

SSPC PA-2

- “Measurement of Dry Coating Thickness with magnetic Gages”
- HOW MUCH IS ENOUGH?
- Statistical method to determine the minimum number of readings required.

SSPC-PA 2 - Measurement of Dry Paint Thickness with Magnetic Gauges

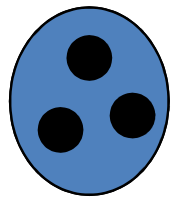
- Procedures to Measure Dry Film Thickness of Nonmagnetic Coatings over Magnetic Substrates
 - Type 1 - Magnetic Pull-Off
 - Type 2 - Fixed Probe
- Calibration - Type 1
 - Verify accuracy on NIST plates
 - Measure (A) several points on bare, prepared substrate
 - Measure (B) the dry film
 - Subtract (A) from (B) to obtain dry film thickness
- Calibration - Type 2
 - Verify accuracy on nonmagnetic shims over the bare, prepared substrate

SSPC PA-2

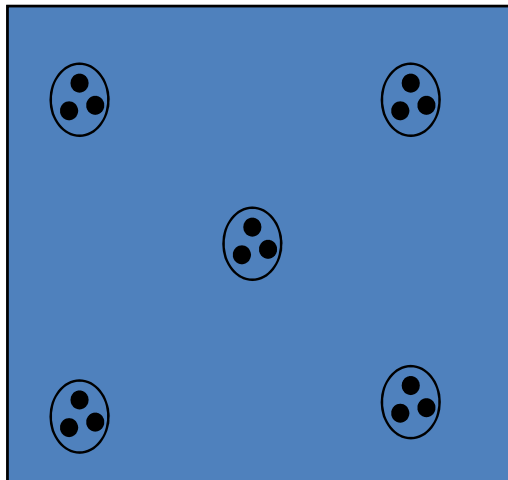
- For Structures not exceeding 300 sq ft, take 5 spot readings per 100 sq ft.
- For Structures not exceeding 1000 sq ft, Select 3 random 100 sq ft areas to test.
- For Structures exceeding 1000 sq ft, Select 3 random 100 sq ft areas to test in the first 1000 sq ft and for each additional 1000 sq ft test one random 100 sq ft area.
- If any area is not in compliance, the non compliant area should be determined.

