Boat Bumper Design Document

The Challenge:

Goal 1: Safe transfer of personnel

• Build a system that allows for safe and balanced transport of operator from vessel to target

• Passage must be wide enough for single personnel

Goal 2: Protect bow area from damage

• Bumper must be able to protect bow when impacting target vessels

* Must be able to withstand 5000 lb static load and 1000 lb dynamic load

• Bumper cannot be permanently fixed to bow

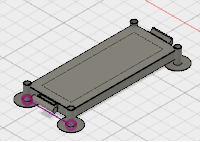
All components must be storable and fit in a 2’ x 4’ x 4’ locker

The Solution:

Goal 1: Gangway Design

* Welded steel or aluminum construction
* 18 inches x 40 inches
* Modular design allows multiple gangway sections to be joined together to extend length
* Gangway sections are interlocking
* Handrails can be installed on the left or right side, or both
* Design is elevated 4 inches above the deck level to avoid obstacles
* Can be easily assembled by a single crew member

Preliminary Gangway Design



Goal 2: Bow Bumper Design

* Based on Isosceles Pyramid structure
  + One of the strongest geometric shapes
  + Efficiently distributes loads
* Constructed of high density foam
  + 3 separate panels for easy storage
  + Damaged panels can be easily replaced
* Covered with durable high strength material
* Easy to assemble and disassemble
  + Panels are assembled using hinge pins

Preliminary Bow Bumper Design

