Care of Painted Surfaces
Connecting to Collections Care Webinar
October 13, 2021
Care of Painted Surfaces

Possible Substrates:
- Wood
- Metals
- Stone
- Concrete
- Glass
- Plastics
- Ceramics
- Almost Anything!
Care of Painted Surfaces

Decorative, Protective, or Both?
Care of Painted Surfaces

**Cohesion**: Strength of the paint film. Cohesive failure takes place in the paint film.

**Adhesion**: Strength of the bond between paint and substrate. Adhesive failure takes place at the interface.
Good Adhesion Requires:

- **Adsorption**: Molecules in the paint should “wet” or flow freely over the substrate. The substrate should have a higher surface energy than paint.

- **Chemical Bond**: A bond forms between paint and substrate at the interface.

- **Mechanical Interlocking**: The paint film penetrates the substrate (surface texture).
Example:

• **Good** Adsorption: glass has a higher surface energy than most paints. The paint easily flows across the surface.

• **Poor** Chemical Bond: No bonding takes place between the glass and the paint.

• **Poor** Mechanical Interlocking: the smooth surface of the glass prevents interlocking.

*Shard Rocket, 1988*
Richard Marquis
Painted glass
Example:

- **Good** Adsorption: glass has a higher surface energy than most paints. The paint easily flows across the surface.

- **Good** Chemical Bond: No bonding takes place between the glass and the paint.

- **Good** Mechanical Interlocking: the smooth surface of the glass prevents interlocking.
Agents of Deterioration

• Physical Forces (improper handling, use)
• Vandalism/Theft
• Fire
• Water
• Pests & Biological Growth
• Pollutants (including dirt, grime)
• Light
• Incorrect Temperature
• Incorrect Relative Humidity
• Custodial Neglect & Dissociation
Common Condition Issues
Care of Painted Surfaces

Damage/Deterioration of Substrate
Care of Painted Surfaces

Damage/Deterioration of Substrate
Care of Painted Surfaces

Tenting
Care of Painted Surfaces

Flaking
Care of Painted Surfaces

Blistering
Care of Painted Surfaces

Abrasion
Care of Painted Surfaces

Fading
Care of Painted Surfaces

Powdery Paint
Care of Painted Surfaces

Insect Damage

Exit Holes

Loss of Structure

Tunneling & Surface Loss
Care of Painted Surfaces

Biological Growth
Care of Painted Surfaces

Dirt & Grime

Dirty → Clean
Storage, Display, & Maintenance
Agents of Deterioration

- Physical Forces (improper handling, use)
- Vandalism/Theft
- Fire
- Water
- Pests & Biological Growth
- Pollutants (including dirt, grime)
- Light
- Incorrect Temperature
- Incorrect Relative Humidity
- Custodial Neglect & Dissociation
Care of Painted Surfaces

Common Cleaning Tools
Choose a clean, soft, natural fiber artist’s brush, typically 1” to 2-1/2” in size.
Clean or replace as bristles become stained.
For painted surfaces Badger hair brushes are ideal.
Wrap metal ferrules with painter’s tape.
Care of Painted Surfaces

Dusting

- Visually check for any sign of loss or flaking paint.
- Brush slowly and gently in one direction across or down, followed by a second brushing in an opposite direction.
- Do not use moist dust cloths, stiff bristle brushes, or feather dusters.
When to Call a Conservator
Care of Painted Surfaces

Cleaning

Proof, 1996
Jack Glass
wood, glass, pigment
Care of Painted Surfaces

Cleaning

WWI Helmet, 1917
Paint, iron alloy
Care of Painted Surfaces
Paint Consolidation

Double Sided Red Geranium
Tea Room Sign
Painted galvanized steel
Care of Painted Surfaces

Paint Consolidation

Before Consolidation

After Consolidation
Norwegian Trunk
wood, paint, ferrous metal
Questions?

Connecting to Collections Care