

# 67th International Conference on Mass Properties

**Conference Announcement**  
**Seattle**  
**May 17-22, 2008**

Seattle Renaissance Hotel



***Society of Allied Weight Engineers, Inc.***

*Serving the Aerospace - Shipbuilding - Land Vehicles and Allied Industries*

[Seattle.SAWE.org](http://Seattle.SAWE.org)



## 67th International Conference on Mass Properties - May 17-22, 2008



**Eric Petersen**  
**International SAWE President**  
**MTS Systems Corporation**

I am pleased to invite you to attend the 67<sup>th</sup> Annual International Conference for the Society of Allied Weight Engineers in Seattle, WA .

This year our conference is hosted by the Seattle Chapter – an experienced group having previously hosted in 1987 and 1997. This chapter has a great mix of new and experienced members who will ensure the Pacific Northwest's beautiful surroundings and rich tradition in aeronautical engineering will be interwoven into all facets of the conference.

The conference will be held at the Seattle Renaissance Hotel in Downtown Seattle. From the hotel, it is about a 20 minute walk to most of the Downtown attractions like Pike Place Market, Pioneer Square, and the Seattle Art Museum. It is only a bit further down the hill to the shops and ships along the Seattle waterfront or a short monorail ride over to the Seattle Center and the landmark Space Needle.

We are first and foremost a technical organization. The Vice President/Technical Director, Government Industry Chairman and VP Training will lead a committee that will provide a professional forum for an exchange of technical papers, presentations and discussion that continue to further our knowledge and application of mass properties engineering.

Vendors and Sponsors from around the world will be on hand to showcase their products and services. On behalf of the entire organization, we thank these companies for their generous contributions which help improve the overall quality of our conference. Please visit them to learn more about their innovative solutions.

Events are planned for every day that will showcase the best Seattle has to offer. Guided tours will take us across Puget Sound, throughout downtown and of course, no visit to Seattle would be complete without a tour of the Boeing production facility in Everett which will be ramping up delivery of its new B787 Dreamliner.

Our conference will conclude on Wednesday May, 30 with an Awards Banquet where we honor those deserving members and chapters that have distinguished themselves by their dedicated service to the society. In addition, we announce the scholarship recipient and best paper award for the conference.

On behalf the international office and organizing committee, we endeavor to deliver a program that will advance your mass properties knowledge and create an atmosphere to enable you to catch up with old friends while making new ones along the way. I look forward to seeing you in the emerald city of Seattle this May.



## 67th International Conference on Mass Properties - May 17-22, 2008

**Edward Davis and Patrick Mitchell**  
**Conference Co-Chairmen**  
**The Boeing Company**



The Seattle Chapter of SAWE warmly welcomes SAWE back to the United States after a wonderful (truly international) conference in Madrid in 2007. The 2008 Conference will be in Seattle, Washington, constantly voted as one of the United States' most-livable cities. Like previous conferences hosted in the Seattle area in 1997 and 1987, you will find that Seattle is a wonderful host location for the conference. Seattle and Boeing have been inter-related since the early days of aviation, and this relationship and history is evident throughout the region today.



The conference will be held at the Seattle Renaissance Hotel in Downtown Seattle. From the hotel, it is about a 20 minute walk to most of the Downtown attractions like Pike Place Market (watch out for flying fish!), Pioneer Square (the original location of "skid row"), and the Seattle Art Museum. It is only a bit further down the hill to the shops and ships along the Seattle waterfront or a short monorail ride over to the Seattle Center and the landmark Space Needle.

We are assembling tours to most of these places during the week to enjoy the best parts of Seattle. In addition, we will be boating to the Tillicum Village on Blake Island to experience a traditional Native American salmon bake and cultural experience. For a 21<sup>st</sup> century Seattle experience, we are also arranging a Wet-Your-Whistle Beverage tour that will visit a local coffee roasting plant, brewery, and winery.

We have also planned a VIP tour of the Boeing Everett plant (home of the 747, 767, 777, and 787 Dreamliner) and a visit to the nearby Future of Flight Museum. Boeing and Seattle are very proud of the 787, and we are very excited to show off the airplane and facilities.

We have a very energetic committee putting on this year's conference, and we know that you will find that this is a truly great SAWE Conference. Come to Seattle for the 2008 Conference, enjoy the tours, and consider staying (before or after) to enjoy the wonderful things that make the Pacific Northwest so unique. Come and learn why we love it here in Seattle!



