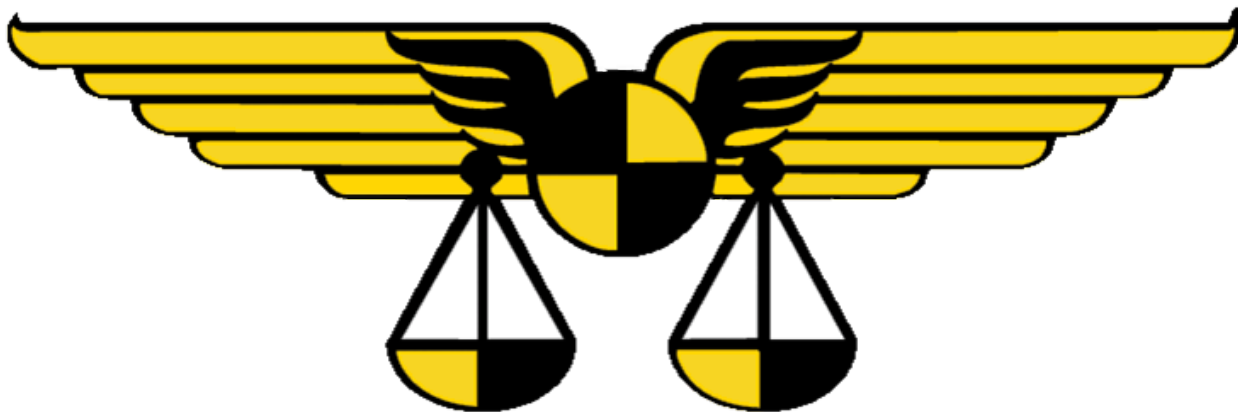




Society of Allied Weight Engineers, Inc.

Aerospace • Marine • Offshore • Land • Allied Industries

Welcome to SAWE



What is Mass Properties Engineering?

- **Predict, Control, Verify:**
 - **Weight**
 - **Center Gravity (CG)**
 - **Moments of Inertia (MOI)**
 - **Products of Inertia (POI)**
- Entire product, Entire life-cycle
 - Concept thru Customer Support
 - “Rivet to Ramp”



Why is Mass Properties Control important?

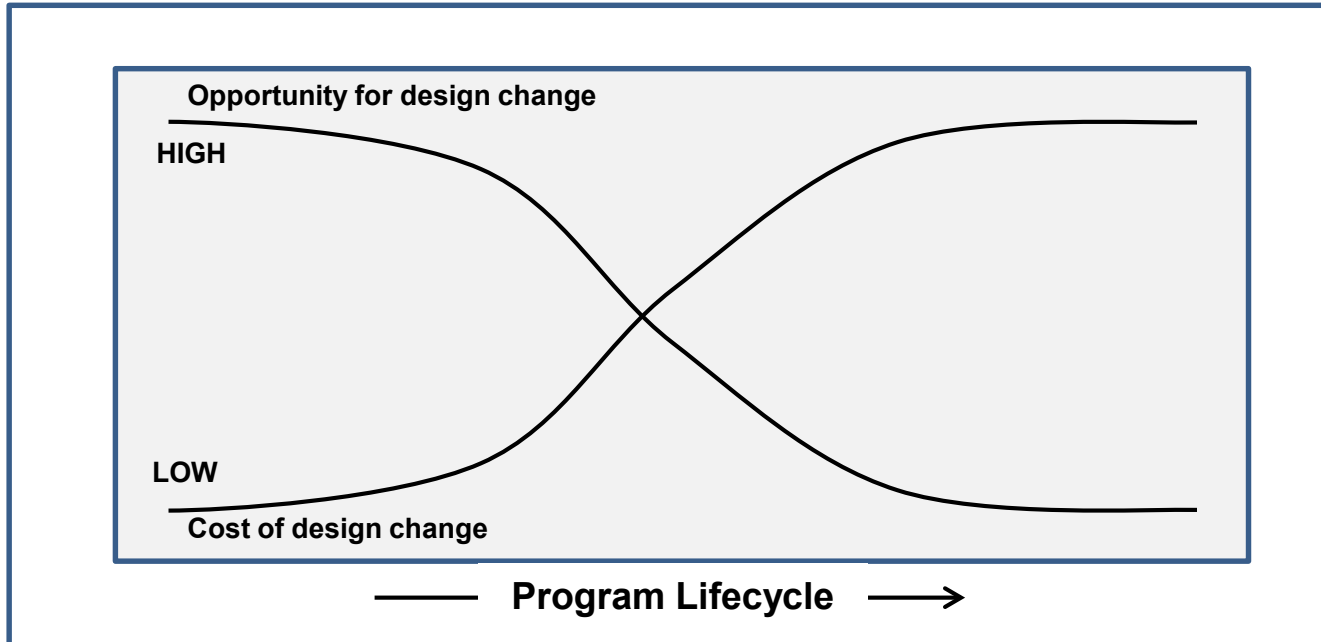
- Managing Mass Properties is critical for vehicle safety and performance





