

GAME OF STONES



WENTWORTH
INSTITUTE OF TECHNOLOGY

PRESENTED BY
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THEME



- * Game of Thrones television series
- * Treacherous waters of Iron Islands
- * Ironborn's unmatched naval force
- * Theon Greyjoy's redemption

HOUSE:



W
E
N
T
W
O
R
T
H

Co-Captain
Amanda
Siciliano

Captain
Savannah
Reynolds

Co-Captain
Chris
Drussell

Aesthetics
Nina
Collins

Construction
Jim
Sullivan

Safety
Matt
Medeiros

Assistants
Sam Devincentis
Dearna Kondek
Michael Tortora
Zach Visser
Marina Schmid

Assistants
Hussein Alhady
Brendan Briggs
Joe Bianchi
Brian Burns
Emma Loughlin

Assistants
Tom O'Donnell
Matt Tirocchi
Matt Sylvia
Evan Dimatteo
Bramon McMullen



Indicates Registered Paddler

PROJECT LEADERSHIP



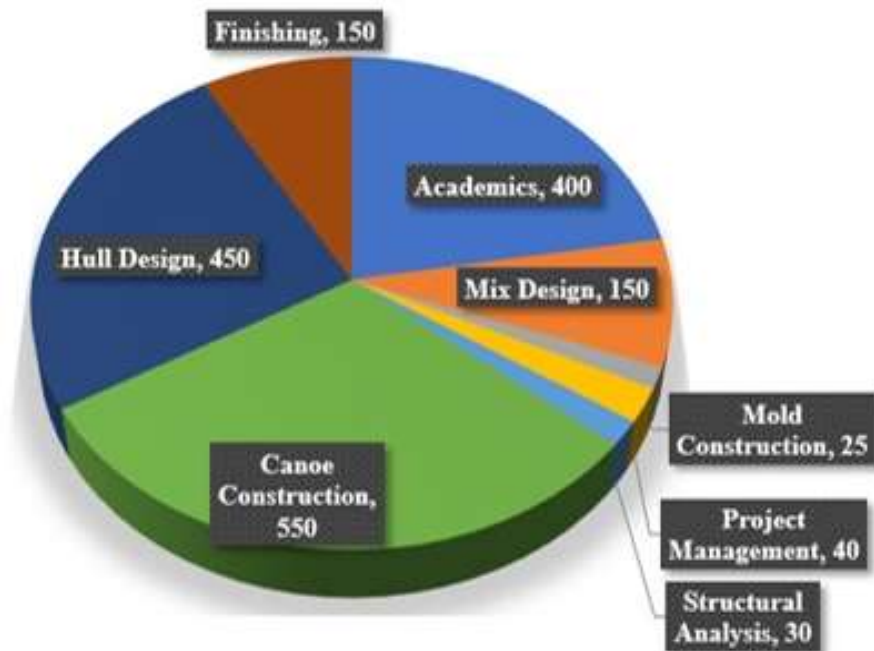
- ✓ One returning captain
- ✓ Large underclassmen membership
- ✓ Learning curve
- ✓ OSHA certification

PROJECT MANAGEMENT

- Some variance
- February 10th Pour Day
 - 1 week earlier than 2017

Major Milestone Activities		
<u>Milestone</u>	<u>Variance</u>	<u>Reason</u>
First Meeting	None	-
Fundraising	-7	<i>Miscommunication w/ school department</i>
Concrete Mix Design	None	-
3D Printed Canoe Models	-21	<i>New software required training</i>
Pour Day	None	<i>Proper scheduling</i>
Design Report	None	<i>Deviation of tasks & increased membership</i>

Person - Hours Allocation (hrs.)



