

# Certificate Program: Shipyard Industry Surface Preparation and Coatings

NSRP Joint Panel Project  
Surface Preparation & Coatings – Robert Cloutier  
Workforce Development – Scott Christman



# NSRP Joint Panel Project

- Surface Preparation & Coatings – Robert Cloutier
- Workforce Development – Scott Christman
- Southern Maine Community College



**GENERAL DYNAMICS**  
Bath Iron Works

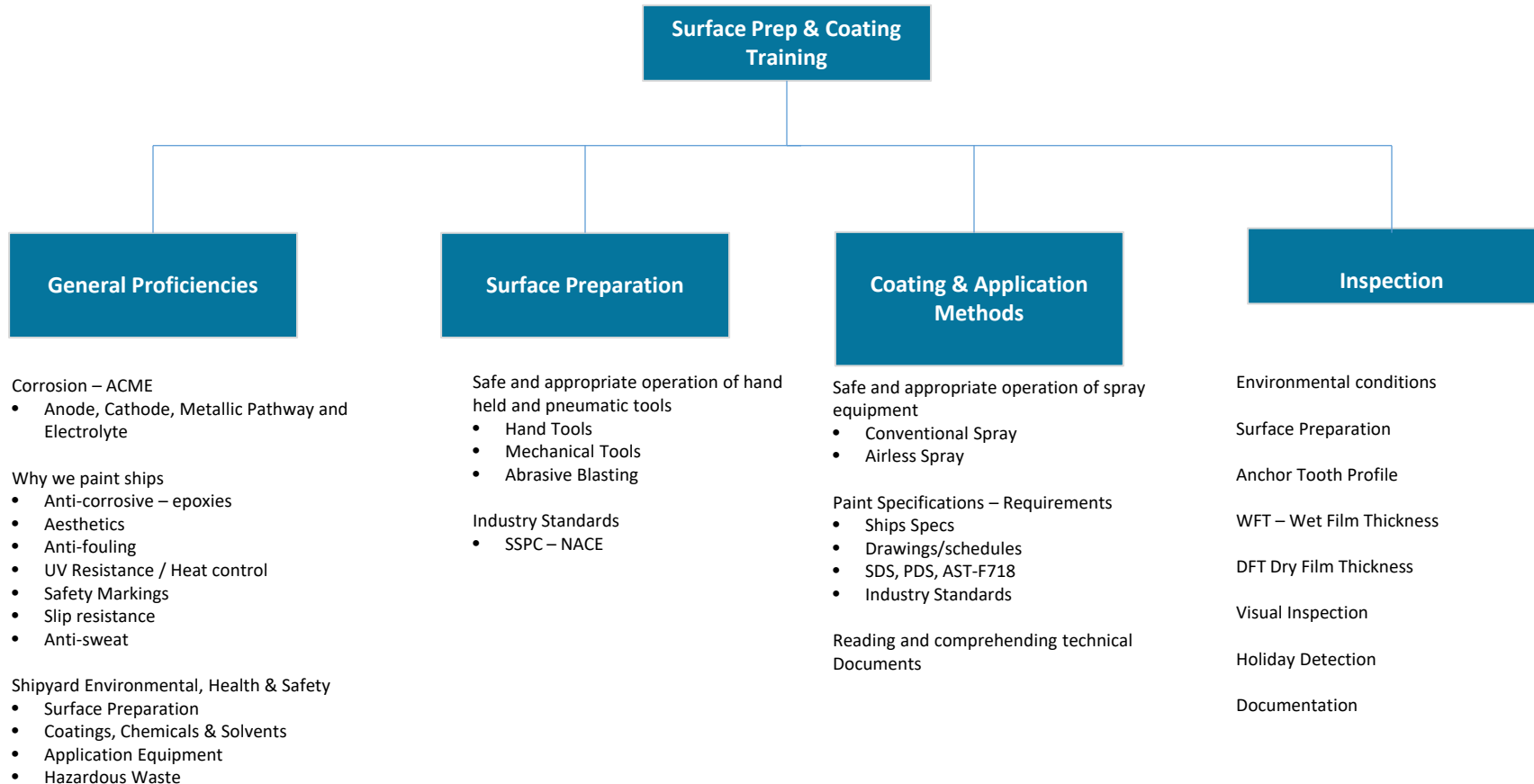


# A Need for Basic Training

- Shipyards are hiring entry level mechanics
- Unskilled labor
- Painting ships is becoming more complicated
- Basic Painter Training