Why is Mass Properties Control important?

- **Cost of weight growth and balance issues increases dramatically as your programs progress**



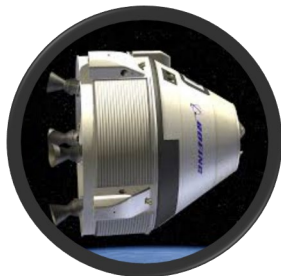


Who is SAWE?

- **We are a Non-Profit International Organization of Professional Mass Properties Engineers founded in 1939**
- **Our Purpose:**
 - To promote and sustain the Mass Properties discipline
 - To provide a medium for exchanging recommended practices based on experience and innovation
 - To foster technical excellence and superior quality in mass properties prediction, control and validation
- **21 Chapters in the US, Canada, South America, UK and Europe with 550 global members**
- **15 Corporate Members and Partners**

Industries Served by SAWE

- **Initially - Society of Aeronautical Weight Engineers**
- **1973 - Renamed Society of Allied Weight Engineers to include:**
 - Aerospace – aircraft, missiles, space, electronics, ...
 - Marine – surface, cargo, submarines, ...
 - Offshore Platforms – oil and gas, launch/landing, ...
 - Land Vehicles – automotive, armored, construction, ...
 - Allied Industries – scales, equipment, software, ...





SAWE International Leadership Team

Position	Officer	Organization
President	Damian Yañez	Gulfstream Aerospace Corporation
Executive VP	Melissa Gray	US Airforce
Senior VP	Fred Brown	Huntington Ingalls Industries
VP Publications	Nicholas Marickovich	Huntington Ingalls Industries
VP Technical	Robert Zimmerman	Lockheed Martin - Retired
VP Training	Dan Rowley	Northrop Grumman Corporation
VP Vendor Relations	Clint Stephenson	Boeing Defense and Space
VP Internet	Greg Ray	Boeing Defense and Space
VP Standards & Practices	Douglas Fisher	Collins Aerospace
VP Academic Affairs	Dr. Donna Gerren	University of Colorado Boulder
Executive Director	Bill Boze	HII



Why is SAWE important?

- **Mass Properties discipline often overlooked**
 - No specific college curriculum even though it is integral to every product and system
 - Company Management not always aware of the criticality
 - Inadequate staffing/skills increases program risk
 - Aging workforce in this crucial discipline
 - 62% retiring over next 10 years*
- **SAWE provides:**
 - Proven processes and experience for mass properties control
 - Educational resources for ensuring a skilled workforce
 - International collaboration between industry and governments
 - Venue for sharing and discovering new methods and lessons learned

**The Health of Mass Properties Engineering - 2018 Industry Survey*



How do Individual Members benefit?

- **Networking**

- Collaborate with peers at chapter meetings, bi-monthly virtual forums, training and regional and international conferences
- Learn from experts and mentor the next generation
- Discover career opportunities
- Make lifelong friendships

Upcoming International Conferences

2023 Cocoa Beach, FL

2024, Virtual



How do Individual Members benefit?