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**Vendors and Sponsors**



**Gerry Tschabold**  
**Vice President Vendor Relations**  
**Navy Department (USN) - Naval Air Systems Command**

On behalf of the International Society of Allied Weight Engineers, I invite all companies, large and small, to participate as exhibitors and sponsors at the 67<sup>th</sup> International Conference on Mass Properties in Seattle, Washington. Since not every company was able to participate in our 2007 conference in Madrid, we have allocated very generous exhibit space at this conference, and we expect a large number of exhibitors. Seattle has been host to several very successful conferences and is one of our most popular conference sites. Vendor company representatives bring conference attendees an awareness of the newest concepts, products, and services offered in all technology areas and transportation sectors. Each exhibitor will have a table or booth in the Exhibit Area at the Seattle Renaissance Hotel in downtown Seattle and may make a brief presentation in one of the Technical Tracks.

This year, more than 150 companies will have been extended invitations to participate in our Conference. We expect that scale and balancing machine manufacturers, composites and advanced materials suppliers, computer software developers, and hardware vendors will attend. We also expect many vendors who are based outside the continental United States, including those who were in attendance in Madrid. You are encouraged to visit these displays and discuss the products and technologies with the attending representatives. Vendor-provided literature, samples, and software demonstrations will be available to take back to work to share with colleagues.

Vendors: if interested in participating as a Vendor, Sponsor, Technical Paper/Presentation Author, or would like to offer a Vendor Training Course, please visit the website, [www.sawe.org](http://www.sawe.org), contact the Host Chapter Vendor Coordinator, Mr. Bill Griffiths, [billgriff10@yahoo.com](mailto:billgriff10@yahoo.com) (425) 883-2098, (310) 367-4134 (cell) or contact me at the following: [gerald.tschabold@navy.mil](mailto:gerald.tschabold@navy.mil); (301) 342-0216 or (757) 582-5077 (cell)

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**67th International Conference Host Committee - Seattle Chapter**

Robert Gilchrist	Seattle Chapter Director	The Boeing Company
Colleen Cranston	Seattle Chapter President	The Boeing Company
Reed Moss	Seattle Chapter Vice President	The Boeing Company
Ryan Kwaterski	Seattle Chapter Treasurer	The Boeing Company
Gail Zittel	Seattle Chapter Secretary	The Boeing Company
Edward Davis	Conference Co-Chairman	The Boeing Company
Patrick Mitchell	Conference Co-Chairman	The Boeing Company
Allan Balliett	Registration	The Boeing Company
Robert Baum	Speaker Coordinator	Retired
Colleen Cranston	Social Events Co-Chairman	The Boeing Company
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Gail Zittel	Social Events, Publicity, Photography	The Boeing Company



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### Technical Tracks



**Thomas M. Schultz**  
**Vice President - Technical Director**  
**The Boeing Company**

Since its inception in 1939, the purpose of the SAWE has been to promote the exchange of technical information and new ideas in Mass Properties Engineering. The SAWE International Conference is the annual meeting that brings together mass properties professionals from throughout the world. These dedicated men and women work in close cooperation with and address the needs of industry, government, and other engineering and manufacturing organizations. The 2008

Technical Tracks are a result of input from these mass properties professionals with the combined efforts of the International Officers, the 2008 conference committee, and the Technical Committee.

We, as engineering professionals, again have the opportunity to learn firsthand about important initiatives, research, and the latest developments in our discipline through specialized technical tracks and discussions. Since ours is a community of practicing engineers as well as a unique engineering discipline, this interchange is a special opportunity for all of those who participate. We especially encourage young engineers to take the opportunity to learn directly from more experienced peers and colleagues. This conference is a forum for individual presentations and panel discussions on applied mass properties technology for the design, manufacturing, testing and utilization of air, land, sea and space vehicles and their associated systems/subsystems.

The first and third days of the conference will consist of eight different technical discussion tracks. The supplier exposition again offers all attendees the opportunity to view new products, technology and processes firsthand. This conference is the only one of its kind in the industry and always provides the opportunity for broadened personal contact with other members of the profession and leaders in industry and government(s).

**Projected Technical Papers** (an updated list will be maintained at [www.sawe.org](http://www.sawe.org)):

#### **Monday, May 19**

- 3436 Instant CG  
*Amith Kalaghatagi - GEC*
- 3437 Development and Implementation of a Space Systems Mass Properties Process  
*Jesse Peterson - ATK Launch Systems*  
*Otto Ratz - ATK Launch Systems*  
*Angela Trego - ATK Launch Systems*
- 3438 Making the Transition from the Comfort Zone to the Unknown  
*Todd Brown - General Atomics*  
*Richard Raines - NAVAIR*  
*Gerry Tschabold - NAVAIR*
- 3442 Knowledge Management in a "Need to Know" Environment  
*Alan Jordan - The Boeing Company*
- 3445 The Mass Properties Toolkit  
*Brad Becker - The Boeing Company*  
*Neil Zimmer - The Boeing Company*
- 3448 The Role of Effective Mass Property Management in a Global Product Creation Process  
*Claudia Heim - usb*  
*Holger Pertermann - usb*
- 3450 Boeing Usage of FEA-Based Structural Optimization Software  
*Greg Rucks - The Boeing Company*
- 3451 Evaluation of the Requirement to Measure the Distance Between Landing Gear When Weighing Aircraft  
*Ed Davis - The Boeing Company*
- 3452 Queuing Analysis Methods for Decision Making  
*Pat Brown - Cessna Aircraft Company*



