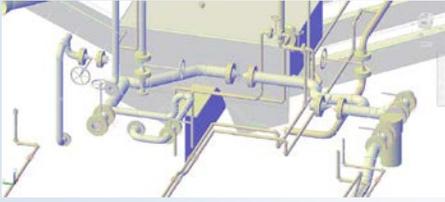




Ingalls Shipbuilding is Streamlining the Way Engineers Perform Drawing Extraction

Project Snapshot



Project Lead:

Huntington Ingalls
Industries, Inc. –Ingalls
Shipbuilding

Project Start:

December 2016

Objectives:

- Augment the current design tool with scripted functionality capable of automating activities necessary for part detail drawing generation

Estimated Savings:

- \$503K per DDG Hull
 - Reduction in labor hours required to extract/validate part details from design tool

R2722 Automated Part Detail Extraction
Rev A (0117)

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Although the shipyard's Engineering designs are digital, physical drawings are still a main end product delivered to downstream organizations. These drawings are often from a macro perspective such as a unit or assembly, however when individual parts require fabrication, they are drawn separately as details. These details are the work instructions for machinists and other craftsmen and each unique part has its own detail. The current detail generation process in ShipConstructor requires significant manual "post processing" in order to complete development in the format desired by craft and match material to equipment used.

The envisioned *Automated Part Detail Extraction* process improvement would implement a mechanism to automatically dimension, label, and supplement parts coming from ShipConstructor based on identified standards from Engineering. Automatic application of these standards through the design tool itself will mitigate the need to manually retouch these detail products by a large margin just through automating the process itself. The team will accomplish this by incorporating scripting logic in to the detail extraction process. Essentially, when a designer prepares to perform the extraction they would click a GUI button, which would perform a series of actions in the background that are currently not possible in the toolset or manually intensive operations. The output will be a staged detail drawing which is prepared to be extracted, or in some fringe cases require minimal adjustment. The designer is bypassing the manual insertion and adjustment of these data items, automated through the GUI interaction in the toolset.

The 6-month effort will target labor reduction required to generate part details. The team will examine the standards required to be present when producing detail drawing extractions for fabrication then work with technologists to determine which elements can be automated electronically in the enterprise toolset. The technologists will create the computer instructions necessary to automate application of the standard and the end-users will validate it was conducted successfully. Once accepted, the scripted automation will be distributed across personnel extracting details for production use. Once implemented, Ingalls anticipates this effort will reduce labor hours required to provide instruction artifacts for fabrication, which translate into a potential cost savings of \$503K per DDG hull or \$2.5M over five years.

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