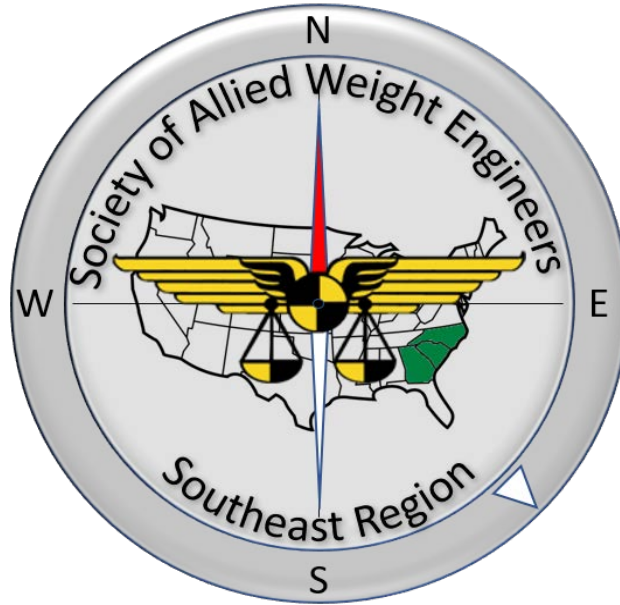


# *Society of Allied Weight Engineers, Inc.*

*Aerospace • Marine • Offshore • Land • Allied Industries*

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**A Proud Chapter of the Society of Allied Weight Engineers, Inc.**

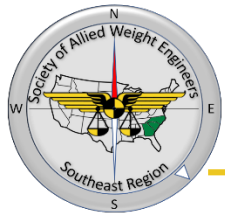
**4th Quarter Dinner Meeting  
December 12, 2019**



# Agenda

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- **Welcome**
- **Chapter Status**
- **International Topics**
- **Presentation**
- **Next Meeting Discussion**
- **Close**



# Our Chapter Leadership Team

## OFFICERS

*Our Current Leadership Team*



**Damian Yanez**  
International Director



**Tom Tanner**  
President



**Ben Flood**  
Vice President

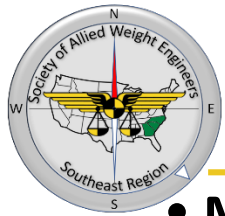


**Luis Alberto Lopez**  
Secretary



**Ross Campbell**  
Treasurer





# Chapter Status

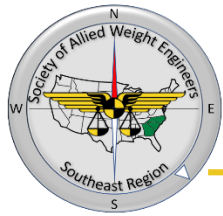
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- **Membership**

- 19 Members on chapter roster
- 2 new members since last year
  - Jeremy Sparks - Lockheed Martin in Florida
  - Bryan Strong – transferred from Wichita Chapter

- **Chapter Project – Handbook Update**

- Current status – 12 of 20 Sections delivered to International Technical Committee, 41% complete by page count.
- Goal – Complete by May International Conference in 2020
- **Need all sections to Tech Committee by end of December!**

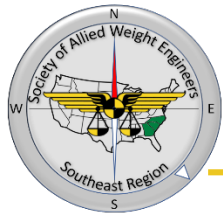


# Handbook Status


Section	Topic	No. Pages (2008 Ed.)	Peer Review		Notes	POC
			Entered	Completed		
Front material		16			To be submitted after all sections are completed.	Yanez
1	Units	18	1/24/2019			Yanez
2	Section Properties	20	1/24/2019			Stubbers
3	Material Properties	30				Tanner
4	Component Properties	14				Tanner
5	Mass Properties Calculation	48				Ruff
6	Mass Properties Measurement	50	1/24/2019			Yanez
7	Loads	4	4/19/2019			Ruff, Yanez
8	Strength	8	8/26/2019			Ruff, Yanez
9	Structural Dynamics	6	9/20/2019			Campbell, Yanez
10	Aerodynamics	12			In final edit. 95% complete	Campbell, Yanez
11	Propulsion	10			In final edit. 95% complete	Campbell, Yanez
12	Thermodynamics	6	5/29/2019			Stubbers, Yanez
13	Space Flight Mechanics	6	11/15/2019			Stubbers, Yanez
14	Crew Systems	18	2/20/2019			Lopez, Yanez
15	Power Systems	10	3/14/2019			Lopez, Yanez
16	Mathematics	12				Yanez
17	Marine Vehicles	68				Stubbers
18	Land Vehicles	8	5/31/2019		Sent to S. Matschinsky for review.	Yanez
19	Miscellaneous	6				Campbell
20	Communications	2	11/15/2019			Campbell, Yanez
Index		4			To be submitted after all sections are completed.	Stubbers
<b>Total</b>		376		41%		

Note: Yellow items have been delivered to the Technical Committee for initial review.