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**Wednesday, May 21**

- 3438 Making the Transition from the Comfort Zone to the Unknown  
*Todd Brown - General Atomics*  
*Richard Raines - NAVAIR*  
*Gerry Tschabold - NAVAIR*
- 3439 The 747 Large Cargo Freighter Loading Schedule  
*Joyce Nugent - The Boeing Company*
- 3440 E-Standards for Mass Properties Engineering  
*Jeffrey Cerro - NASA Langley Research Center*
- 3441 Utilizing the Advantages of RFID Technology in Weight Engineering  
*Corrie Gowland - The Boeing Company*  
*Melissa Marszalek - The Boeing Company*
- 3443 Overhead Space Utilization in Long-Range Commercial Aircraft  
*Ralph Druckman - The Boeing Company*
- 3444 Using Carbon Fiber to Create Thermally Conductive Sandwich Panels  
*Tim Dardis - The Boeing Company*
- 3446 Weight Engineer Responsibility, Authority and Accountability  
*Ken LaSalle - The Boeing Company*
- 3447 Developmental and Operational Considerations of the 747 Dreamlifter  
*Ryan Kwaterski - The Boeing Company*
- 3449 How to Design a Fuel System for a Modern Combat Aircraft from an FCS Point of View - Lessons Learned  
*Roland Reinartz - EADS Deutschland GmbH*
- 3451 Evaluation of the Requirement to Measure the Distance Between Landing Gear When Weighing Aircraft  
*Ed Davis - The Boeing Company*
- Pres E/A-18G - A New Dog in the Fight  
*Joe Ramey - The Boeing Company*
- Pres New Generation Load Control Systems  
*Tom Farncombe - Amadeus Corporation*



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**Government / Industry Workshops**



**Jeffrey A. Cerro**  
**Government/Industry Committee Chairman**  
**NASA Langley Research Center - USA**  
**jeffrey.a.cerro@nasa.gov**

International Mass Properties Engineers in all disciplines will be very interested in attending this year's Government/Industry workshop. It has been a long time coming but, based upon recent industry comment and government experience the process of maintaining and creating U.S., as well as International, standards and best practices for engineering in general is under a state of proactive retrospection. SAWE has been an active part of the standards process before, during, and now after the early initiatives of U.S. acquisition reform goals. We understand how to participate in the modern process of creating industry/professional society based Voluntary Consensus Standards and can be a leader in making the process productive for us and all government/industry stakeholders. Our systems engineering based "Top Level Functional Recommended Practice (FRP)" is now at a draft state and should be available for broader membership review after the G/I day meeting. Discussion of this document as well as discussion on sub-tier documents pertaining to both Mass Properties Engineering "generic" and "technically specific" best practices will occur in the G/I workshop. Additional topics subject for status presentation may include Training Initiatives, Website development, and the SAWE Handbook. SAWE hopes to see many contributors and generally interested participants at this year's G/I meeting. Vendors, please note that the definition of a consensus standards development process means your ideas are of primary importance to the creation of modern standards and your participation is encouraged.

**Planned Government/Industry Day Summary of Events:**

**Joint Session:**

The morning session on G/I day (Tuesday) will be a joint session where all transportation sectors meet together to listen to the past years activities and discuss advancement of those or other initiatives. Invited speakers have been solicited from industry to obtain input on recent initiatives related to the general fields of Mass Properties Engineering and Engineering Standards. A new SAWE Recommended Practice document hierarchy and associated proposed controlling FRP, "Mass Properties Control and Management for Commercial and Military Vehicle Systems" will be presented.

Reporting / discussion is also planned for the following topics:

- The status of "bottoms-up" recommended practice development in the areas of:
  - on-board weight and balance
  - measurement accuracy
  - vendor weight control
- The status of SAWE textbooks and handbooks
- SAWE website developments
- Future Standards - E-standards, Simulation and Object Oriented Programming



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### **Transportation Sector Breakout Sessions:**

In the afternoon of G/I day we will break into our traditional transportation sector based groups so that each of those groups may focus on activities which are more specific to their particular products. The breakout meetings scheduled for this year are:

- Marine Systems
- Airline Affairs
- Military Aircraft
- Missiles and Space Systems
- Ground Systems

Toward the end of the afternoon we will reconvene in a joint session to hear a summary of accomplishments from the breakout sessions and to summarize our goals for SAWE year 2008-2009. Any conference participant interested in attending a breakout session is welcome to participate and gain more in-depth knowledge of a particular group's activities.

