



Buzz Lightboard

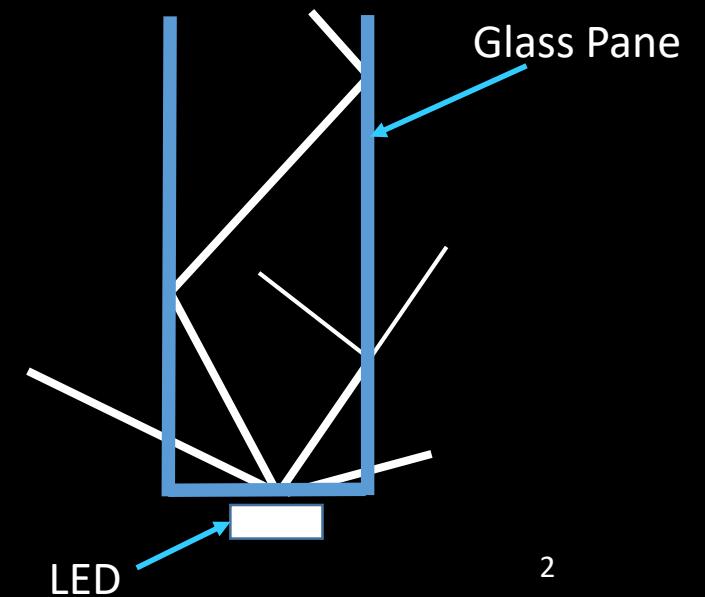
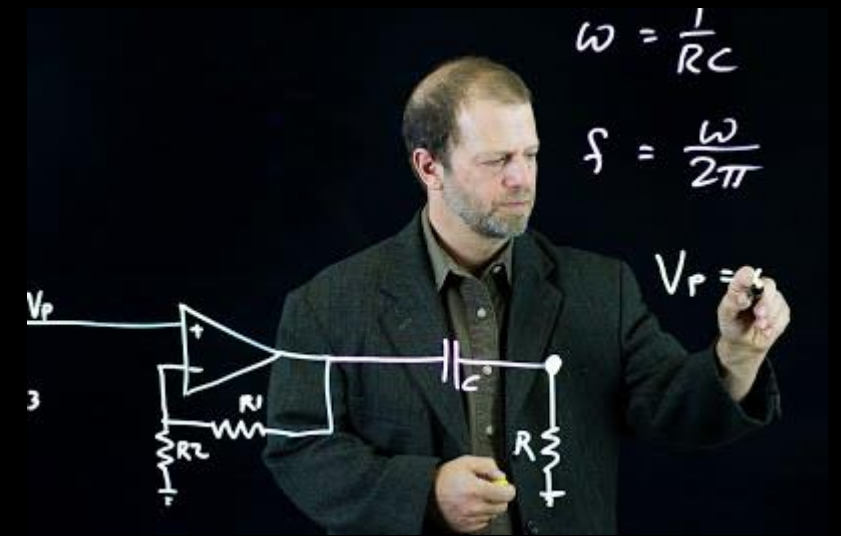
Talal Aldoussari, Jake Jermyn, Nate Sherwood, Taylor Spence

Overview

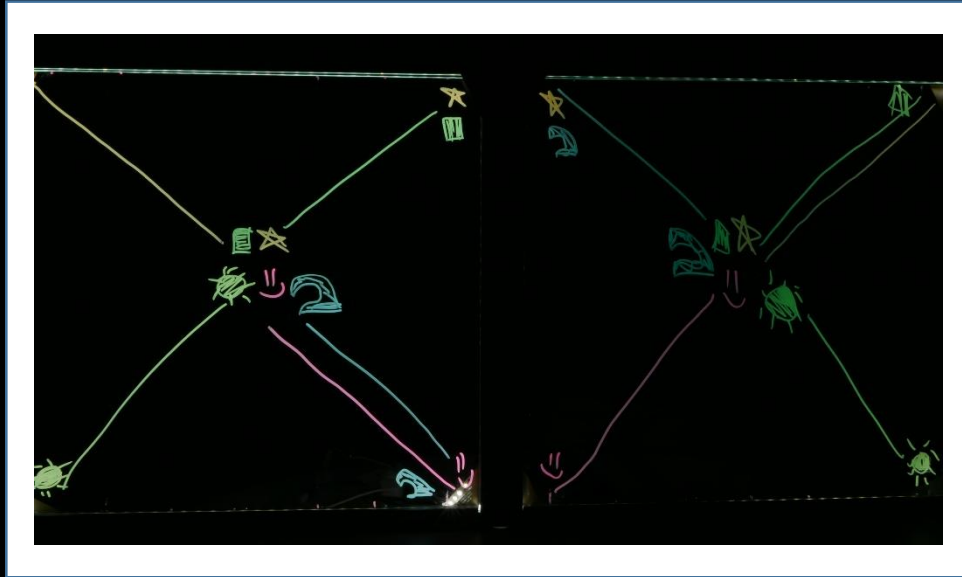
- How does it work?
 - Total internal reflection
 - Frustrated total internal reflection to illuminate the ink in contact with the glass

