

## Important Lessons Learned



*A newsletter  
for the Maritime  
Industries from:*



Consulting Naval Architects  
Marine Engineers  
Project Managers



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### LESSON LEARNED #68: Seasonal Differences Can Be Expensive

A ferry-operating organization purchased an existing ferry from the Mediterranean area for incorporation into its fleet in a northern area. Before leaving the Mediterranean area, modifications were made to the mooring, access, seating, canteen and signage aspects of the vessel to make it suitable for use in the purchaser's routes. Soon after arrival in the northern area and the commencement of service, it was realized that the fire-suppression system was not insulated; there had been no risk of freezing in the service of the former owner. Unable to take the purchased ferry out of service, the insulation had to be applied while the ferry was in service, proving to be a very costly process. It would have been far less costly to have installed the insulations while the other modifications were being accomplished.

**The lesson learned:** Project planning, such as the acquisition and modification of an existing vessel, needs to be accomplished in a studied, un-hurried manner. In this case, a 'brain-storming' meeting could have included participants from diverse backgrounds—operations, maintenance, naval architects, and project managers. Collectively these participants would have offered their perspectives on regulatory and classification requirements, as well as local practices. Equally important, they would be able to distinguish the differences in routes (climate, water conditions, etc.) from those of the former owner.

The cost and time to assemble and conduct such a meeting would have been far less costly than the expense the new owner incurred by having missed a vital consideration, forcing him to pay for post-purchase remediation.

### LESSON LEARNED #69: Projects Start—and End Later

A government agency established a 20-year support contract with a commercial organization to maintain specialized equipment that had been manufactured by the same organization. The contract included a certain annual level-of-effort for engineering, as well as inspections, documentation, and the physical maintenance. After about 14 years, the government agency determined that it no longer needed that equipment, as it had been replaced by newer technology. When the government sought to cancel the support contract, they discovered that the contract did not provide any mechanism for the government to terminate the contract before the 20 years. The commercial organization identified several annualized costs that simply could not be cancelled. An expensive buy-out by the government became necessary.

**The lesson learned:** It is always exciting to see a new project develop and commence. A lot of attention may be given to the planning and the preparation of the contract to implement the project.

The introduction of new technology, new facilities, new training requirements, new testing and documentation, all contribute to the workload as well as to the satisfaction of the involved parties. Everyone is focused on getting the project started. However, as illustrated by this description, it is also necessary to anticipate that events, technology or budgets may require the early termination of the project. Such a possibility needs to be addressed by the same contract that implements the project, regardless of its intended duration.



### **LESSON LEARNED #70:** **Avoiding Subcontract Inconsistencies**

A shipbuilder took on a contract to provide a special service vessel for which the smoothness of the hull surface had to meet an unusually high standard. The builder used a subcontract shipyard for the provision of several hull modules that were to arrive with construction primer, not final coating. However, the surface of the modules did not satisfy the smoothness standard; it had not been defined as a requirement in the subcontract. The builder incurred extra costs and delays to remedy the inconsistency of the modules' hull smoothness. Also, it was learned that the shipbuilder did not have their own inspectors at the subcontractor's facility.

**The lesson learned:** If the builder had sent inspectors to the subcontractor's facility, the deficiency in the subcontract requirements would have been identified before the first of the modules left the subcontractor's facility, and could have been remedied then and there. Subsequent modules would have satisfied the new requirement, possibly through a modification to the subcontract. The rush to get the subcontractor working on the modules led to an incomplete transfer of contractual responsibilities: the prime contract's requirements were not duplicated in the subcontract. Avoiding possible delays by rushing to get the subcontract started often results in more extensive (and costly) delays later.

### **LESSON LEARNED #71:** **Consider the Concerns of All Stake Holders**

A vessel owner ordered three special tank vessels of less-than Panamax beam. To avoid hull damage when berthing, the owner's naval architects added external longitudinal structures comparable to shallow bilge plate keels, but several meters above the ship's bottom. The relevant vessel design information was sent to Panama for approval and receipt of a Panama Canal Certificate. The Canal denied the certificates until the external structures were cut off the hulls due to concerns about potential damage to the canal lock walls.

**The lesson learned:** That type of external structure, extending beyond the dimensional boundaries of the hull, is sometimes found on river boats, but not on seagoing vessels. Before implementing design features not incorporated into ocean-going vessels, the naval architects and their supervisors could have asked why such a feature is not used on ocean-going vessels. Intellectual curiosity should not be considered a waste of time. The design team should have group meetings two or three times during the design process to identify all possible stake holders and address any and all concerns that might arise from them.

### **LESSON LEARNED #72:** **Explicit Communications are Necessary**

A large city uses a special service vessel to transport municipal waste from several shoreside facilities to a central processing facility. Several of the facilities are on short industrial waterways, requiring the vessel to turn around to exit the waterway. The city commissioned the design of a new vessel with an 8,000 cu.m. capacity. Wisely, the city conducted a design review meeting with many invited attendees before contracting for vessel construction. One of the attendees at that meeting pointed out that the vessel design was too long for one of the turning basins. The naval architects were directed to revise the vessel length to the maximum of that turning basin.

Several months later, while the vessel was being constructed, it was determined that the design had been revised to be shorter, but not wider or deeper, reducing the capacity to about 6,700 cu.m.