- **Publications**

- Members Only access to *the* premier source for Mass Properties literature
- Extensive Library of over 3000 Technical Papers*
- 3 issues of Weight Engineering Journal per year
- SAWE Blog
- SAWE Monthly Bulletin
- Discounts for all SAWE publications and textbooks
- Free SAWE Handbook (digital) plus updates

* 10 free downloads/year



How do Individual Members benefit?



- **Training** (many specialized courses are unavailable anywhere else)
 - Variety of courses from analytical methods to measurement techniques taught by experts online, onsite, or at conferences
 - Improve technical capabilities and skills
 - Certification courses in critical tasks such as Aircraft Weighing, Automated Weight and Balance Software, and others.



Classroom or online



Hands on



How do Individual Members benefit?

- **Scholarships***

- SAWE Scholarship - \$1000 (2 awarded/year typically)
 - Applicants must be high school seniors or graduates who plan to enroll or students who are already enrolled in a full-time undergraduate course of study at an accredited four- year college or university.
- Frank Fong Memorial Scholarship - \$1000 (1 awarded/year)
 - Same requirements as above, but applicant must be majoring in a scientific field (e.g. engineering, physics, mathematics, computer sciences, etc.)
- Annual Conference Scholarship - \$1000 (1 awarded/year)
- Chapter Scholarships
 - Amount determined by individual Chapter

*For student members and children or grandchildren of members active for at least 1 year



How do Individual Members benefit?

- **Recognition**

- Awards for advancing the Mass Properties discipline
 - Best Student Paper Award
 - Ed Payne Young Engineer Award
 - L. R. “Mike” Hackney Best Paper Award
 - Special Merit Award
 - SAWE Fellow
 - SAWE Honorary Fellow
 - SAWE Richard Boynton Lifetime Achievement Award
- Certification of Mass Properties Engineers





How do Individual Members benefit?

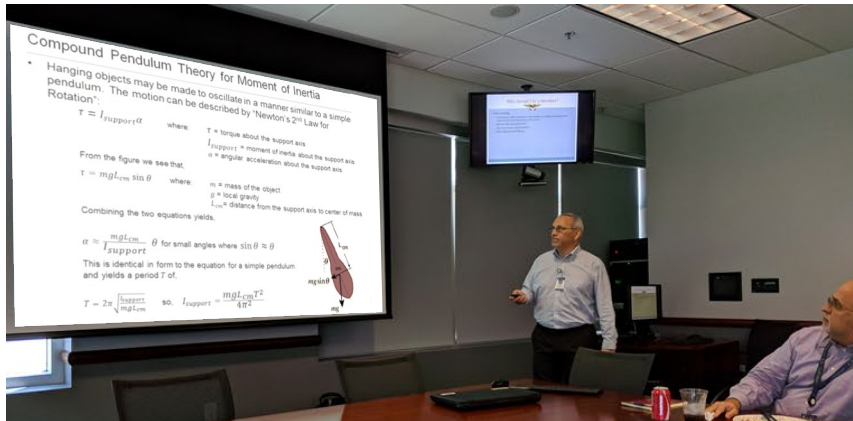
- **Leadership Development**
 - SAWE helps you:
 - Innovate
 - Create
 - Solve problems
 - Make a difference locally and globally!
 - Numerous opportunities to get involved and lead
 - Local Chapter Positions
 - International Officer Positions
 - Committee Chairs



How do Company Members benefit?

• Skilled Workforce

- Mass Properties Engineers properly trained with access to the latest knowledge base
- Program risk reduced through proper application of proven processes
- Lessons learned passed on to younger generation starting at the college level






How do Company Members benefit?



• Standards

- Gain access to proven recommended practices created through years of SAWE, industry and government collaboration
- Help shape these standards


 INTERNATIONAL SOCIETY OF ALLIED WEIGHT ENGINEERS, INC. <i>Serving the Aerospace - Shipbuilding - Land Vehicle and Allied Industries</i> Executive Director P.O. Box 60024, Terminal Annex Los Angeles, CA 90060	RECOMMENDED PRACTICE NUMBER <u>7</u> Date Issued <u>May 18, 2004</u>
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MASS PROPERTIES
MANAGEMENT AND CONTROL
FOR MILITARY AIRCRAFT

Revision Letter D

Prepared by
Government - Industry Workshop
Society of Allied Weight Engineers, Inc.