### **Government/Industry Luncheon:**

The Government and Industry luncheon is an excellent opportunity to attend a talk given by a renowned government or industry representative. The luncheon is open to, and should be of interest to, all conference participants. This year's distinguished speaker is yet to be announced.

Note: If you have questions or comments regarding this year's G/I activities please contact me at the above email address.



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### Training Program



**Andy Schuster**  
**Vice President - Training**  
**Northrop Grumman Newport News**

At the 67<sup>th</sup> Annual Conference, we offer the following classes for your professional development. The classes are offered to expand your expertise as a Mass Properties Engineer (MPE), so we hope that SAWE members will take classes in fields other than their own area of expertise or industry. The classes consist of lectures, exercises, and discussion. Each student will receive a copy of the training materials and a certificate upon completion. Some classes require that students bring their own laptop.

#### **Airline Fuel Conservation - NEW!**

*Dave Anderson, The Boeing Company, Seattle, Washington*

This half-day course explores and discusses the various operational elements possible for a typical airline fuel conservation effort. Fuel is one of the major expenses and concerns for the operation of commercial jetliners. This first part of this course will include discussions on operational methods used to reduce fuel consumption, to include weight reduction, fuel reserves determination, speed and altitude selection, airplane loading, optimized routing, fuel tinkering, re-dispatch, and flight crew fuel consumption reduction techniques. The second part of this course will discuss maintenance practices for fuel conservation. Discussions include the impact of zero fuel weight management, airframe maintenance and the impact on airplane drag, engine maintenance and specific fuel consumption, and airplane systems maintenance.

#### **Structural Analysis/Optimization**

*Brett Anderson, P.E., SAWE Fellow, The Boeing Company*

This is a full-day class that covers structural design and analysis considerations and their impact on Mass Properties. This course is for working engineers outside of the Stress or Loads organizations to provide insight into the decision tools and processes affecting structural integrity. Specific emphasis will be given to identify and explain the typical methods utilized by Structural Analysts and how these can sometimes adversely affect the optimization of the structure. Illustration of several accepted practices and their impact will be covered in the case studies. This course will also provide public domain strength and material-related references including but not limited to: FAA Metallic Materials Properties Development and Standardization (MMPD). This document also represents the last version of Mil Hdbk 5 ref, release MIL-HNDBK-5J.

#### **Helicopter Conceptual Design**

*Lou Lucero, SAWE Honorary Fellow, The Boeing Company - Retired*

This full-day class is intended to provide an understanding of the helicopter, how it flies, and how to create an appropriate weight estimate. This will be done using a lecture and a class exercise. The lecture topics include: Mission Definition, Top-Level Mission Requirements, Weight Estimate Creation and Usage During the Design Process, Power and Fuel Requirements Estimation, and Basic Flight Controls and Performance. The class exercise will assume the launch of a new design helicopter with a given mission requirement and will require the student to size a rotor, provide an inboard profile sketch, and estimate performance.

#### **Airline Weight and Balance Operations**

*Tony Kiscellus, American Airlines, Dallas, Texas*

This one-day class will discuss weight and balance topics as they relate to Airline Operations. A majority of the class time will be spent covering airline procedures for developing and controlling weight and balance for aircraft fleets as well as individual flight operations. This class will address the development and application of computerized weight and balance systems used by the largest airlines, and also the development and application of localized manual weight and balance systems used by some regional carriers. Discussions will include a comparison of the two systems. Air Transport Association (ATA) standards and applicable Federal Aviation Regulations (FAR) will be reviews as well as how airlines comply with these rules. The class will provide a step-by-step demonstration and explanation of how an airline prepares for the introduction of a new aircraft into service, and also the dynamics of how the limitations are applied and interpreted to maximize the revenue potential of each aircraft type. Statistical analysis and substantiation of average weights that airlines use for passengers and baggage will also be covered. This class is intended to provide the students with an understanding of weight and balance concepts and their application to airline operations.



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### **Airline Fleet Weights vs. Individual Weights Program**

*Tony Kiscellus, American Airlines, Dallas, Texas*

This half-day class will review the rules (as revised by AC120-27D) associated with operating under fleet weights and individual weights. A comparison of procedures and a review of the pros and cons for each concept will be conducted. Other topics of discussion include a review of the intricacies of individual weight and CG tracking, the establishment of fleet weights and unaccountable growth application, and a fleet weighing schedule. Examples will be provided to assist in the establishment of a method for inclusion in an operator's FAA approved Weight and Balance Program.

