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# The Challenges Posed by the Increase of Shipbuilding in China

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# CHINESE SHIPBUILDING





# A Large State Yard



# A Medium Sized Private Yard



# Advantages and Disadvantages

- Low Cost
- Strong position equipment choice
- Wages less than 1/10 Japan or Korea
- Variable quality and low technology
- Local supplier quality issue
- Labour productivity poor in comparison

# The Cultural Differences





# Quality – In the eye of the beholder?

- Quality is a state of being free from defects, deficiencies, and significant variations, due to the strict and consistent adherence to measurable and verifiable standards to achieve uniformity of output.
- In China quality can mean the same thing, but it can mean just simple functionality.
- You do not get a BMW for the price of a Trabant

# Fire Protected Lifeboat Testing







# Did the occupant remain protected?



# The Cat is Only Used 8 Times

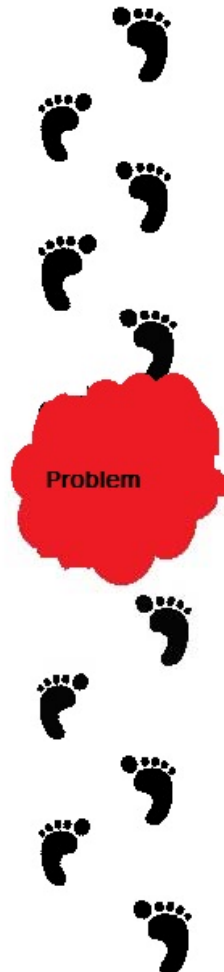


# Elf and Safety – Working at Heights



# Problem Solving

The Western Way



The Chinese Way





# Second Hand Machinery

- Not encountered recently
- Why supply second hand when you can supply copy market fakes?
- Fake material and product certificates from manufacturers or Class Societies

# THE COPY MARKET



# Some Examples of Challenges



# Care and Attention



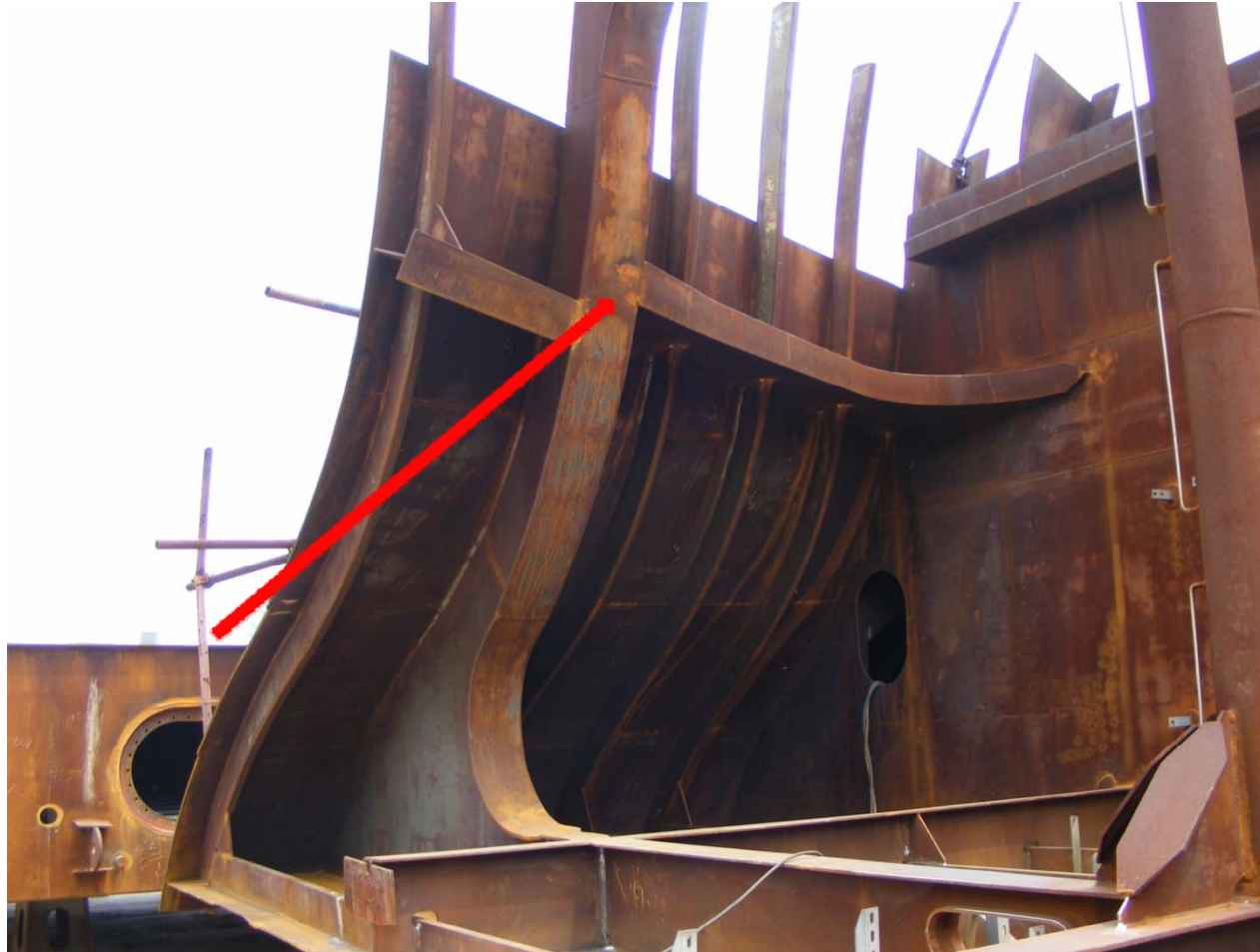
# Am I Bovered?