All SAWE technical reports, including standards applied and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAWE standard or recommended practice, and no commitment to uniformity or to be guided by any technical report. In formulating and approving technical reports, the SAWE will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents. Notwithstanding the above, if the recommended practice is incorporated into a contract, it shall be binding to the extent specified in the contract.

 SAWE RECOMMENDED PRACTICE


 INTERNATIONAL SOCIETY OF ALLIED WEIGHT ENGINEERS, INC. <i>Aerospace • Marine • Offshore • Land Vehicle • Allied Industries</i> Executive Secretary P.O. Box 60024, Terminal Annex Los Angeles, CA 90060	RECOMMENDED PRACTICE NUMBER <u>8/A-7</u> Date Issued <u>July 1, 2015</u>
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Weight and Balance Data Reporting Forms
for Aircraft (including Rotorcraft and
Air-Breathing Unmanned Aerial Vehicles)

Revision B

Prepared by
Standards and Practices Committee
Society of Allied Weight Engineers

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 S.A.W.E. RECOMMENDED PRACTICE

 INTERNATIONAL SOCIETY OF ALLIED WEIGHTS ENGINEERS, INC. <i>Serving the Aerospace - Shipbuilding - Land Vehicle and Allied Industries</i> Executive Director P.O. Box 60024, Terminal Annex Los Angeles, CA 90060	RECOMMENDED PRACTICE NUMBER <u>9</u> Date Issued <u>03 June 2000</u>
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WEIGHT AND BALANCE CONTROL
FOR
GUIDED MISSILES

Prepared by
Government - Industry Workshop
Society of Allied Weight Engineers, Inc.

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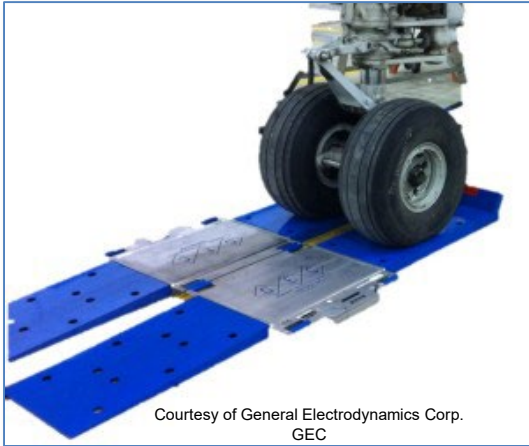
■ ■ ■

How do Company Members benefit?



• Technology Awareness

- Keep abreast of the latest equipment, software and services available
- Share your innovations with potential customers / collaborators





How much are Member dues?

Level	Investment
Company	
<ul style="list-style-type: none">• Gold Partner• Silver Partner• Member Level 2• Member Level 1	<ul style="list-style-type: none">\$15,000/year\$6,000/year\$1,500/year\$1,000/year
Individual	
<ul style="list-style-type: none">• New Member• Member• Retired Member• Student Member• Lifetime	<ul style="list-style-type: none">\$40/1st year\$80/year\$40/yearFree (pending verification)15X Individual Membership



What is included in Company Membership?

Benefit	Level 1 \$1,000	Level 2 \$1,500	Silver \$6,000	Gold \$15,000
Annual International Conference Proceedings	✓	✓	✓	✓
Presentation opportunity at International Conference	✓	✓	✓	✓
SAWE Weight Engineering Journal	✓	✓	✓	✓
Listing on SAWE Website	✓	✓	✓	✓
Open access to SAWE Technical Library (* up to 100 downloads/year, ** up to 200/year)	✓ *	✓ **	✓ **	✓ **
Open access to SAWE Standards and Practices	✓	✓	✓	✓
10% Discount on Annual Advertising Rates	✓	✓	✓	✓
Reduced rate for Onsite Group Training	5%	5%	10%	15%
Complimentary Individual Memberships		1	3	5
Seat on Board of Directors		✓	✓	✓
Voting privileges on Board of Directors			✓	✓
Standards and Practices Committee Memberships			1	2
One 3-day International Conference Exhibit Space			✓	✓
3-day International Conference Registrations			2	6
One 1-day Training Course Registration				✓
Job Postings for Open Mass Properties Positions on SAWE Website				✓
Color Ad in the International Conference Program			½-page	Full-page
Choice of ½-Page Color Ad in one edition of Weight Engineering Journal or 3-month Ad on Website			✓	
One full-page Color Ad in each edition of Weight Engineering Journal and full-year ad on Website				✓



Where can you learn more?

