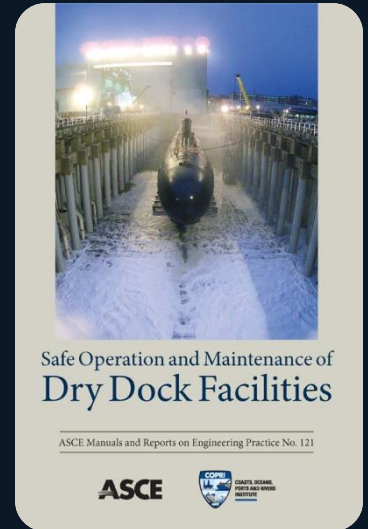


# SHIPYARD ENGINEERING, LLC

## ENGINEERING SERVICES – MARINE RAILWAY INSPECTION AND CERTIFICATION

### OVERVIEW:

As with any structure in the marine environment, a marine railway will deteriorate over time and gradually lose its ability to safely lift vessels out of the water. Periodic inspections should be conducted on a regular basis, typically every two (2) years, to ensure the safe operation of the dry dock, verify or establish the certified lift capacity, and highlight areas of the dock to be monitored in the interval between inspections. Our **Marine Railway Inspection** process is specially designed by experienced professional engineers to provide a comprehensive, but cost-effective and qualitative review of the dry dock facility. The inspection procedures utilized by our team are prepared in accordance with recognized dry dock engineering principles outlined in the American Society of Civil Engineers (ASCE) Manual of Practice, *Safe Operation and Maintenance of Dry Dock Facilities*, which was co-authored by SYE's owner and Director of Engineering.



### OUR FOCUS IS SAFETY:

SYE's **Marine Railway Inspection** process is designed to ensure the **Safety** of the dry dock. Our inspection and certification process ensures that the structural, mechanical and electrical components of the marine railway are safe to operate.

### WHAT WE DO:

- ★ **Existing Document Review:** Documents governing or prepared for the original design and construction, rehabilitation, alteration or repair of the facility will be reviewed if available.
- ★ **Material Condition Survey:** A material condition survey (above and below water) will be conducted by our team to establish the existing condition of the facility. The survey will be detailed to ascertain the actual condition of all critical components of the facility including the cradle structure, track, rollers, hauling chain (or wire rope), sheaves, and mechanical and electrical equipment required for dock operation.
- ★ **Line and Grade Survey:** A detailed line and grade survey of the track should be conducted every five (5) years, unless some unusual event has occurred (e.g. derailment, vessel overload, etc.), or the cradle behavior indicates a potential problem.
- ★ **Inspection Report and Certification:** A comprehensive Inspection Report, detailing all of the findings, will be provided along with the facility certification. All deficiencies will be given a rating, and recommendations for action will be provided for subsequent planning, budgeting and scheduling of repairs.