### **Airline Operational CG Curtailments**

*Tony Kiscellus, American Airlines, Dallas, Texas*

The instructor has tailored this one-day class specifically for SAWE to address the weight and balance aspects of airline operations. His perspective as an airline dispatcher with everyday experience makes this course material very attractive to mass properties engineering. The course's principles and approaches are applicable across industry and product fields. Students learn about the technical practices needed to ensure safe balance criteria in the highly dynamic conditions of airline operations. **Students should bring a laptop with MS Excel to the class.**

### **Measuring Mass Properties**

*Wayne Clay, Lockheed Martin, Forth Worth, Texas*

This full-day class will include classroom discussion and laboratory exercises on how to measure mass, center of gravity, Mass Moment of Inertia (MOI), and the calculation of the Product of Inertia (POI). The classroom work will include fixture design, torsion pendulum calibration, MOI measurement, bifilar pendulum measurement, and simple calculation methods of MOI, POI, and radius of gyration. The laboratory exercises will include the measurement and determination of MOI and POI using a torsion pendulum, bifilar pendulum, and a modern tabletop spin balance machine. The instructor will provide steel frame pendulums, and a vendor has graciously volunteered to loan a spin balance machine. The class is intended as a refresher and introductory class for anyone interested in seriously measuring all of the mass properties of an object.

### **Ship Inclining Experiment**

*Bill Fox, McMullen Associates, Inc.*

This one-day class will discuss inclining a vessel to determine its displacement (weight) and centers of gravity. The primary emphasis will be on inclining in water, but inclining in air will also be covered. A classroom session on theory, procedure, and results of inclining will be held, followed by an actual demonstration of inclining techniques aboard a waterborne vessel. The class objectives are to provide the student with an introduction to the principles of naval architecture and to marine terminology, and to discuss and demonstrate the inclining of a vessel to determine its weight and center of gravity. ASTM F 1321-90, Standard Guide for Conducting a Stability Test, will be used as a text for this class. Students must bring a personal calculator to this class and be dressed appropriately.

### **Mass Properties Management and Control of Military Aircraft**

*Dudley Cate, SAWE Fellow, NAVAIR*

This full-day class will familiarize students with effective control of the weight and other mass properties of an aircraft. The class will also expose students to other considerations associated with mass properties management and control described in SAWERP-07. The primary objective will be to acquaint participants with the major considerations for successful weight control during the development phases of a program, to include: concept exploration, demonstration, validation, and full-scale development. These major elements incorporate planning, organizing, staffing, subcontractor control, requirements allocation, risk reduction, data collection, analysis, tracking, controlling, weight reduction programs, validation verification, and test support.

### **Aircraft Weight Estimating based on RP 8**

*Dudley Cate, SAWE Fellow, NAVAIR*



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### **Aircraft Weight & Balance Course**

*Tom Oole, United States Air Force - Retired*

This course assumes a basic knowledge of weight and balance. The class will demonstrate and teach proper procedures for weighting and completing forms for military aircraft. The intent of this class is to provide the student with an understanding of the weight and balance system within the United States Air Force and "pitfalls" involved in weighting aircraft. Students should bring basic calculators, paper, etc for the use of examples and exercises. Students should also dress appropriately for the trip to the aircraft hanger. Wear rubber-soled, closed-toed shoes.

### **Automated Weight and Balance System (AWBS) Software Training**

*Steve Kross, United States Air Force - Retired, Las Vegas, Nevada*

This one-day class will present all of the new features of Version 9.2 of the US Air Force's Automated Weight and Balance Software in a hands-on training class. The class will begin with a discussion of the terms and developmental history of AWBS, minimum system requirements, and software installation. The basic approach of the class is to give computer demonstrations followed by student exercises that will provide the students with a good understanding of AWBS Version 9.2 features. Students will receive a complete overview of the software features to support weight control programs for military aircraft. The instructor will also allow time to address specific AWBS needs and questions of the students. **Students are required to bring their laptop computer with a licensed copy of AWBS already installed to the class.**

### **Marine Weight Control - based on SAWE RP 12 & 14 - NEW!**

*Dominick Cimino, SAWE Fellow, NAVSEA*

This half-day class will focus on weight control of marine vessels. There will be an in-depth review of the fundamentals of weight control. Students will learn how to identify weight margins for Naval surface ships, and will also learn about submarine weight control and stability. The processes covered in the class include weight estimate preparation, weight margin design and creation, and weight trend tracking. Appropriate weight control required for the life cycle of a ship, from early stage design through deactivation under typical NAVSEA cognizance, will also be discussed. Students should review Chapter 24 in the Weight Engineers Handbook and SAWE RP 12 located on sawe.org prior to taking this class.