This reduced capacity significantly impacted the city's logistic capabilities for transporting the municipal wastes. Subsequent to the design review meeting, the city's oral direction to the naval architects had been quite casual, addressing only the length of the vessel. The city had not reminded the naval architects that capacity—the key feature of the vessel—had to be maintained at 8,000 cu.m. This misunderstanding effectively added about 20% to the vessel's cost and delayed its completion by several months.

**The lesson learned:** Don't rush communications. Take your time to provide complete communications even at the risk of offending the other party by sounding as if you are treating them as forgetful or impatient. Also, put such communications in writing, not oral, so that the logic, completeness and clarity of the communication can be considered and reviewed by your colleagues before being sent to another organization.

# Planning and Contracting for Shipyard Projects

## Defining Contractual Rights, Responsibilities and Obligations



“We have all heard of disasters involving ships, ships that have run aground, broken in half in severe storms, impacted vehicular bridges in fog, or even experienced fires. But there is another form of disaster involving ships; namely, contractual disasters, situations in which the shipyard and shipowner are both terribly harmed due to mismanagement of the shipbuilding contract.” Trevor Blakeley, CEO, R.I.N.A.

When ship owning organizations begin planning a major shipyard project (construction, conversion, mid-life refit), the planning process should commence by initially focusing on the pre-contract elements of the project. Key to the success of the project is an appropriate selection of the consultancy that is going to prepare the draft technical specifications and the draft contract drawings. The selected consultancy, preferably, should be one that has recent, directly relevant experience.

It is recognized that the specifications and plans will be implemented through a contract between the owner and shipyard. An excellent technical plan from the selected consultancy will not guarantee a successful project if the rights, responsibilities and obligations

of the parties are not well defined and effectively managed. Fisher Maritime has been called upon on numerous occasions to prepare the bid packages and contracts that incorporate the specifications and drawings drafted by other consultancies. The special skills that Fisher Maritime brings to those projects is the comprehensive definition and smooth integration of the contractual rights, obligations and responsibilities of both parties. Often, as part of this process, Fisher Maritime also prepares a quality assurance review of parts of the technical specifications, using its knowledge of past contractual problems to “tighten” the specifications, minimize ambiguities, and eliminate internally conflicting language.

If your organization is embarking on a major shipyard project, send an email to Fisher Maritime inquiring how we can assist in setting up the project so that there is smooth integration of the bid, contract, and technical elements of the entire package. Please address inquiries to [email@fisher-maritime.com](mailto:email@fisher-maritime.com).

### LESSON LEARNED #73: Small Differences Rarely Exist

When project teams (either shipyard or ship owner) are planning the execution of work or the installation of a replacement item of equipment, it is often (too often, in fact) assumed that any small differences from prior work or prior equipment will not affect the execution of the work or installation. This is fundamental mismanagement: substituting a prayer and/or hope for detailed analysis and planning. Several relevant examples have been addressed in prior issues of *Upright & Afloat*.

(a) When an owner ordered two commercial-grade dishwashers to replace two household-grade ones, the owner failed to appreciate that the new ones required 220v, whereas the old ones were 110v. Unable to install 440v/110v transformers due to space and ventilation considerations, the old dishwashers had to be re-installed.

(b) During a routine repair project, although the 8" diameter of the deck vent connections were the same as below the vent heads being replaced, the larger size of the new vent heads themselves interfered with handrails. This necessitated hot work to modify the handrails, when no hot work was expected. The incurred delays, mobilization costs, and fire watch duties were a surprise to all, but the owner was responsible since the vents were owner-furnished.

(c) A vessel owner specified the model numbers for two silencers as replacements on a vessel. The connection sizes and lengths were the same as the two older silencers. However, the diameters of the new ones were larger than the previous ones,

resulting in a lack of adequate space for the insulation to be applied. Other piping in the uptakes had to be re-positioned to accommodate the larger insulated silencers. This was the owner's responsibility because the owner had specified the model number. Also, when classification insisted on new flex connections, the shipyard pointed out that they had not been included in the specification, causing delay in final connections and testing.

(d) Two owner-supplied free-standing refrigerators were provided to the shipyard to replace two older ones in the galley of a service vessel. The dimensions were all compatible with the available space. The new refrigerators were top venting, whereas the older ones vented from the bottom/front. The tight fit of the refrigerators beneath the overhead would not be adequate for heat dissipation. Expensive modifications were necessary to incorporate the new refrigerators.

**Observation:** Each of these four examples tell a story of extra costs and schedule impacts arising due to faulty assumptions having been made, namely, that any small differences can be incorporated effortlessly. Obviously, those assumptions proved unsupportable.

**The Lesson Learned:** Assumptions are an inexpensive and quick—but unreliable—substitute for thorough analysis. When replacement components are being considered, small dimensions, basic connections, details of arrangements and a complete list of all materials needed for completion should be systematically addressed as much as the big dimensions, weights, flow rates, power requirements, etc.

# upright & afloat



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## The Management of Shipyard Projects

Any project at a shipyard is certain to involve a complex relationship between the Owner's and Yard's organizations, as well as multiple supporting organizations. Cost controls, schedule impacts, changes, unexpected conditions aboard the vessel, engineering problems, and supplier delays, among many other factors, create a very challenging situation for all parties. To obtain more insights into the management of these many types of problems, consider reading the on-line articles and papers that are available at the Publications section of the Fisher Maritime website: [www.fishermaritime.com](http://www.fishermaritime.com)

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