

Cost and Schedule Impacts of Changes An Opportunity for Shipyards to Quickly Lose Profits

It would be an unusual shipyard project if changes and emergent work did not come about during the processes of ship repair, conversion and construction. It is important that shipyards as well as their client ship owners appreciate the many guises of changes. Not all changes that are the responsibility of the owner lead to more tangible work or greater engineering effort. Often, the actions of an owner can impact the productivity of the shipyard without affecting the end result of the work. It is important that both parties to a contract have a common appreciation of the entire extent of the impacts of changes, including direct as well as indirect effects. Unless all those effects are identified in advance, the shipyard effectively will be subsidizing the vessel owner by accomplishing the work, or absorbing the impacts, without adequate financial or schedule compensation.

The importance of identifying all those direct and indirect effects and impacts of changes and emergent work is central to each of the training programs available from Fisher Maritime. One full day out of the two or three day programs focuses on that subject.

Here are two examples. The first example focuses on the issue of whether there is a change or not, even though the final equipment configuration was the same as initially specified. The second example focuses on the scope of the change, and of the difference between the vessel owner's view of a change and that of a shipyard.

Owner's Mismanagement of OFE Obligations

This cause of a change involving the installation of Owner-furnished galley equipment developed when the Owner's organization failed to adequately manage its contractual obligations after the contract was executed, thereby being late in providing information (including decisions), materials, equipment and/or services to the Contractor on a timely basis.

The Contract Specifications clearly stated

that the Owner would provide the new steam table and bain marie that was to replace the existing equipment in a passenger ship's galley. The Specifications for the 30-day overhaul also cautioned the shipyard to not remove the old steam table and bain marie until the new ones arrived, so that if the new ones did not arrive on time, the ship could sail with the old ones in place. The contract documents did not provide a specific

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LESSON LEARNED #56: Different Interpretations of 'Zero'

A shipyard in country 'A' was awarded a contract for construction of a naval auxiliary vessel from the navy of country 'B'. The contract specification required that all materials incorporated into the vessel were to be "asbestos free." A few years later when the vessel was undergoing maintenance in home country 'B' it was discovered that certain materials incorporated into the vessel contained about 1-2% asbestos. This was traced to the regulatory definition in the shipbuilder's country 'A' that defined "asbestos free" to be less than 3% content. The presence of asbestos aboard the vessel was deemed unacceptable by country B's health and safety regulatory agency because its standard is zero tolerance. This discovery necessitated the implementation of an asbestos abatement project at significant cost and schedule impact.

The lesson learned: Although the phrase "asbestos free" had a numerical allowance in each country, there was a difference in the exact figure that two regulatory agencies used. The use of potentially ambiguous phrases in detailed specifications often results in inconsistent interpretations by the parties. For specifications, don't assume; be specific.



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Cost and Schedule Impacts of Changes

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date for arrival of the replacement galley equipment, but did require the shipyard to provide the Owner with a detailed schedule that, upon presentation, nominated the dates by which the shipyard wanted the replacement equipment. The shipyard nominated day 14 for the latest receipt of the replacement galley equipment. The Owner never responded to that nominated date. The equipment arrived on day 26, only four days before the ship was to sail. The shipyard worked around the clock for three days to cut open the bulkhead for access (the equipment was too large to move through the doorways), dismantle other galley equipment that was in the way, remove and replace the designated galley equipment, reassemble the interfering galley equipment, restore and repaint the bulkheads, connect and test the new galley equipment. The shipyard had to undertake the galley work in an extremely hurried manner, causing the total expended man-hours on that renewal to far exceed budget, because the Owner had not ensured timely delivery of the equipment to the shipyard. This resulted in unplanned overtime requirements, multiple shift requirements, concurrent use of multiple trades in the same spaces, causing production inefficiencies, non-productive stand-by time, and rework of already completed insulation and painting.

Note that sometimes the Owner's failure to take timely

“Owner is responsible for the effects of the inefficiency that was created by the Owner's mismanagement of the arrival of both the equipment and the field service representative.”

action causes the shipyard to execute the work of a particular task in fragments, rather than in a continuous manner, such as when an Owner timely provides the equipment for installation but fails to timely provide the vendor's technical representative who is supposed to be there to oversee installation. Having to send production workers to the site of the installation to first “land” the equipment and to come back later to install it creates an inefficiency of the total labor budgeted for that item. The Owner is thus responsible for the extra, indirect effects of the inefficiency that was created by the Owner's mismanagement of the arrival of both the equipment and the field service representative.

Disruption by Ceremony

In the middle of an eight-month refit of a naval combatant vessel, the Navy announced that in 20 days it wanted to use the afterdeck of the vessel for a morning Change of

Command ceremony and an afternoon reception. The Navy thought it would have to pay for the temporary removal of shipyard equipment on the afterdeck, the placement of a stage, chairs, decorations and an audio system, followed by a reversal of the processes to reinstate the prior locations of shipyard equipment. However, the shipyard's change proposal involved far more than just the movement of those items.