### **Marine Systems Weight Estimation Methods - based on SAWE RP 14**

*Andy Schuster, SAWE Fellow, Northrup Grumman, Newport News, Virginia*

This half-day class will cover the fundamental and practical methods of estimating the weight for marine systems. The class will review weight estimating methods described in SAWE RP 14 "Marine Weight Estimating and Margin policy Guidelines," followed by practical examples. The class will cover the theory and application of these methods on specific examples for whole ship design. Students will develop practical examples of method usage. Students will develop a ship weight estimate for a 200-foot ship by the end of the class. Students should review SAWE RP 14 located on sawe.org prior to taking this class.

### **Exhibitor Technology Classes**

*Various*

These two-hour classes are intended to provide mass properties engineers a more-detailed briefing about new technology and overviews that cannot be covered in technical papers. The Seattle Chapter hopes to have several "Exhibitor Technology Classes" or overviews from various industries at the conference. We are working with exhibitors to provide classes on ship design software, composite materials, mass measurement, and regulatory bodies. If you are a vendor who plans to exhibit at the Seattle Conference, please consider teaching a short professional class on the technology of your industry. Please contact us about your interest.



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**Social Events**

**Sunday - 18 May 2008 - Seattle Center**

**Ride the Ducks - Day Event**

You haven't seen Seattle until you've seen it from a Duck! The Duck will pick us up at the hotel and give us a 1.5 hour land and sea tour of Seattle. We will see Pike's Place Market, Pioneer Square, Fremont, and downtown Seattle from the street and then splash into Lake Union to explore Seattle from the water, including a sight of the famous Seattle houseboats (including the houseboat from Sleepless in Seattle)!



photo courtesy of seattleattractions.com



Photo courtesy of Gail Zittel

**Seattle Space Needle - Day Event**

After the tour, we will walk across the street to have lunch at the Space Needle! Enjoy a delicious lunch and Seattle's famous skyline from one of the best vantage points in the city. Included is a trip to the observation deck where you can read about the history of Seattle and of Washington State. And used the interactive video cameras to explore close-up views of Seattle, Lake Washington, Mt Rainier, and even Mt St Helens and Mt Adams on a clear day!

**Experience Music Project & Science Fiction Museum - Day Event**

After lunch, we will visit the Experience Music Project and Science Fiction Museums. Discover your inner musician and walk through Hollywood's portrayal of the future! Learn about milestones in music and the diversity of music across history. Interactive exhibits allow you to discover your inner musician! The Science Fiction Museum and Hall of Fame houses items like the coneheads masks, Star Trek phaser pistols, Captain Kirk's command chair, a scale model of the Death Star used in filming, and even Klaatu the Robot. See how Hollywood and popular culture have portrayed the future and let yourself remember how you watched all those science fiction shows in the past!



Photo courtesy of seattleattractions.com

After the museums, we will hop onto Seattle's Monorail for a 20-minute ride to Pacific Place, Seattle's premier shopping locale, and then we will have a short walk back to the hotel. This event will take approximately 6 hours. Please be advised that this tour does include walking. The majority of the tour will be gentle walking, but there will be some uphill walking also.

**Monday - 19 May 2008 - Pioneer Square**



Photo courtesy of cityofseattle.net

**Pioneer Square - Day Event**

Take a trip down to Historic Pioneer Square to do some shopping! Wander Pioneer Square on your own to visit the Smith Tower, Seattle's first sky scraper, or see a Seattle landmark in Utili-Kilts, or even have some chocolate at The Rocky Mountain Chocolate Factory. There are many shopping venues in and around Pioneer Square that range from local foods to clothing to toys. But if shopping isn't for you, check out some of the museums in the area, to include the Gold Rush Museum and Smith Tower (which is MY favorite view of the city

by the way). Enjoy a nice lunch and then meet the rest of the tour group under the Pergola for the Underground Tour!



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### Underground Tour - Day Event

See where Seattle REALLY began! Like a lot of older cities, Seattle's current street level used to be on the second story. Come down to Pioneer Square and take a tour of Seattle's Historic Underground, where storefronts used to be. Discover Seattle's colorful history and learn why the streets became as complicated as they are today. Enjoy the first few minutes of the tour in Doc Maynard's Public House and then walk through history! This tour lasts approximately 2 hours.

The Day Event will last approximately 6 hours and will include transportation back to the hotel. We will walk to Pioneer Square as a group, or you may get there on your own. Please be advised that most of this day will be spent on your feet. Although return transportation hotel is provided, the Underground Tour is a walking tour that requires climbing some stairs.