Blue items are near-term priorities.



# Handbook Sample


 <b>SOCIETY OF ALLIED WEIGHT ENGINEERS, INC.</b>  <i>Aerospace • Marine • Offshore • Land Vehicle • Allied Industries</i>  Executive Director P.O. Box 60024, Terminal Annex Los Angeles, CA 90060	<b>TECHNICAL REFERENCE</b>  <b>Document No. SAWE WEHB-2020</b>  Date Issued <u>        6 May 2020        </u>
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**MASS PROPERTIES ENGINEER'S  
HANDBOOK**

Revised         May 2020        

Prepared by  
Technical Committee  
Society of Allied Weight Engineers, Inc.  
(SAWE, [www.sawe.org](http://www.sawe.org))

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 SAWE PUBLICATIONS


Weight Engineer's Handbook
Units of Measure

## 1 Units of Measure

### 1.1 Definitions and Constants

#### 1.1.1 Definitions for Units of Mass, Length, Time and Force

Newton's Second Law

$$F \propto ma \quad (1-1)$$

If mass, length, time, and force are independent quantities

Name of System	Mass	Length	Time	Force	Definition of $g_c$
English Engineering	lbm	ft	sec	lbf	$g_c = 32.174 \frac{\text{lbm} \cdot \text{ft}}{\text{lbf} \cdot \text{sec}^2}$
not named	slug	ft	sec	lbf	$g_c = 1 \frac{\text{slug} \cdot \text{ft}}{\text{lbf} \cdot \text{sec}^2}$
not named	lbm	ft	sec	poundal	$g_c = 1 \frac{\text{lbm} \cdot \text{ft}}{\text{poundal} \cdot \text{sec}^2}$
not named	gm	cm	sec	dyne	$g_c = 1 \frac{\text{gm} \cdot \text{cm}}{\text{dyne} \cdot \text{sec}^2}$

If mass, length, and time are independent quantities

Name of System	Mass	Length	Time	Definition of Force
not named	lbm	ft	sec	$1 \text{ lbf} = 32.174 \frac{\text{lbm} \cdot \text{ft}}{\text{sec}^2}$
Absolute Metric	gm	cm	sec	$1 \text{ dyne} = 1 \frac{\text{gm} \cdot \text{cm}}{\text{sec}^2}$
Absolute English	lbm	ft	sec	$1 \text{ poundal} = 1 \frac{\text{lbm} \cdot \text{ft}}{\text{sec}^2}$

If force, length, and time are independent quantities

Name of System	Force	Length	Time	Definition of Mass
British Gravitational	lbf	ft	sec	$1 \text{ slug} = 1 \frac{\text{lbf} \cdot \text{sec}^2}{\text{ft}}$

1



# Treasurer's Report

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- **Current Balance = \$1,835.40**
- Includes:
  - Dues reimbursement from International
  - Website domain renewal
- Does not include:
  - Proceeds/costs for this meeting



# International Topics

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- **International Conference, May 23-28, 2020 Hamburg, Germany**
  - Peter Stubbers to present paper on aircraft buoyancy
- **MPE Certification being fleshed out**
  - Damian wrote initial draft of white paper outline
  - Three level concept: Associate MPE (cross industry), Professional MPE, and Expert MPE (latter 2 industry specific)
  - Training gap analysis in work
  - First certifications: 21 by '21
- **Submitting bid for May 2022 International Conference**
  - We are going to need many volunteers!





# Presentation

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## *Will it Float? Predicting Aircraft Buoyancy*

**Peter Stubbers**

Engineer II – Mass Properties

Gulfstream Aerospace Corporation



# Introduction – Peter Stubbers

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- **Bachelors Degrees in Aeronautical and Mechanical Engineering from University of Florida**
- **Started in Mass Properties at Gulfstream in 2013**
  - Responsible for mass properties tracking and reporting for G650 and G700
  - Developing new buoyancy method for Gulfstream as part of Embry-Riddle Master's thesis
- **Key contributor to SAWE handbook project**





# Next Meetings

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- **Officers' Meetings January 12 and February 14**
  - Establish schedule for 2020
  - Plan 1<sup>st</sup> Quarter Chapter Meeting in March
  - Set up 2022 Conference Committee
  - Final push for Handbook completion