QUIZ for day 1

DUTIES OF AN INSPECTOR

1

Reporting is an essential part of inspection work.

Reporting on the application of a paint system, please list at least 15points which are vital to include in the report.

1) Time
2) Work sits
3) Contractor
4) The standard reference
5) The procedure
6) The application methods
7) The products (paint) used
8) WFT
9) DFT of finish coat
10) Paint interval
11) Dry bulb temperature
12) Wet bulb temperature
13) Steel temperature
14) Surface preparation class
15) Conclusion of final inspection..

MATERIALS SELECTION

2 Give some advantages by use of square and bulb profiles in relation to H-beam and L-beam profiles.

In order to do easy application of surface preparation and paint due to the expected life of the coating

CORROSION GENERAL

3 Please explain shortly the expression:

a) An electrolyte
b) An anode
c) A cathode
d) pH

a) A matter such as seawater or soil could transfer ions in a corrosion cell.
b) The metal corrodes and the electric energy is released.
c) The energy released from the anode is consumed.
d) A scale could define a solution in acidic or alkaline character.

4 Galvanic corrosion causes corrosion problems all over the world.

a) When does this type of corrosion occur?
b) Please state at least two important factors that influence this type of corrosion.

a) Two metals with different potential are electrically connected and be exposed in electrolye.
b) Deviation of potential between the different metals; Conductivity of electrolyte

5 A piping system of austenitic stainless steel (ANSI 304) is handling seawater from the Mediterranean sea suffers corrosion problems. Which problems are likely to occur?

a) Under bolts and at the flanges?
b) Internally in the piping system?

a) Crevice corrosion, galvanic corrosion;
b) Erosion corrosion, pitting corrosion

6 What does stress corrosion on stainless steels look like??

Crow’s foot

7	We have learned about the galvanic series of metals in seawater. a) Please explain what this is. b) In what way can we use the galvanic series to determine which of two electrically connected metals that will corrode in an electrolyte? c) If zinc and steel is in electrical contact in an electrolyte, which of the metals will corrode? d) If copper and steel is in electrical contact in an electrolyte, which of the metals will corrode?	a) A table where metals and alloys are listed according to their corrosion protection abilities in sea water. b) Of two metals in the galvanic series we can use a metal (more negative) to protect another metal. c) Zinc d) Steel
8	Fasteners of aluminum have been used on a copper – roof. After a couple of years the roof loosens in several places. An investigation shows that fasteners of aluminum are strongly corroded or missing. a) What type of corrosion has caused this? b) List up some other materials than aluminum for the fasteners / better ways of securing the roof.	a) Galvanic corrosion b) Copper; stainless steel

CONCRETE

9	a) What causes corrosion of reinforcement bars (rebar) in concrete? b) What is the normal curing time for concrete before it can be coated by paint? c) What is the approximate pH for new concrete?	a) Chlorides; Carbonation; b) 4 weeks. c) 13

CATHODIC PROTECTION

10	Cathodic protection of the underwater hull on ship can be carried out in two ways. a) Please describe the two ways in which this can be done. b) Would you use magnesium anodes for the underwater protection of ships' hulls? Please justify your answer.	a) Sacrificial anode; impressed current protection. b) No. Fast consuming of magnesium and /or over protection will occur. on the hull H2 will product, and blister will on the surface.
11	Describe the principles and methods in cathodic protection.	Drawing of two methodes

SURFACE PREPARATION

12	Is water jetting suited for primary surface preparation? If you think so, please state why? If you think not, please state why?	No, it is only suited for secondary surface preparation, because it dose not create good surface roughness

AMBIENT CONDITION

13

Ambient conditions are very important to monitor before, during and after application paint coatings.

a) Please state if the absolute water content in the air at a relative humidity (R.H.) of 60% is the same or not at temperatures of +5℃ and +15℃ respectively.
b) Above what wind velocity (expressed in m/sek) is paint application by spray starting to be affected by the wind movement?
c) How do you check a surface for micro condensation?
d) Why is an air flow over the surface essential for water based paint coatings during drying?
e) What tools are used for checking the ambient conditions prior to application of paint?
f) How often should the ambient conditions be checked?

Check the climatic conditions one morning your measurements result in the following values:
Dry bulb temperature: +11℃; Wet bulb temperature: +9℃; Steel temperature: +12℃;

g) Calculate the relative humidity using IX-diagram.
h) Determine the dew point using the IX-diagram>;
i) Is it safe to proceed with the application?
j) If you answer to i) above is “maybe” or “no” please give your advice as to what actions should be take in order to proceed with the application.

a) Absolute water content is not same. Because relative humidity is the amount of water vapour preasent in a given volume of air compared to the maximum volume of water vapour whith the same volume of air can hold at the prevailing temperature (saturation). The temperature different, the maximum volume of water vapour is different too.
b) 7-9m/sek (24-32 kilometres per hour).
c) 1) Detected through the use of water indicating paper.
2) Through the use of the tables in ISO 8502-4. using steel and air temperatures, calculated dew point and moellier diagrams to estimate the probability of either condensation having occurred or is lickly to occure.
d) 1) Saturation of the micro climatic layer will lead to water condensation on the surface. And the paint film probably still sensitive to water and may be destroyed.
2) Saturation of the micro climatic layer with water will effectively stop any further evaporation of water from the drying film.
e) Sling psycrometer, steel temperature gauge, tables and calculator.
f) Before, durring, after application paint the ambient conditions be checked.
g) 78%;
h) 5.75℃;
i) Yes, it is safe.
j) Mix the paint and start the painting work.