- <https://www.sawe.org>

SOCIETY OF ALLIED WEIGHT ENGINEERS
Aerospace • Marine • Offshore • Land Vehicle • Allied Industries

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Main menu

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Paper Database

- SAWE Paper Database
- Conference Proceedings
- Ordering and Downloading Papers
- Call for Papers

SAWE Workspaces

- SAWE NextCloud
- SAWE Group-Office

Member Login

Username or e-mail *

The Society of Allied Weight Engineers (SAWE) is an international organization whose purpose is to promote the mass properties discipline and provide members and industry a medium for exchanging practices and experiences with the objective of fostering a higher degree of quality in mass properties control. Regular chapter meetings, regional and international conferences, plus an array of technical papers, reference books, industry standards and training curriculum provide mass properties engineers and industry that opportunity to learn, collaborate, create, and broaden the capability of the mass properties engineer, organization or program. The Society is organized into 22 chapters with members from across the United States, Brazil, Europe, United Kingdom, and Canada.

Virtual Training - Live

2021 Virtual Training Opportunities

All classes will be held virtually via Zoom

Course Name	Instructor	Cost per Student	Dates & Times (EDT)	Link for Registration
Automated Weight & Balance System (AWBS) Training	Harold Smoot	\$650	Fri-Sat May 21-22, 2021 10am-3pm	Closed
Marine Vehicle Weight Estimating Methodology	Davy Hansch	\$500	Fri-Sat June 4-5, 2021 10am-2pm	Register
Aircraft Fuel Calibration	Rod vanDyk	\$250	Sat June 12, 2021 10am-2pm	Register
Aircraft Weight and Balance	Pat McIntyre	\$1200	Mon-Wed June 21-23, 2021 10am - 5pm	Register

Upcoming Events

- 80th SAWE International Conference on Mass Properties Engineering Oct 2, 2021 to Oct 6, 2021