Understanding SSPC PA-2

- Gage Reading



Spot Reading = 3 gage readings in 1.5
inch circle



5 Spot Readings per 100 sq ft

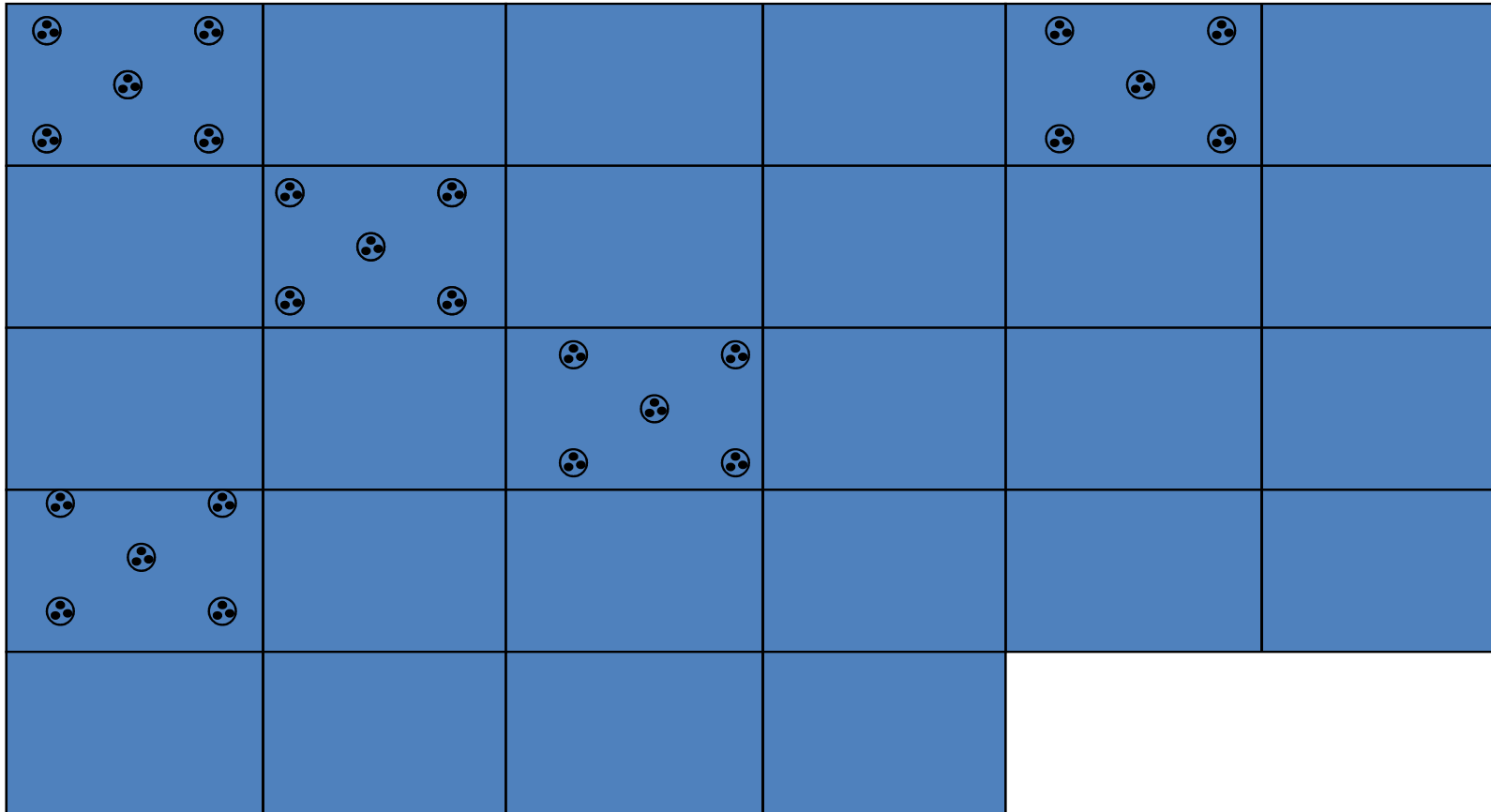
Understanding SSPC PA-2

- Minimum/Maximum Thickness Allowed
- Individual Gage readings do not matter
- The Average of Spot Reading for each area must be in the range
- No Spot Reading shall be 80% Below or 120% Above the Specifications
- Example
 - IF Specification is 8 to 12 mils DFT
 - Minimum spot reading is $0.8 \times 8 = 6.4$
 - Maximum spot reading is $1.2 \times 12 = 14.4$

Understanding SSPC PA-2

- Surface Area = 2,800 sq ft. How many:
 - Gage Readings
 - Spot Readings
- Surface Area = 28,000 sq ft. How many:
 - Gage Readings
 - Spot Readings