Problem Statement

- Create a financially palatable lightboard that will be specially designed to gain faculty buy-in/interest via portability and user convenience.



Glass Decision



360° Lighting Scheme



Single Sided Light Test (Lighted from top)

The left side in both photos (Starphire Glass) has a more consistent color and light penetration, where the right side on both photos (Window Glass) fades to green as the writing travels away from the light.

DECISION: Starphire Glass

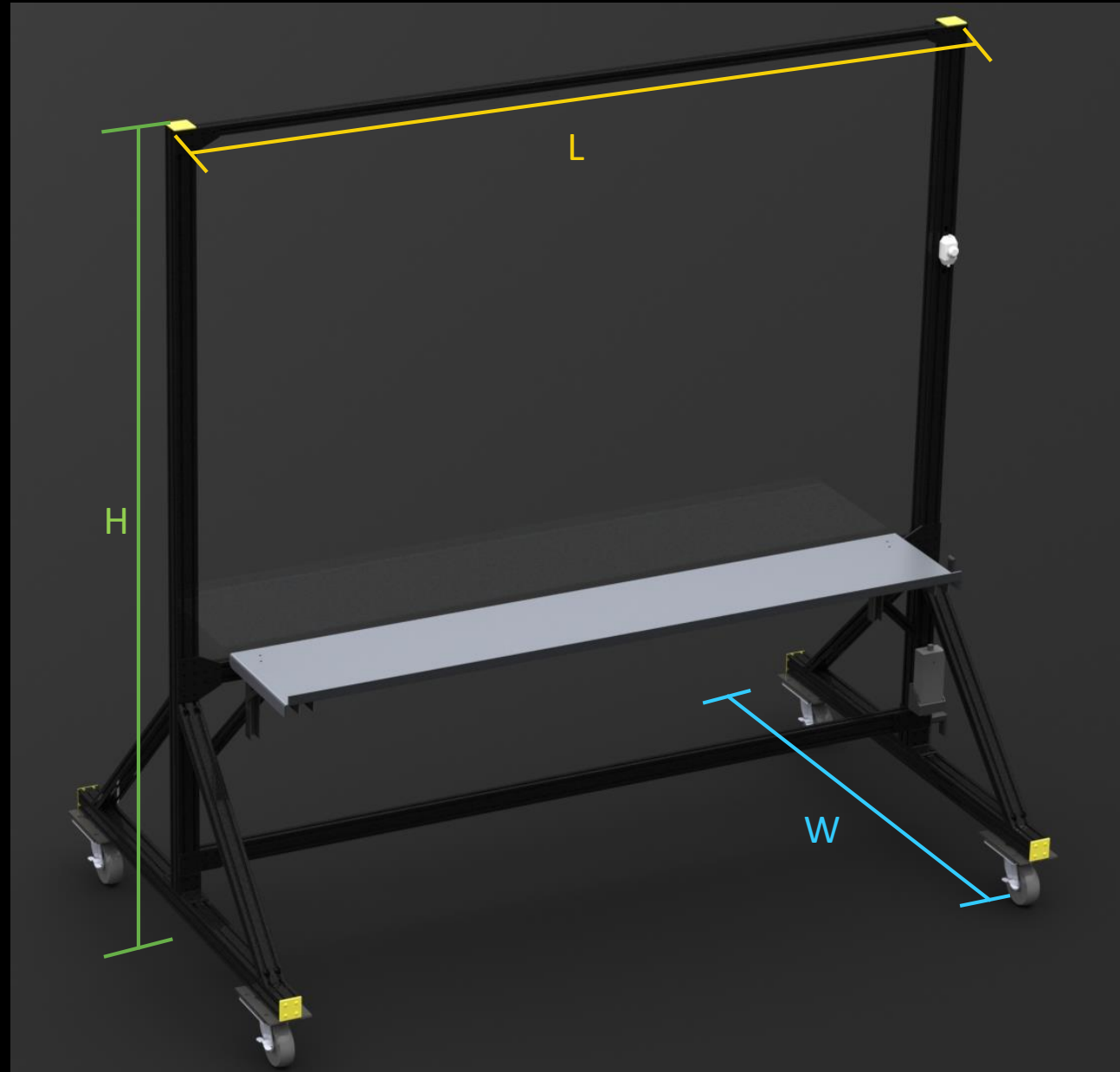
Final Design

- Portable
 - Fits through doorways
 - Locking caster wheels
- Easy to Use
 - Simple plug and play
 - Easy adjust lighting
 - Adjustable shelf
- Accommodating
 - Ergonomic for users

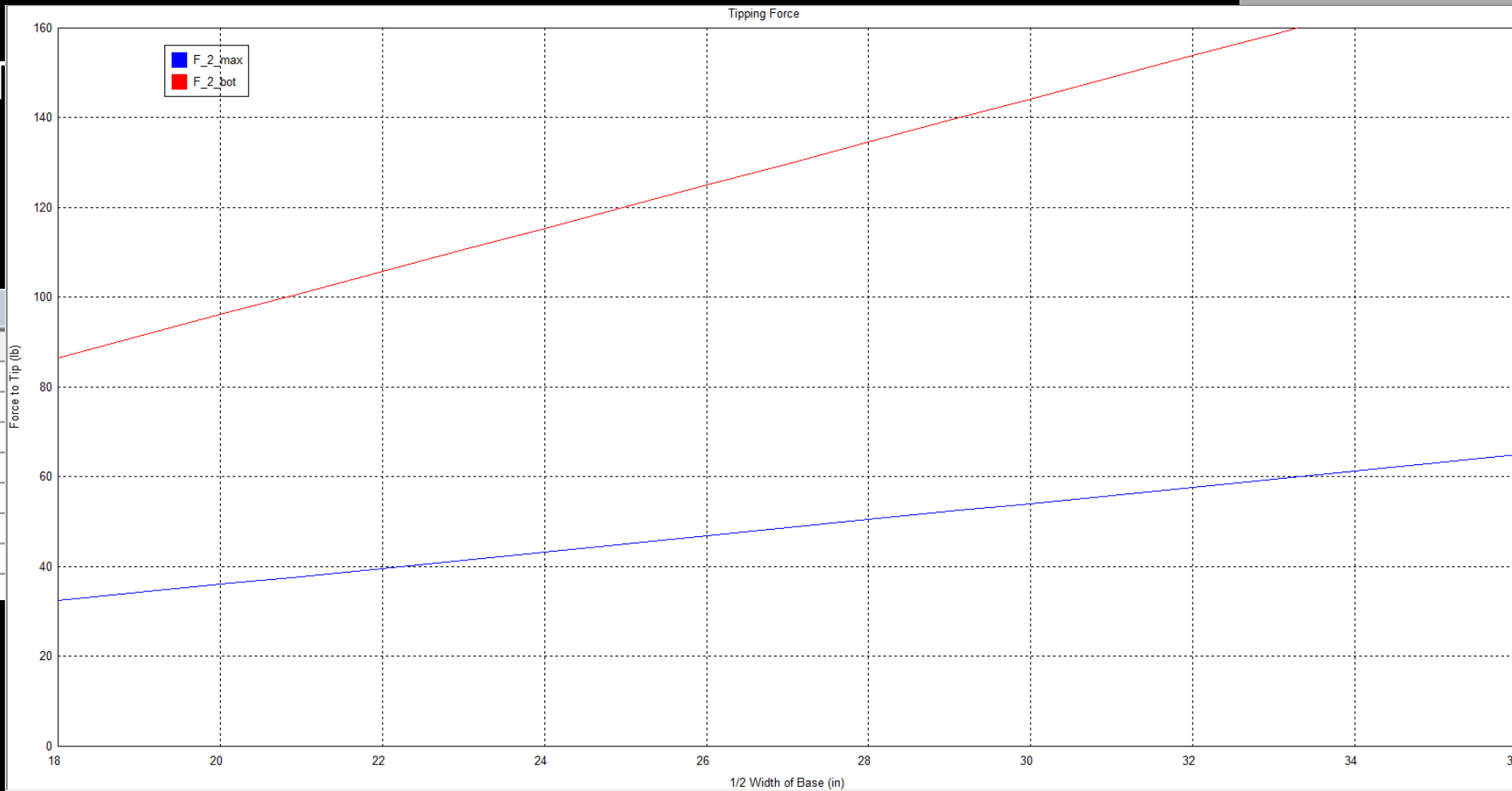
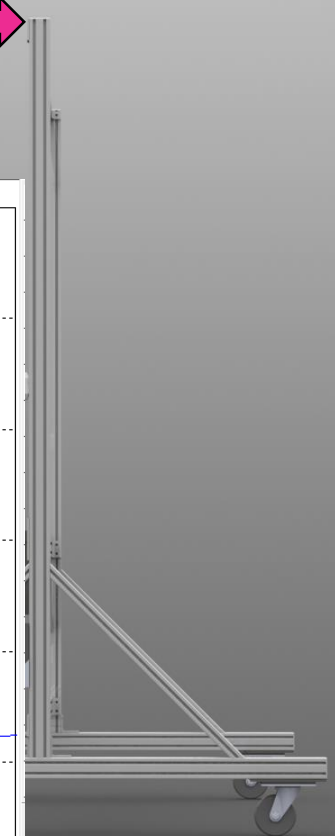