Photo courtesy of Gail Zittel

### Tillicum Village - Evening Event



Photo courtesy of tillicumvillage.com

What is more stereotypical Pacific-Northwest than a visit to Blake Island and Tillicum Village? We will take a short boat ride from the Seattle Waterfront across Puget Sound to Blake Island. Upon arrival to Blake Island, we will sit down to a traditional Native American salmon bake and a wonderful 'Dance on the Wind' stage show featuring Northwest Coast First Nations dances and legends. Dinner includes salmon, clams, potatoes, vegetables, rice, bread, several toppings and garnishes, and dessert. Chicken may be requested for those unable to eat seafood. Transportation to and from the hotel is included.

The tour is approximately 4 hours and begins at 6:30 pm. Departure from the hotel will be at 6 pm.

## **Tuesday - 20 May 2008 - Pike Place Market**

### Pike Place Market Food Tour - Day Event

Walk through Seattle's famous public market that has over 100 years of history all dating back to the price increase for an onion. Taste some of the market's delicious foods and learn about its history. Watch some flying fish, and it may be wise to duck every once in a while! Pike Place Market is full of all sorts of odds and ends, from World War II propaganda posters to ice cream parlors to gourmet cheese and wine shops. This 2 hour walking tour provides each participant with a personal audio device to hear the tour guide over the noisy market-goers. You will taste some of the foods from the various shops, and any food allergies will be accommodated by the tour guide so that everyone may enjoy something from every stop along the tour.



Photo courtesy of Stephanie Gauthier

At the end of the tour, we will remain in the area for another few hours for those people who had something yummy on the tour and want to go back for more or those who would like to do some general shopping. Pike Place Market is one of the busiest places in all of Seattle, so even if you don't enjoy shopping, there are many restaurants, coffee shops, tea shops, and even breweries around the market to keep you busy! Seattle Center, The Space Needle, the Seattle Aquarium, and the Seattle Art Museum are all only a short walk away if you would prefer to explore those also.

Transportation is not provided for this tour. We will walk from the hotel to Pike Place Market and then back to the hotel, so bring your walking shoes! Please note that it is approximately a 20-minute walk each way and includes some uphill walking. Seattle was built on the side of a hill, but we have chosen the gentlest hills to climb for our walks.



## 67th International Conference on Mass Properties - May 17-22, 2008

### Wednesday – 21 May 2008 – Winery Tour

#### Wet Your Whistle Beverage Tour - Day Event

Everyone knows that Seattle is renowned for its coffee, but we have other beverages here also, wine and beer! The Columbia Valley is home to several world-class wineries and even a few breweries. The only brand of beer that you'll recognize around Seattle if you're new to the area is Guinness, so be prepared to try some new things on this tour. We will visit a local coffee roaster and learn how they produce their delicious coffee and even sample some. Then we will take a tour of a great Northwest brewery, learn about their brewing process, and enjoy a few of their beers. Lastly, we will drive over to Chateau Ste Michelle Winery and discover how they've adapted French grapes to grow here in the Pacific Northwest. And of course we will have a taste of some of their famous wines. Not to worry, lunch will be provided with the tour.

Photo courtesy of ste-michelle.com



Transportation is provided with this tour, but some walking will be required for each tour. This tour will last approximately 6 hours.

### Thursday – 22 May 2008 – Boeing Tour

#### Boeing Everett Factory VIP Tour - Day Event

Come and tour the largest building on Earth by volume! Oh, and see Boeing's new 787 also. We will start off the day by visiting Boeing's Future of Flight Museum. Stand next to a real 747 vertical tail and realize just how huge this airplane really is. Learn about some of the new materials that are being used on the 787. Even have your first look at a full-scale model of the passenger cabin of the 787! Or step over to one of the computer terminals and design your own airplane!



Photo courtesy of boeing.com

Then we'll drive across the street for a special VIP tour of Boeing's Everett Factory, home to the 747, 767, 777, and 787 assembly lines. We will walk the floor of the factory, and you'll have an up close and personal view of the new 787. We'll see what new technologies are being used to assemble the 787 versus those that are being used on the nearby 777. This is a once-in-a-lifetime offer that is not available to the general public. Cameras are not permitted inside the factory. Closed-toed shoes only.

**All attendees must submit name, company, and citizenship (passport or photo ID) for a security check upon registration.**

Transportation to and from the hotel is provided for this tour, but walking is required in both the museum and the factory. This tour will take approximately 5 hours. We will depart the hotel at 8 am. The factory tour begins at 11 am. Please be advised that if you plan to leave Seattle on Thursday, book your flight after 3:30 pm.

