry pipe
  - Preaction systems
- Fire Detection
  - Heat detectors – for areas w/ airborne dust and dirt
  - Spot type detectors – ionization and photo-electric
  - Beam type smoke detectors
  - Air aspirating smoke detection



# Consulting

## Storage Solutions

### Compact Storage

- High fire protection challenge (section 7.11 of SI Fire Design Manual)
- Must consider sprinkler system with design of storage system
- Request OSHEM review prior to installation of *any* collection storage furniture



# Training/Workshops

- Fire Protection for Collections
- Hands-on Fire Extinguisher Training
- Fire Prevention Week
- Wet Salvage and Fire Recovery Workshops
  - Collection Based Hazards
  - Safety/PPE
  - Risk and Hazard Identification





# Brown Bag Presentations + Fire Extinguisher Training



## PROTECTING COLLECTIONS FROM FIRE



## Portable Fire Extinguisher Types and Use

Office of Safety, Health and Environmental  
Management

# Fire Prevention Week Outreach



Learn DC Fire Department



Learn about P.A.U.L. Analytix Fire Simulator

Today in the Castle Commons

## OSHEM's Fire Prevention Event

Join us from 10am-2pm and talk with representatives from:

- Smithsonian Teams
  - o Life Safety Shop
  - o Office of Emergency Management
  - o OSHEM Fire Protection
  - o Preparedness and Response in Collections Emergencies Team (PRICE)
- Partner Organizations
  - o DC Fire and EMS, including their Arson Dog
  - o US Fire Administration

Learn about US Training Programs



Learn about the US Fire Administration

# Wet Salvage Workshop



# Fire Recovery Workshop – Holy Smokes!



# Fire Tabletop Development and Implementation

**CONSTRUCTION UNDER CONSTRUCTION**

**Instructor's Guide**





Ongoing Challenges



# Cellulose Nitrate Film: Storage Requirements

## NFPA 40, “Storage and Handling of Cellulose Nitrate Film”

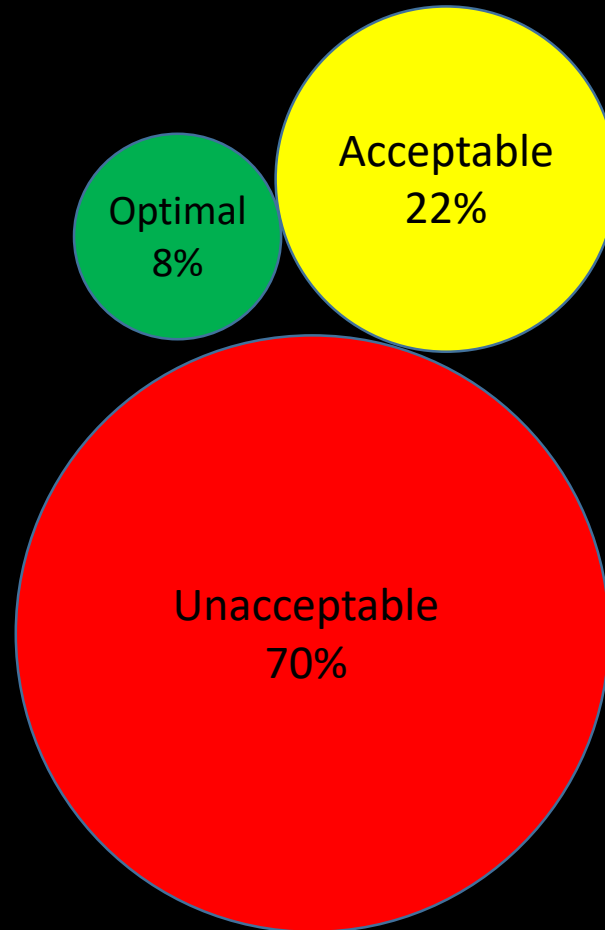
- > 5 standard rolls - special cabinets or vaults
- Sprinklers & venting for cabinets & vaults
- Scrap film must be stored underwater

## SD 502 & Safety Manual, Chapter 24

- Prompt removal of nitrate film to storage locations meeting NFPA 40
- Notify Safety Officer of nitrate film
- Consider off-site storage
- Dispose as hazardous waste

# Vulnerability/ Risk Levels

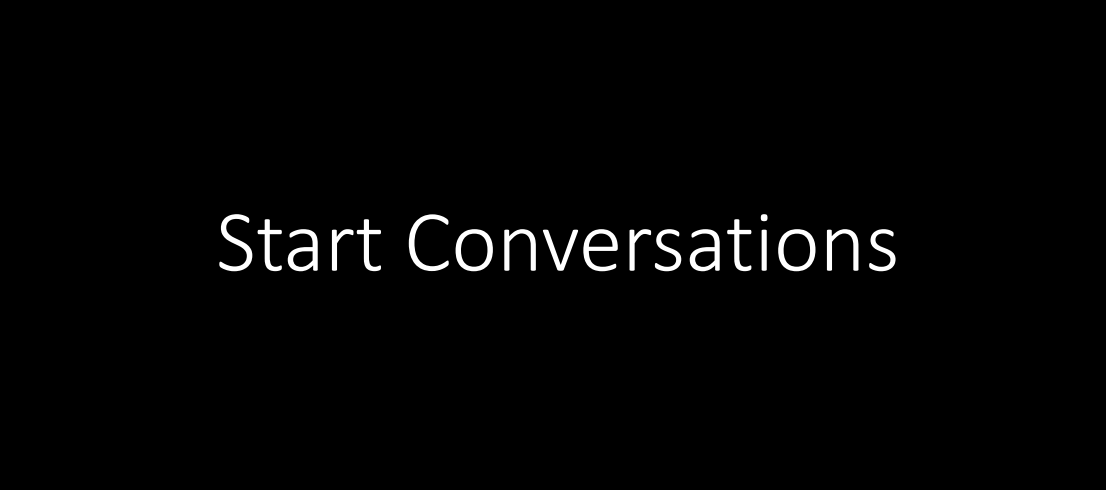
- Collections staff partnered to define risk levels for collection item types which provided valuable data to OSHEM to determine the appropriate fire protection features needed in collections storage.







Raise Awareness



Start Conversations



Break Down Silos



# THANKS

## **Former and Current PRICE members**

- Brian Abrams
- Kerry Button
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- Kara Hurst
- Becky Kaczkowski
- Becca Kennedy
- Nora Lockshin
- Melissa Miller
- Katie Wagner

## **OSHEM Staff**

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