Final Design Details

- Height: 6' 5.65"
- Width: 3' 9"
- Length: 6' 5.7"
- Weight: 148 lb
- Frame Matl.: Aluminum T-Slot
- Glass Sheet: 4' x 6'



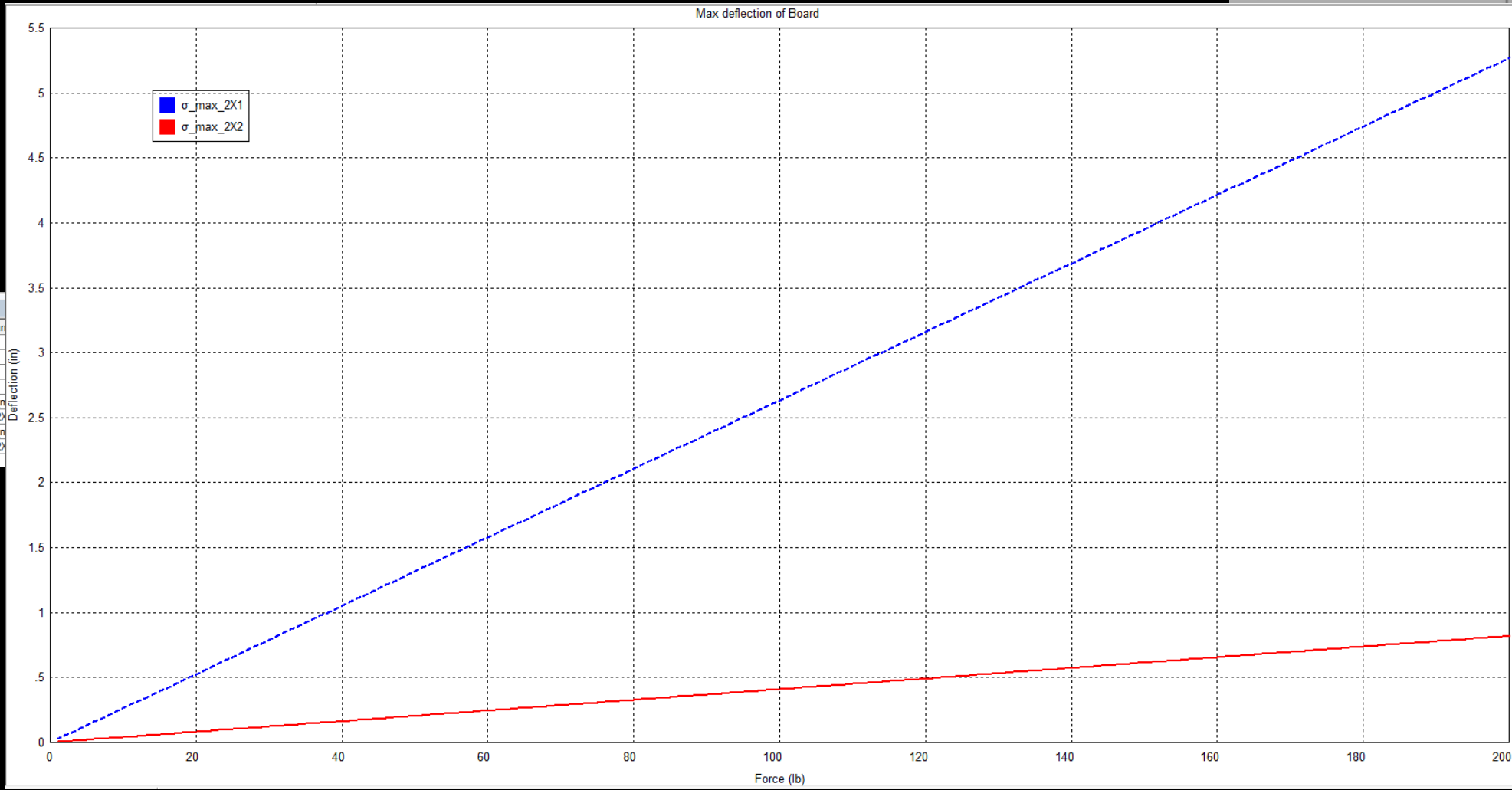
