# Floor Coatings For Aviation Facilities

## Navy Coating Specialist

# Navy Coating Specifications

- **UFGS-09611 "Thin Film Flooring System"**
  - *Epoxy Primer
  - *Two Coats Urethane
  - *Aluminum Oxide Non-skid Grit
  - *Flexible Polysulfide Joint Sealant
- **UFGS-09612 "Epoxy Mortar Flooring System"**
  - *Epoxy Primer
  - *1/4" Epoxy Mortar
  - *Epoxy Grout Coat
  - *Two Coats Urethane
  - *Aluminum Oxide Non-skid Grit
  - *Flexible Polysulfide Joint Sealant

# ***Thin Film Flooring System***

**“Aircraft Maintenance Hangar”**

# ***Epoxy Mortar Flooring System***

**“Aviation Component Shop”**

# *Why Coat Aviation Facility Floors?*

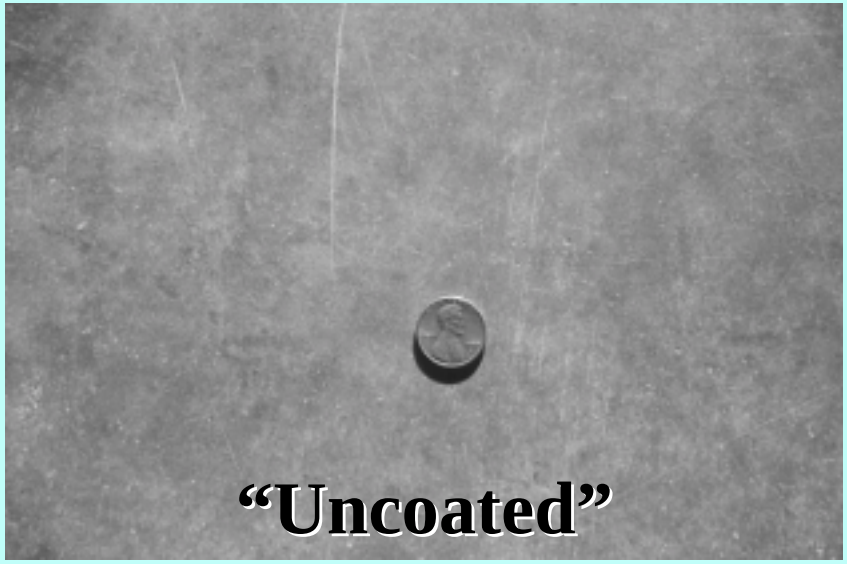
- **Benefits**
  - ***Increased Concrete Protection**
  - ***Increased Safety**
  - ***Enhanced Facility Appearance**
  - ***Increased Cleanability**
  - ***Increased Light Reflectivity**
  - ***Reduced Foreign Object Damage (FOD)**
- **Negatives**
  - ***Costs**
  - ***Frequent Cleaning**
  - ***Scheduled Repairs/Overcoating**

# Coatings Protect Concrete

- Aviation Chemicals
  - *Jet Fuels (JP-5, JP-8)
  - *Skydrol (hydraulic fluid)
  - *Oils
  - *Specialty Chemicals
- Impact
  - *Equipment/Tools
  - *Hydraulic Jacks
- Abrasion
  - *Wheeled Traffic
  - *Metal Equipment

# Coatings Enhance Safety

- Steel Trowel Finish
  - *Potential Slip Hazard During Wet Conditions
  - *Tow Vehicles and Personnel @ Risk
- Coating With Non-Skid
  - *Increased Wet Condition Safety
  - *Size #60 Aluminum Oxide @ 1.0 lbs per 100 SF in Topcoat