SAWE Blog

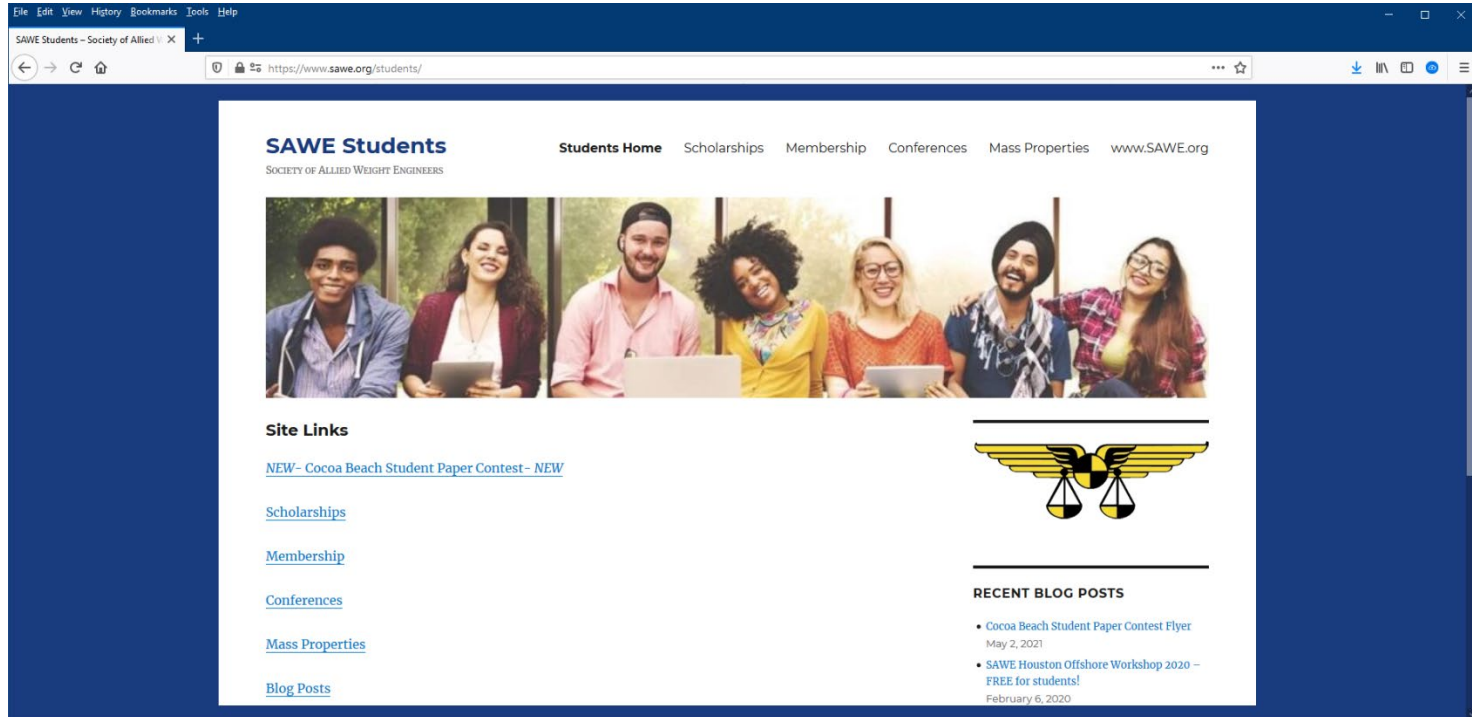
- Standards and Practices: Missiles and Space Second Quarterly Meeting on Friday, June 04, 2021
- Standards and Practices: Military Aircraft Industry Subcommittee Meeting: May 18, 2021
- Public Draft – SAWE TO-2 "Procedure for Developing and Maintaining Documents"
- Missiles and Space Committee Meeting Review
- Preliminary Design Mass Properties Estimation Forum March 26, 2021

[More](#)



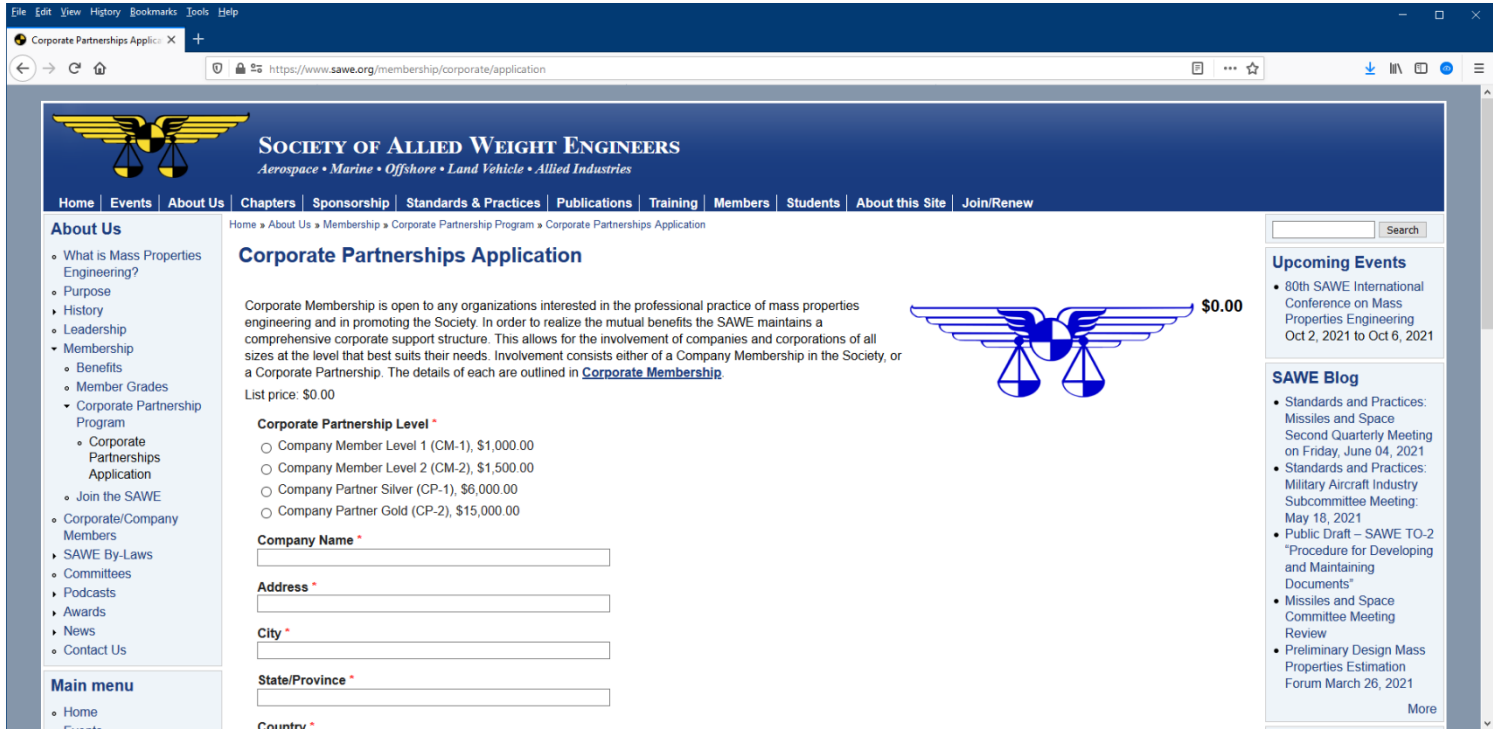
Where can you learn more?