Safety Calculations



Variables

Status	Input
	140
L	18.94
	77.65
	29.12
L	
L	

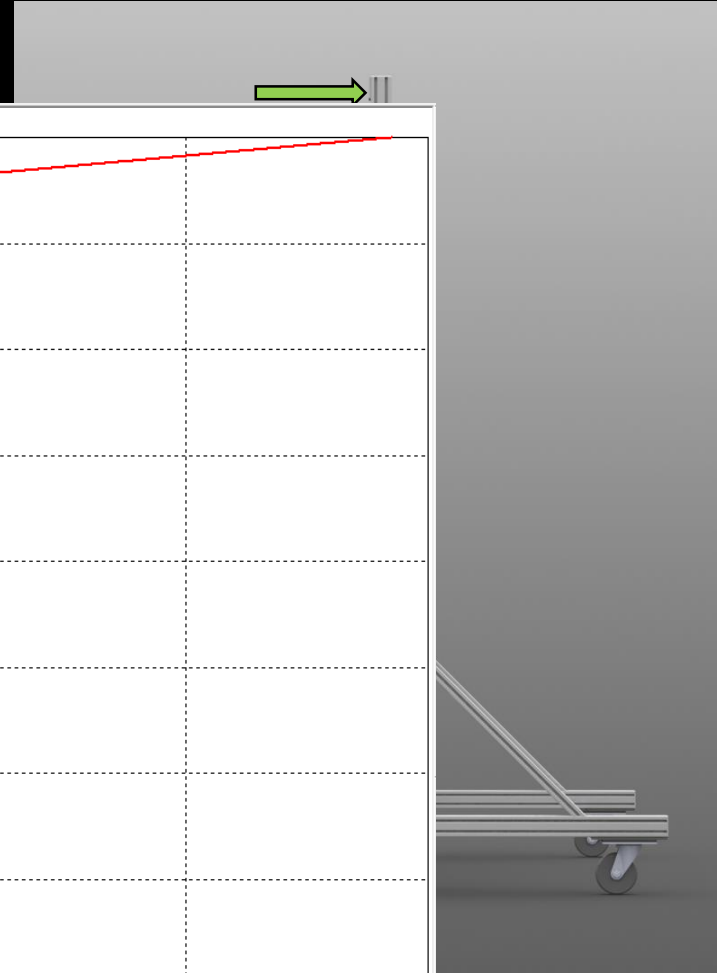
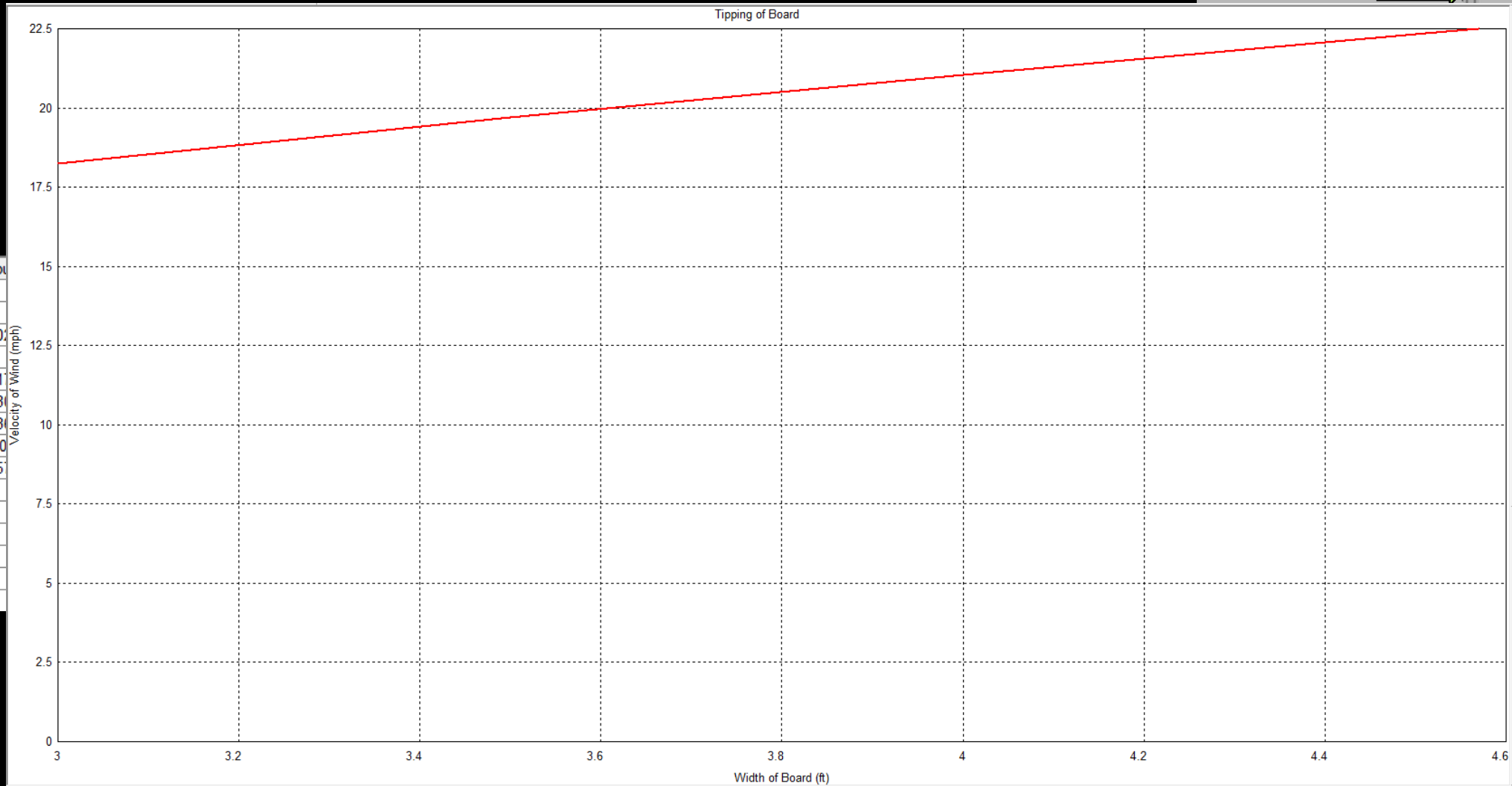
Safety Calculations



Status	Input	NaN
L	50	F
	51.82	L
	10200000	E
	.5545	I
L		σ_{max}
	? .0863	I, 2)
L		σ_{max}
	.5545	I, 2)

Safety Calculations

Status	Input
	2
	.00
L	4.1
	6.3
	4.3
	130
L	1.5
L	
	0
L	
L	



Questions?