# Coatings ↑Aesthetics, ↑Reflectivity, ↓FOD

- Increased Aesthetics/ Cleanability
- Increased Light Reflectance
- Reduced FOD

# Coating Negatives

- **Installed Cost: $2.00 - $10.00 SF**

- **Frequent Cleaning**

- **Scheduled Repairs & Overcoat Rejuvinating**

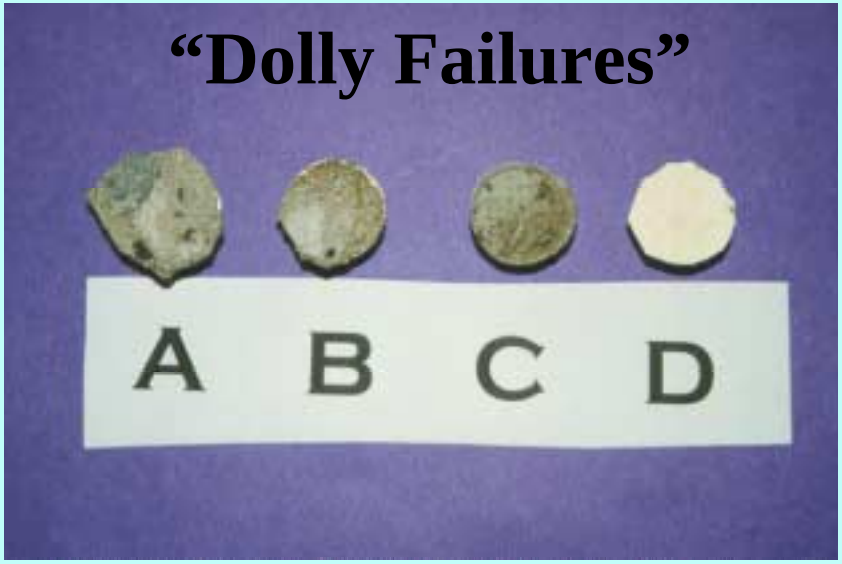
# Concrete Condition Assessment

- **Performed Prior To Flooring Installation**

# ***Condition Assessment Benefits***

- **Identifies:**
  - ***Unsound Coatings**
  - ***Weak Surface Concrete**
  - ***High Rates of Moisture Vapor Emission**
  - ***High Levels of Concrete Contamination**
- **Decreases Premature Flooring Failures**
- **Supports Installation Cost Estimates**

# Sound Concrete/Coatings




- **Sound Surface Concrete**
  **> 180 psi**
- **Sound Coatings**
  **>>180 psi w/ >1/16" Layer Concrete over 95% of Dolly**

# Acceptable Moisture Vapor Emission

- ASTM-F-1869

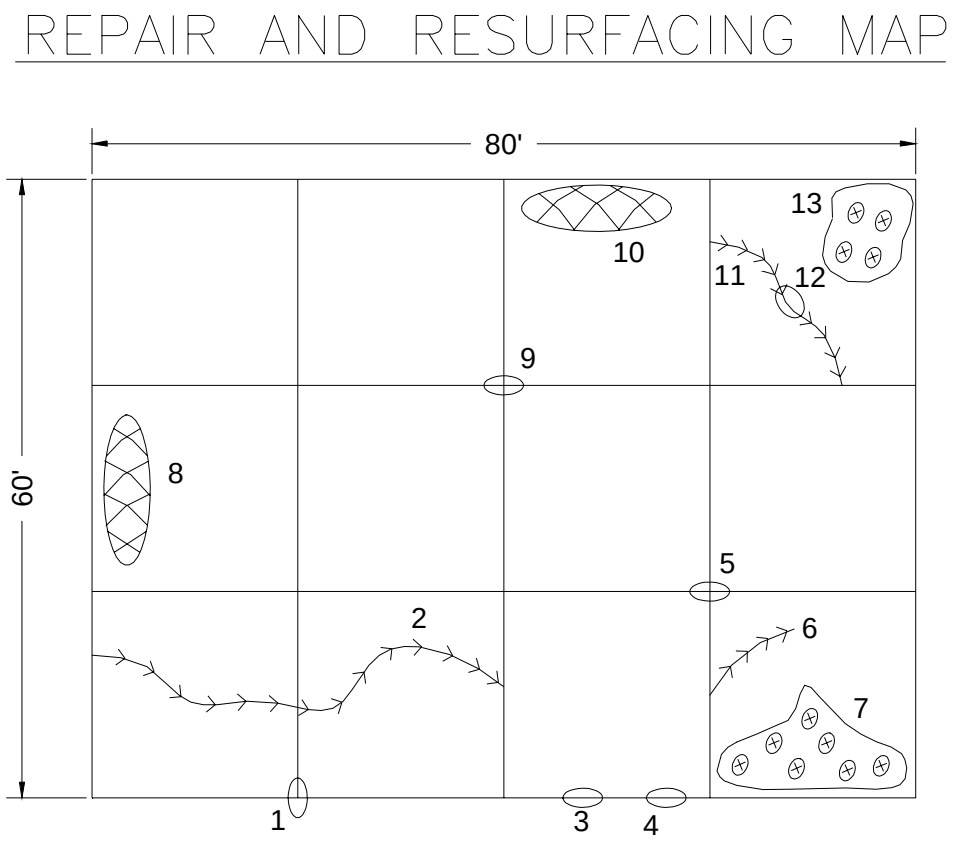
- Thin Film Flooring
  << 3.5 lbs moisture/24 hours, 1000 SF
- Epoxy Mortar Flooring
  << 4.5 lbs moisture/24 hours, 1000 SF