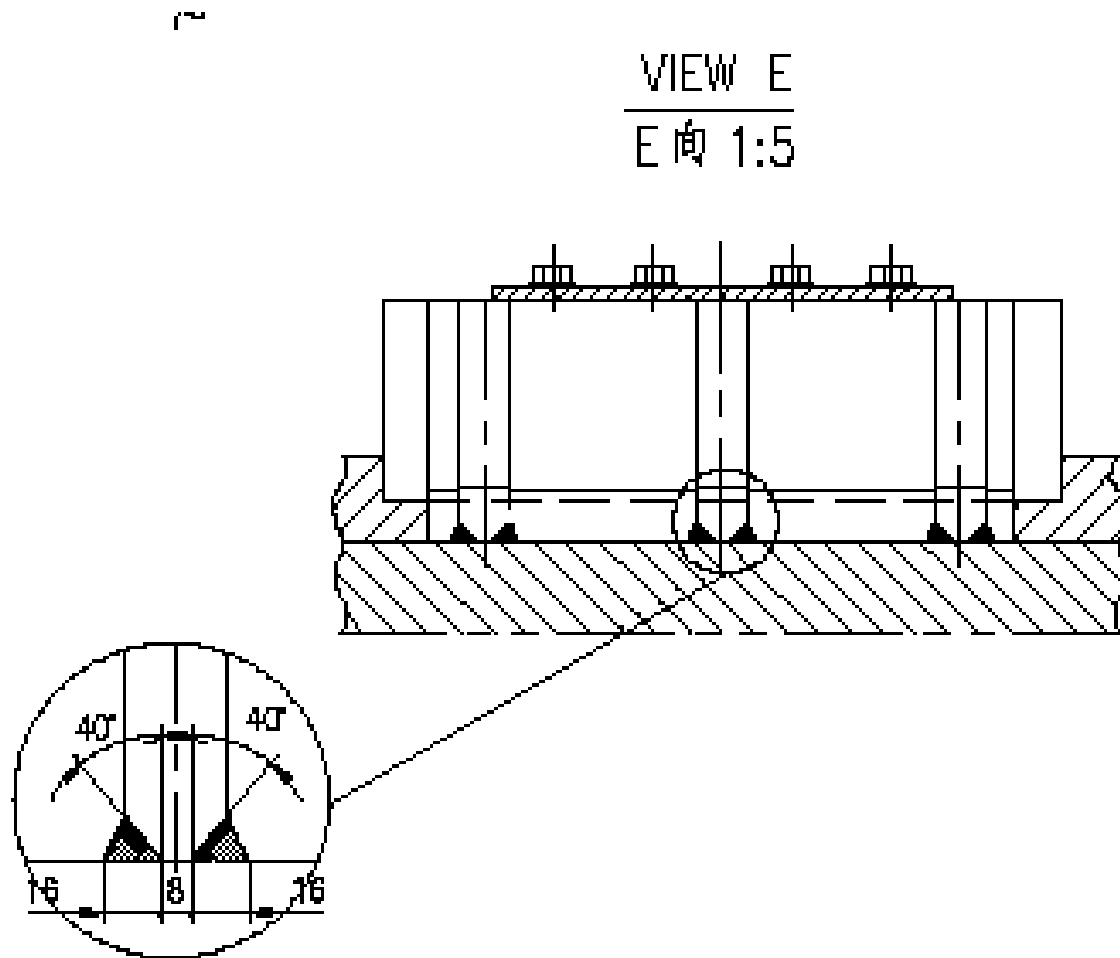


# Structural Misalignment





# Engine Side Chocks as Designed



# As Built



# Poor Quality Welding



# Left to Rot



# Do I Have to Protect the Cables?



# Sterntube Bearing Failure





# Cable Installation







It Will Do



# The Self Opening Cock



# All Ready to Weld



# Weld Defect



# Too Much Heat



# New Coating Requirements

- IMO Performance Standard for Protective Coatings (PSPC)
- New Ballast tank regulations for newbuildings
- Adopted 8 December 2006
- Improves safety by reducing corrosion
- Applies to coatings in ballast tanks and double skin spaces

# PSPC

- Intended to give 15 year useful coating life
- Applies to all shipbuilding contracts placed after 1 July 2008
- If no contract, to keels laid 1 January 2009 onwards
- Applies all vessels from 1 July 2012
- Sets out requirements for surface preparation, coating application and quality



# How does PSPC affect shipyards?

- Extra construction time and slower throughput
- A need to have or train more staff to FROSIO or NACE certification to do inspections
- Possible investments in new facilities and additional manpower
- A significantly higher level of documentation required with regards to the selection, application and inspection of ballast tank coatings
- Fewer options left available regarding shop primer, ballast tank coating systems and dry film thicknesses
- A requirement that all inspection data – from raw steel to final coating – are both retrievable and auditable and made available in the CTF
- The need to take responsibility for preparing the CTF

# Shipshape in China



# China Can Build Good Ships

- Careful yard selection
- Strong site team and adequately sized
- Learn a little of the culture to understand the thinking
- If you are *laowai* (a foreigner, or non-Chinese), you will win points for efforts to use the language or demonstrate knowledge of the culture. It builds trust and goodwill
- Do not cause public loss of face. Avoid intentional provocation, and keep complaints, criticisms, or disagreements polite and discreet
- Be realistic in your expectations
- Build a relationship with the yard

# SUMMARY

- There has been rapid expansion of shipyards and production in the Far East
- Still a Lack of Skills, Quality and Supervision in some yards.
- Nature of defects may lead to future problems in service
- Warranty claims
- Potential casualties