3 to 1

# Basic Training Concept



# Shipyard Surface Preparation and Coatings

- Unit 1

- Why we paint ships
- SDS, OSHA Pictograms
- PDS – ASTM F718
- PPE Requirements

- Unit 2

- Pre-cleaning
- Hand – Power Tool Cleaning
- Abrasive Blasting

- Unit 3

- Mixing Paint
- Brush and Roller Applications
  - Stripe Coating
- Spray Painting
  - Conventional Spray
  - Airless Spray

- Unit 4

- Inspection Criteria
  - Mechanic
  - Supervisor
  - Certified Coating Inspector

# Unit 1: General Proficiencies

- Why we paint ships
- SDS – Safety Data Sheets
- OSHA Pictograms
- PDS – Product Data Sheets
- ASTM F718 (NAVSEA)
- PPE Requirements

## Why Do We Paint Ships?

- Anti-corrosive: keeps the ship from rusting
- Aesthetics: so they look good
- Control marine growth
- LSA: Low Solar Absorption
- Safety markings: striping colors, valves, trip hazard
- Slip resistance: non-skids
- Anti-sweat/condensation



# Unit 2: Surface Preparation

## Unit 2-A:

- Pre-cleaning
- Hand – Power Tool Cleaning

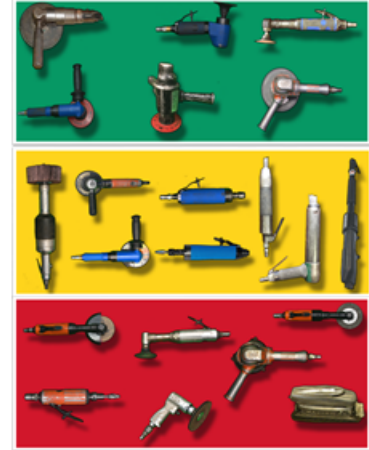
## Unit 2-B:

- Abrasive Blasting

### Power Tool Cleaning

Use of pneumatic or electric, rotary or reciprocating tools to prepare a metal substrate

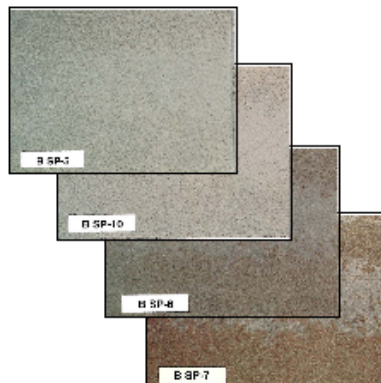
- Grinders; 3", 5" 7"
- Needle Guns
- Wire brushes
- Flapper Wheels
- Die Grinders
- Vibratory sander



### SSPC-VIS 1: After

Level of blast cleaning  
of Rust grade B steel

- SSPC-SP5 or NACE 1
- SSPC-SP10 or NACE 2
- SSPC-SP6 or NACE 3
- SSPC-SP7 or NACE 4



# Unit 3: Paint & Application Methods

- Mixing Paint
- Brush and Roller Applications
  - Stripe Coating
- Spray Painting
  - Conventional Spray
  - Airless Spray

## Stripe Coating Results

- Stripe coating shall be neat in appearance
- Stripe coats shall extend at least 1" on either side
- If possible the stripe coat shall be a different color from the previous or subsequent coats



## Spray Painting

- A process where paints are atomized into fine particles and deposited onto a surface
- Most effective method of applying paint to ships to produce a continuous, smooth, aesthetically pleasing coating
- Two basic types:
  - Conventional Spray
  - Airless Spray





# Unit 4: Inspection

- Inspection Criteria
  - Environmental Conditions
  - Visual Inspection
    - Pre-Cleaning
    - Surface Prep Cleanliness
  - Anchor Tooth Profile
  - Conductivity Testing
  - Dust Test
  - WFT – Wet Film Thickness
  - DFT – Dry Film Thickness
  - Holiday Detection
- Who does the inspections
  - Mechanic
  - Supervisor
  - Certified Coating Inspector



# Deliverable

- Training Package
  - PowerPoint Presentation
  - Instructor Notes
  - Student Guide (Book)
  - Lab Day Exercises
  - Hands-on Criteria
- Training Structure
  - 1 Week
    - Classroom – Hands-on
  - 1 -2 Month
    - Include OJT – Proficiencies
  - Apprenticeship Program
    - Supplement with Shipyard course

NSRP | National Shipbuilding Research Program

## **Certificate Program: Shipyard Industry Surface Prep and Coating Training**

### **Course Curriculum For the National Shipbuilding Research Project**

Due to foreign access restrictions (e.g., ITAR) or other regulations, distribution is authorized only to U.S. commercial and government shipyards.



**General Dynamics Bath Iron Works  
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# Technology Transfer

- NSRP Meetings
  - Surface Prep & Coatings
  - Workforce Development
- Industry
  - Participating Shipyards
  - Academia



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Questions?