# Acceptable Concrete Contamination

- Water Drop Flattens Out (e.g., penetrates)
- <3/8" Surface Depth Visible Hydrocarbon Contamination

# Defect Identification Map

- Cracks
- Corner Cracks
- Spalls
- Joint Spalls
- Popouts
- Uneven Joint Height
- Coarse Concrete
- Curled Slab Ends
- General Deterioration



# Thin Film Installation

- Confirms Contractor Qualifications
- Verifies Compatible Coating System
- Customer Approves Non-Skid Density

# Thin Film Installation

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- **Ideal Levels of Concrete Coarseness**

***Shot Blasting: #3 to #5**

***Edge Grinding: #2**

# Thin Film Installation

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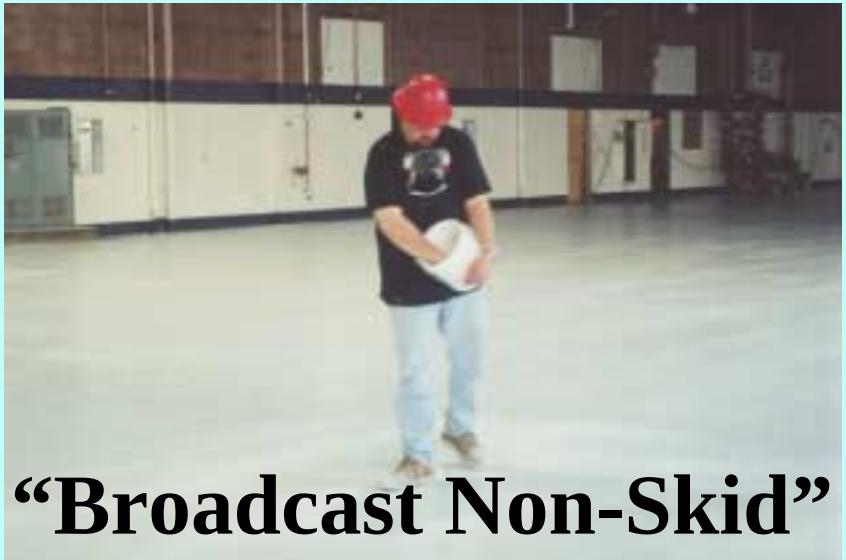
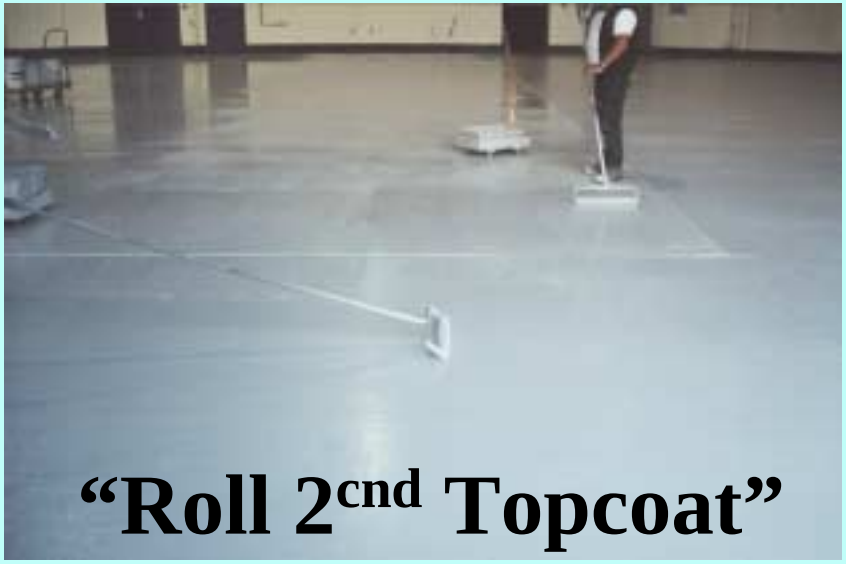