- <https://www.sawe.org/students/>



How can you partner with us?

- <https://www.sawe.org/membership/corporate/application>

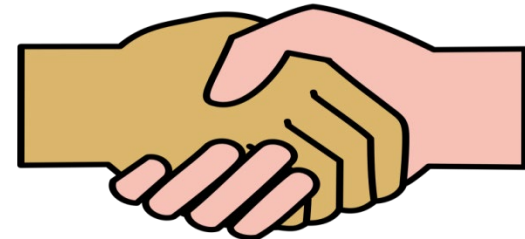
A screenshot of a web browser displaying the SAWE Corporate Partnerships Application page. The browser's address bar shows the URL "https://www.sawe.org/membership/corporate/application". The page has a dark blue header with the SAWE logo and the text "SOCIETY OF ALLIED WEIGHT ENGINEERS Aerospace • Marine • Offshore • Land Vehicle • Allied Industries". A navigation menu includes links like Home, Events, About Us, Chapters, Sponsorship, Standards & Practices, Publications, Training, Members, Students, About this Site, and Join/Renew. The main content area is titled "Corporate Partnerships Application" and includes a description of corporate membership, a list price of \$0.00, and a section for "Corporate Partnership Level" with radio button options for Company Member Level 1 (\$1,000.00), Company Member Level 2 (\$1,500.00), Company Partner Silver (\$6,000.00), and Company Partner Gold (\$15,000.00). Below this are input fields for Company Name, Address, City, State/Province, and Country. The left sidebar contains an "About Us" section with links to various topics and a "Main menu" with links to Home, Events, and more. The right sidebar features "Upcoming Events" and a "SAWE Blog" section with links to various articles and a "More" link at the bottom.



Come and Join Us as a Corporate Partner!

- **Gain access to key Mass Properties experts and decision makers from around the globe**
- **Help us keep our critical discipline alive and well**
 - Encourage your employees to become members
 - Support them in writing technical papers
 - Send them to conferences and training
 - Sponsor our conferences and training program
- **Boeing and SAWE share the same goals for excellence in Mass Properties Engineering**

Help Us Help YOU!



Questions?

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International President

Society of Allied Weight Engineers

(636) 578-5230

damian.yanez@sawe.org

Society of Allied Weight Engineers, Inc.



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