# GF PROCEDURES FOR PAINTING OPERATIONS

# 7.17

# ENABLING OBJECTIVES


- DESCRIBE the Gas Free Engineering requirements for performing spray painting in confined spaces
- DESCRIBE the hazards and safety precautions associated with spray painting
- DESCRIBE the gas free testing required prior, during, and after spray painting operations in a confined space

# REFERENCES

- NSTM CH 074 VOL 3 *GAS FREE ENGINEERING*
- NSTM CH 631 VOL 1-3 Chapter C18 *PRESERVATION OF SHIPS IN SERVICE*
- NWP 3-20.31 Rev. A *SURFACE SHIP SURVIVABILITY*
- NSTM CH 074 VOL 1 *WELDING & ALLIED PROCESSES*
- OPNAVINST 5100.19D NAVOSH PROGRAM MANUAL

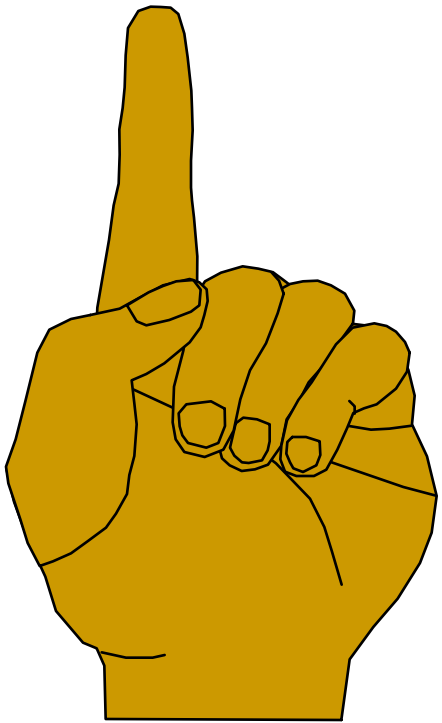
# Spray Painting

- More hazardous than brush application due to:
  - Volume of material being applied
  - Flammable residue deposited by spraying which might spontaneously combust
  - Harmful toxic mists created by spraying

# What does the GFE have to do with Spray Painting?

- Ensure you are notified of any interior spray painting *prior* to the operation
- This allows you to:
  - Ensure operating personnel set up **ventilation** properly and keep it running
  - Ensure space is monitored for **CO** and Toluene during and *after* completion
  - Consider **LEL and Vapor Volume** of solvents involved per 074 Vol. 3 page 21-10

# SAFETY IS YOUR NUMBER ONE PRIORITY



# Safe Painting Operations

*Two most important factors:*

- Responsibility of Supervisors and Operating Personnel
  - Obtain Gas Free Engineer's Approval prior to commencing painting
  - Ensure GFE is advised when ventilation is secured after painting is completed
  - Gas Free Engineer provides technical assistance (ventilation set up, PPE) as needed in addition to gas free testing
- Training

# PRIOR TO PAINTING

***"For contaminating operations…within a confined or enclosed space, the (GFE) certificate shall specify applicable requirements such as ventilation, PPE, respiratory protection, explosion proof and spark proof equipment and suitable fire protection equipment."***

***NSTM 074 VOL 3***

# Basic Safety Guidelines

- Ensure the work supervisor uses a safety checklist


- An example is provided in NSTM 631 Vol. 1 "*Preservation of Ships in Service*"

# *VENTILATION Requirements*

- Required to control the toxic and flammability hazard
- Use *dilution*-type ventilation to protect adjacent areas
  - Ensures vapor concentrations remain below 10% of the LEL
- Run ventilation continuously

# General Safety Measures

- Potential hazards that exist in all spray painting operations make a continuing and enforced safety program essential
- Check the following areas:
  - Work Environment
  - Buddy System
  - Communication
  - Ventilation Requirements
  - PPE Requirements

# Work Environment

- Study the area before painters are sent into the area
- Consider the following hazards:
  - Poor ventilation
  - Noxious fumes
  - High temperatures
  - Type of material and how it is applied
  - Type of space

# Buddy System - Communications - Supervision

- Personnel shall never work alone in hazardous areas
- Communications should be maintained
- Operation should be supervised
- Ensure you state on the Gas Free Certificate:

*“Observe Two Man Rule”*

*“Set up communications as follows:”*

# Personnel Protection Equipment (PPE)

- Always use explosion-proof lamps
- Wear coveralls (NON-PLASTIC), chemical goggles, gloves, and barrier creams to exposed areas of body
- Wear approved respirators when spraying (supplied air), mixing (organic vapor as a minimum) or handling

# Danger Area

- Post signs and rope off area to warn others of areas where there is a possibility of vapors
- Danger area shall extend a minimum of 25 feet from the painting operation
  - **NSTM 631 Vol. 1**

# GAS FREE ENGINEER INSPECTION

# APPLICATION OF PAINT IN A CONFINED SPACE

- Conduct periodic gas free tests
  - ➔GFE conducts the initial test
  - ➔GFEA/GFEPO conduct retesting
- Conduct testing during work breaks
  - ➔Exhaust side of portable ventilation
  - ➔Air intakes

# CHECK FOR OR STATE THE FOLLOWING:


- **Type of ventilation to be used**
- **How you want ventilation set up**
  - **Spell this out on your Gas Free Chit**
- **Ensure all DC numbers and plates are covered or numbers & location are recorded**
- **Type of respiratory protection**
  - **Spell this out on your Gas Free Chit**
- **Type of PPE to use**
  - **Spell this out on your Gas Free Chit**

# DURING PAINT OPERATIONS

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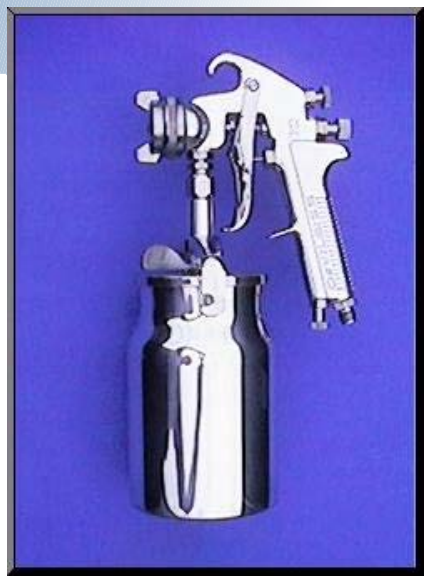
- Never test levels at the nozzle of spray gun
  - Receive inaccurate readings
  - Ruin GFE equipment
- Only one day's paint can be in a space at any one time

# POST PAINTING CONCERNS



# POST PAINTING CONCERNS

- Ventilation will run for 1 hour after job completion
- Ensure DC labels & plates are restored correctly!!!
- Clean respirators & dispose of hazardous material properly
- ***10 minutes after ventilation shutdown, ensure space is gas free***

# Requirement from NSTM Ch 631 Preservation of Ships in Service

***Supplied air respirator required for spraying vinyl and epoxy paints***

Ensure this requirement are met.

**“VENI, VIDI, VENTILATE!!!”**

**Loosely translated means**

**“I Came, I Saw, I Ventilated!!!”**

# SUMMARY

- We described the Gas Free Engineering requirements for performing spray painting in confined spaces
- We described the hazards and safety precautions associated with spray painting
- We described the gas free testing required prior, during, and after spray painting operations in a confined space

# REVIEW QUESTION #1

Who must be contacted prior to spray painting interior to the ship?

The GFE, that's who!