**"Broadcast Non-Skid"**



**"Roll 2cnd Topcoat"**

**Mark Grounding Rods**

**"Mark Fire Lanes"**

# Epoxy Mortar Installation

- Patch Test Required
- Surface Preparation Similar to Thin Film

# Epoxy Mortar Installation

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# Epoxy Mortar Installation

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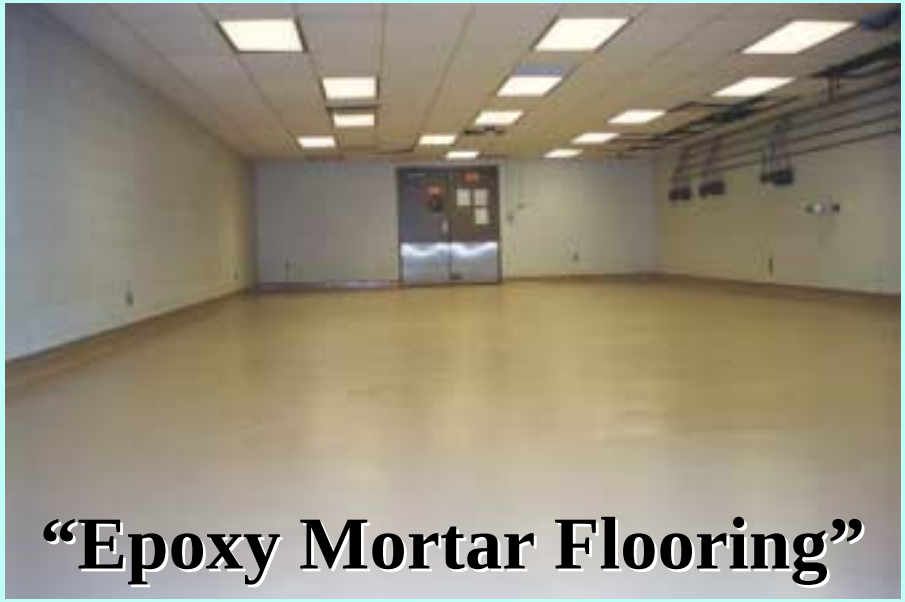
## Summary



“Epoxy Mortar Flooring”

“Thin Film Flooring”

- Two Navy Specifications
  - *UFGS-09611 “Thin Film Flooring”
  - *UFGS-09612 “Epoxy Mortar Flooring”
- http://www.efdlant.navfac.navy.mil/Criteria/