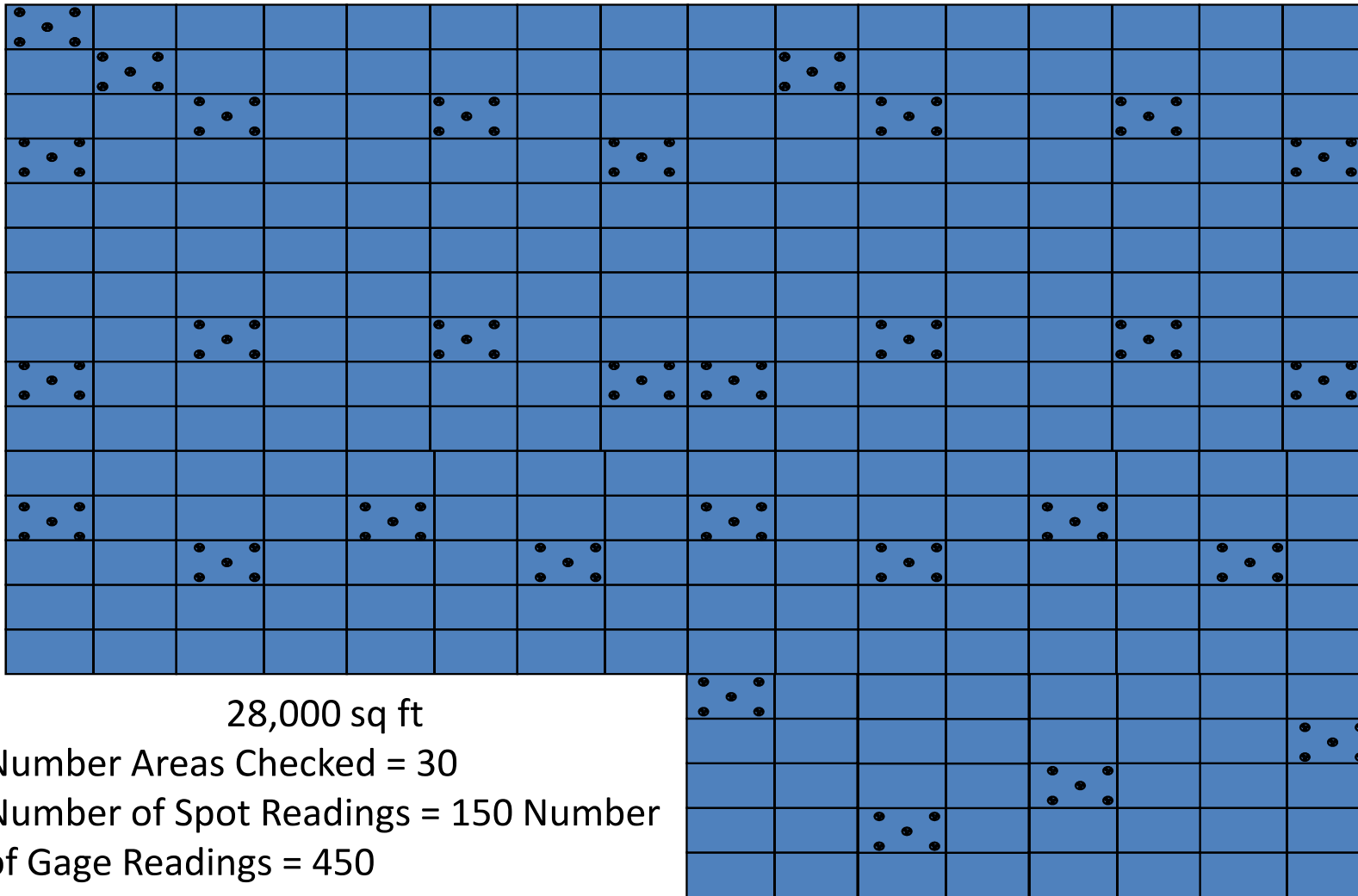
Understanding SSPC PA-2



2,800 sq ft

Number Areas Checked = 5
Number of Spot Readings = 25,
Number of Gage Readings = 75

Understanding SSPC PA-2



- **How do I determine the minimum number of tests required?**
- To determine the number of tests required if the surface area is greater than 1,000 sq ft, use the
- following formula to determine the minimum number of areas to test:
- *$3 + [(SFC\ AREA) - 1000] / 1,000 = \text{Number of Test Areas}$*
- *$\text{Number of Test Areas} \times 5 = \text{Number of Spot Readings}$*
- *$\text{Number of Spot Readings} \times 3 = \text{Number of Gage readings}$*

- Example: 27,500 square feet to be coated to 12 – 15 mils of paint.
 - Round to 28,000
- $3 + [(28,000 - 1,000) / 1,000] = 30$ areas to test
 - 3 areas in the first 1000 sq ft and one area in the remaining 27 – 1000 foot areas
- **30 X 5 = 150 Spot Readings**
- **150 X 3 = 450 Gage Readings**
- All Spot readings must be $\pm 20\%$ of range.
 - For a spot reading use roughly a 1 inch diameter circle. Within this, the probe is placed 3 times
 - in random positions (Gage Reading). The average of these 3 gage readings is called the 'spot reading'
- Example:

- The previous example calls for a DFT range of 12 to 15 mils, the area meets SSCP PA-2 if:
 - The Average of all the Spot readings must fall within the 12 -15 mil range
- **And**
 - All spot reading are greater than 80% of the Specified DFT ($0.8 \times 12 = 9.6$ mils)
- **And**
 - All spot readings are less than 120% of the Specified DFT ($1.2 \times 15 = 18$ mils)
- Therefore the PA2 Range = 9.6 to 18.0 mils for individual spot readings.
 - Individual Gage readings do not have a range.