- Significantly lower hours
- Faster mold construction time

DESIGN PHASES

Hull Design

*Structural
Analysis*

*Development
& Testing*





Beached whale



Racing shell inspiration



3D printed canoes

Small scale testing

Rocking prevention

V-shaped hull

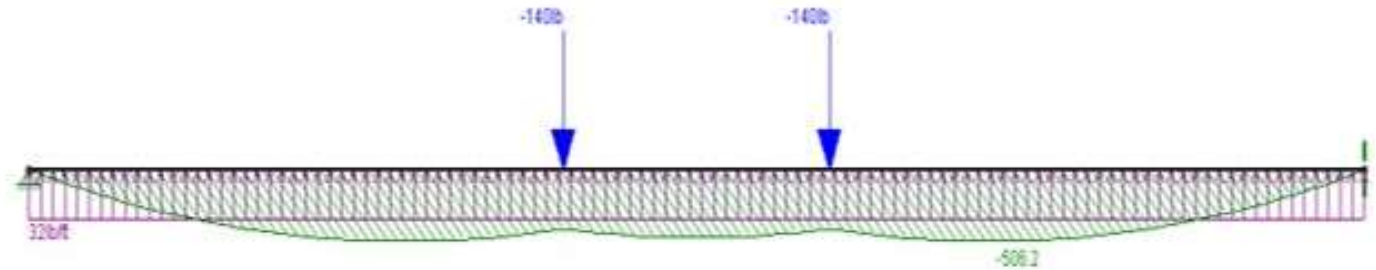
HULL DESIGN



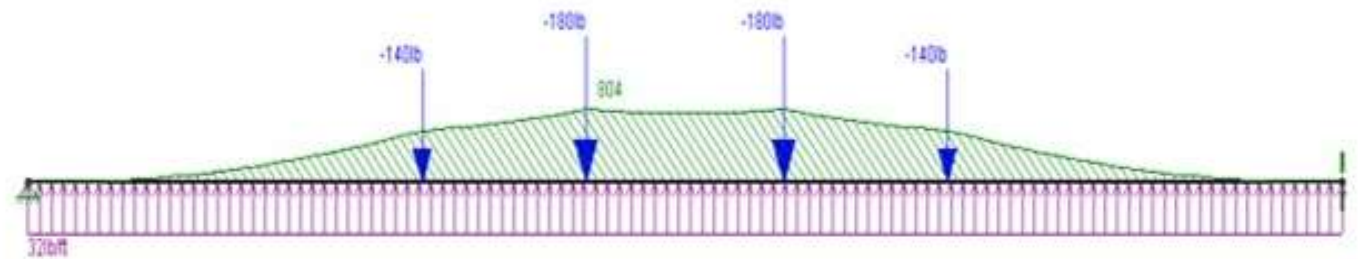
STRUCTURAL ANALYSIS

- **Goals:**

- Validating high stress locations
 - Avoid cracking
- RISA 2D Software
 - Factor of Safety = 1.5
 - Extra transverse rib

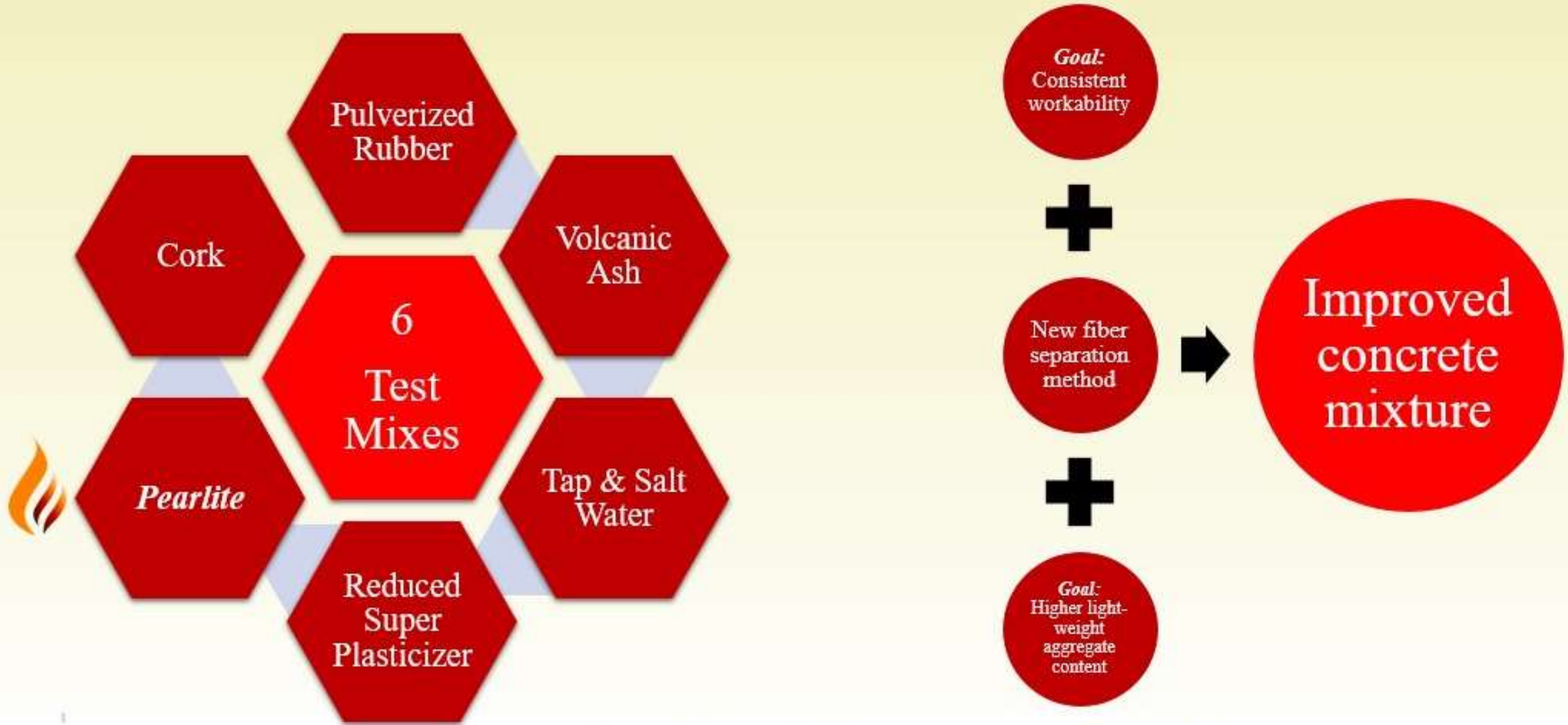


RISA 2-Paddler Moment Diagram



RISA 4-Paddler Moment Diagram

DEVELOPMENT AND TESTING



CONSTRUCTION PHASES

*Mold
Construction*

*Concrete
Placement*

Curing

Finishing



MOLD CONSTRUCTION



- Waterjet CNC milling
- Break-away sections



- 80 3-inch thick foam sections



- Sanding, diamond plaster



- Sanding, latex paint

CONCRETE PLACEMENT



- › Dry concrete batches
- › 1.5 gallon buckets



- › Crisco layer
- › QA/QC depth checkers



Pour Day

CURING & WAITING

72
days total

2
days
dry-cured

35
days
wet-cured

35
days
waiting



- PVC misting tent
- Polyethylene sheet cover
- Smart water timer
 - 15 minutes per 4 hours

FINISHING

- Easy foam removal
- No internal sanding needed
- Patching
- External sanding
- Sealing

WENTWORTH IS COMING



QUESTIONS?