



Distro A: Approved for Public Release

Optical Window Evaluation for Deep Sea Biofouling Experiment

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NREIP
NAVAL RESEARCH ENTERPRISE
INTERNSHIP PROGRAM

Project Objective and Intern Contribution:

Objective:

The objective of my internship had two parts. The first was to organize the window types and coatings along with the window holders for a ocean submersion test. The second objective was to compile test methods to evaluate the optical clarity and optical transmission of the glass windows after removal from the water.

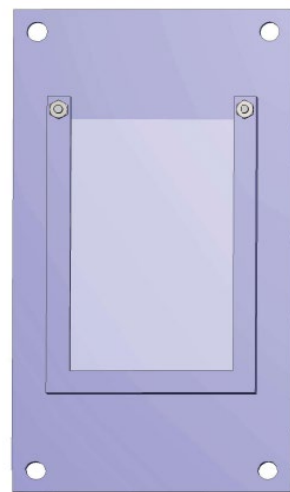
Methods:

I used the library's research resources and consulted with subject matter experts to research and compile the test procedures for evaluating window clarity. I collaborated with Code 34 engineers to iteratively design the 3D printed parts. This quickly took our sample holder from a basic CAD drawing to a fully assembled and testable product.

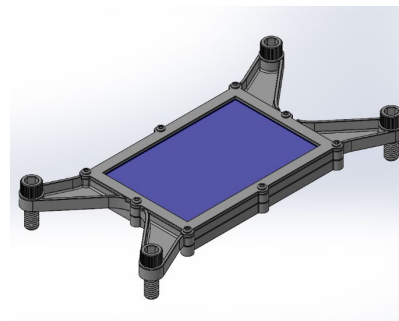
Contributions:

I coordinated with NUWC engineers working on the optical anti-biofouling project, the Naval Research Laboratory (NRL) and Florida Institute of Technology (FIT) to understand how they had set up their optical tests and adapt them to our requirements. I then worked with the engineers in Code 34 to manufacture our 3D printed window sample holders. Developed window identification protocol by laser engraving of the numerous windows.

Initial Window Holder



Final Window Holder



1. What are you most proud of this summer?

I exercised personal autonomy to organize both the logistics of the test materials and procedures for the test plan. Critical thinking and independent problem solving provided results that benefited both myself and my supervisors.

2. Why was the internship valuable?

This internship has provided direct experience in learning how to coordinate with a variety of different people to get tasking done on a critical timeline. Since being able to convey the importance of this project was vital for coordinating the resources of this project.

3. Advice for future cohorts?

Do not be afraid to ask questions, most of you will be working in a brand-new environment with people you have never met so asking questions is a great way to build rapport and establish connections to ensure your tasks are completed on schedule.

Results / Accomplishments / Next Steps:

I compiled the methods, procedures, and systems for testing optical clarity and optical transmission of glass panels that are biofouled.

Developing better anti-fouling window coatings used on undersea platforms may allow the Navy to operate in a variety of depths at sea for longer periods of time to improve our strategic posture.

In the future, this work is intended to save the Navy money on costly maintenance on windows after they have been used in an underwater environment.

Optical Clarity Test Setup