The shipyard pointed out that the two-day removal of its equipment would mean the loss of productivity of the production workers using it, for which the Navy would have to compensate the yard. Also, Navy agreed that all chipping and grinding anywhere on the vessel would have to be discontinued for the day of the ceremony and reception since the noise would reverberate throughout the vessel. Further, work on the mast would have to be discontinued for that day since it would be visually distracting to all persons attending the ceremony. Machinists working below were impacted by longer transit times to their worksite since they could not use the aft access hatch in the middle of the ceremony and reception. Several other crafts and services that would experience impacts to their productivity were also identified. The Navy had to pay for all those losses of productivity, even though those lost production hours did not add to the work accomplished in the vessel's refit. A one-day contract extension was also granted. Observation: Owner's representatives tend to focus only of the visible aspects of the change work, whereas the shipyard has to also be compensated for the behind-the-scenes impacts.

Capturing All Impacts of Changes

Fisher Maritime's “Contract Management” training program includes detailed analyses of why change work typically costs the shipyard 30% to 80% more production hours than if the same work was in the basic or initial contract package. Owners' representatives as well as shipyard project team members have found hundreds of times that those lessons have been of great assistance in negotiating and managing changes and emergent work. The program, “Contract Management for Ship Construction, Repair and Design,” is described on the program's website at www.shipcontractmanagement.com. In house-presentations of the programs are available.▲

Fisher Maritime's Professional Services

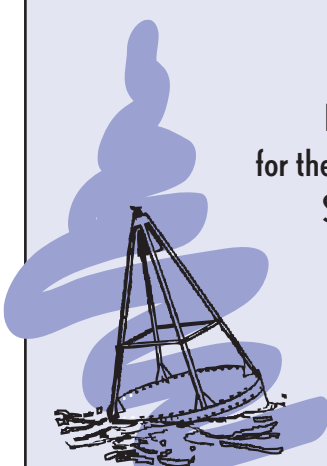
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On-Site Contract Management Training Course Enhancing Professional Management Capabilities for Shipyard Projects

Dr. Kenneth Fisher's very well-attended training course, *Contract Management for Ship Construction, Repair and Design*, can be presented at your organization's facility for a low fixed fee. Already the program has been presented on-site over 200 times in 17 countries, in addition to another 170 open-registration presentations. Nearly 5,000 persons from 25 countries have benefitted from this course. A description of the course that is certain to enhance the professional management capabilities of persons associated with shipyard projects is available at www.shipcontractmanagement.com.

If your organization has seven or more persons whose

professional capabilities could benefit from such training, it is cost-effective to bring the program to you, instead of having those persons travel to a distant open-registration program. For details and information, send an inquiry to: register@fisher-maritime.com. (Can you identify these 17 countries in which the course has been presented? Hint: these are internet domain identifiers. AU, CA, DE, ES, GR, HK, HR, MY, NL, NO, NZ, PA, PT, SE, SG, UK, and US.)▲

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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.fisher-maritime.com

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sons at less cost than sending your staff to an open-registration presentation. Over 145 organizations in fourteen countries have had these programs presented on an in-house basis more than 215 times over the past 26 years. To receive details for arranging an on-site presentation of any of the programs listed below, contact us: **tel. 800-732-3476 or 973-660-1116, fax 973-660-1144, email: email@fisher-maritime.com. Program Details can be seen at:**

www.fisher-maritime.com/projecttraining/projecttraining.html

Contract and Change Management for Ship Construction, Repair and Design. This 3-day course is designed for all members of the contract management team for ship owners, shipyards, design firms, vendors, subcontractors, regulatory agencies, whether commercial or government. Senior and middle management of all those types of organizations benefit from the "lessons learned" approach to managing all contractual commitments.

Seattle, WA, USA	Tues.-Thurs.	Mar. 31-Apr. 2, 2015
London, UK	Wed.-Fri.	Apr. 22-24, 2015
Alexandria, VA, USA	Tues.-Thurs.	May 19-21, 2015
Ottawa, ON, CA	Tues.-Thurs.	June 23-25, 2015
Charleston, NC, USA	Tues.-Thurs.	Sept. 15-17, 2015
London, UK	Wed.-Fri.	Oct. 14-16, 2015
Brisbane, AUST	Wed.-Fri.	Nov. 4-6, 2015
Melbourne, AUST	Tues.-Thurs.	Nov. 10-12, 2015

The Port Engineer's and Owner's Representative's Course. This 3-day course is designed for shipowner's personnel who prepare specifications, who accompany the ship to the shipyard, and who arrange for new/growth/change work during contract performance. This course helps assure getting maximum value for money spent. Presented in-house only. Contact Fisher Maritime for details.

Shipyard Management of the Customer and Contract. This 2-day course for project managers, production supervisors, estimators and planners is the only training program specifically developed for mid-level managers of shipyards and subcontractors. Presented in-house only. Contact Fisher Maritime for details.