#### ***Additional Seattle-area Sites and Attractions***

Woodland Park Zoo	International District	Museum of History and Industry	Seattle Mariners Baseball
Tacoma Glass Museum	The Museum of Flight	Pacific Science Center	Seattle Aquarium
Seattle Children's Museum	Seattle Art Museum	Kubota Japanese Garden	Smith Tower

#### ***Additional Out of Town Sites and Attractions***

Victoria, British Columbia	Mount Rainier	North Cascades National Park	Tacoma Glass Museum
Vancouver, British Columbia	Mount St Helens	Snoqualmie Falls	Washington History Museum
Port Townsend	Olympic National Park	Washington Ferries	Leavenworth



67th International Conference on Mass Properties - May 17-22, 2008

**Conference General Schedule**

	<b>Saturday</b>		<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>
<b>Morning</b>	BOD Meeting	Training	Training	Training and Technical	Training and G/I Sessions	Technical	
<b>Afternoon</b>		Training	Training	Training and Technical	G/I Luncheon	Technical	
<b>Evening</b>			Mixer				Awards Banquet

**Social Events General Schedule**

	<b>Saturday</b>	<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>
<b>Morning</b>		Ride the Ducks, Space Needle	Pioneer Square Shopping	Pike's Place Market Tour	Wet Your Whistle Beverage Tour	Future of Flight Museum and Boeing Factory Tour
<b>Afternoon</b>		EMP and Science Fiction Museum	Underground Tour	Pike's Place Market Shopping		
<b>Evening</b>		Opening Reception	Tillicum Village Dinner		Awards Banquet	



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## 67th International Conference on Mass Properties - May 17-22, 2008

### General Information

#### Location

The 67<sup>th</sup> Annual International Conference will be held at the Renaissance Hotel in Seattle, WA.

#### Accommodations

Seattle Renaissance Hotel  
515 Madison Street  
Seattle, Washington 98104 USA

Phone: 1-206-583-0300  
Toll-free: 1-800-546-9184  
Fax: 1-206-447-0992

<http://www.marriot.com/seasm>

Hotel floor plans may be found on the last page of this announcement.

Be sure to input the SAWE Room Block code **SWESWEA** when reserving a room to ensure that you receive the appropriate rate of \$176.00 per night plus 15.6% tax (total cost \$203.46 per night). Complimentary high-speed internet is available in all guest rooms.

A credit card is required for reservations, and the card must be valid through the check-out date. A room will not be confirmed unless a confirmation number is provided to you by the hotel. Reservations must be received on or before **May 2, 2008**. If reservations are not made by this date, you will not be permitted to use the special SAWE rate.

#### Transportation to/from the Airport

The nearest airport is SeaTac Airport. It is not necessary to rent a vehicle at the airport to get from the airport to the hotel, and you will not need a vehicle during the conference unless you expect to venture away from the hotel on your own.

Unfortunately, the hotel does not have a specialized airport shuttle. They do recommend Gray Line of Seattle for your transportation needs. Gray Line offers a Downtown Airporter bus line whose first stop upon leaving the airport is the Renaissance hotel! The bus picks up at SeaTac approximately every half hour. For more information about this bus service, including schedules, telephone (800) 426-7532 or book online at [www.graylineofseattle.com](http://www.graylineofseattle.com). Bus fare is approximately \$17 round-trip.

Although Gray Line is, by far, the cheapest way to get from the airport to the Renaissance Hotel, there are many other ways. There is a taxi stand just outside baggage claim at the airport, and they will take you to the hotel for approximately \$35. Shared ride shuttles or hired cars can also be booked for various rates. For more information on these options, please visit the Port of Seattle website at [www.portseattle.org/seatac/ground/](http://www.portseattle.org/seatac/ground/).

#### Conference Registration

Conference registration is required for all those who wish to attend the conference technical sessions or training and who wish to receive conference credentials. Advance registration is advised and offers special discounted rates. Registration fees for 2008 are as follows:

3 Day - Members *	\$525
1 Day - Members	\$200
3 Day - Retired Members & Students	\$30
2 Day - Retired Members & Students	\$20
1 Day - Retired Members & Students	\$10

\*G/I Luncheon is included in registration fee

A **late fee** of \$50 will be charged for those who do not register prior to the **May 2, 2008** deadline.



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## 67th International Conference on Mass Properties - May 17-22, 2008

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### **Training Registration**

One full-day class	\$250*
One half-day class	\$125*
One vendor class	\$20*

\* Prices do not include required conference registration fee.

**Students must pay a full conference registration for the day of the class (Monday to Wednesday) and the weekend classes require at least a one-day conference registration. SAWE membership is required for all students.**

Registration must be completed by **May 8, 2008** to ensure your seat in the class but advance registration is not required if space remains after the aforementioned registration date. Class sizes are limited, and enrollment is subject to availability. SAWE reserves the right to cancel or combine classes if registration does not meet the minimum requirements for student interaction.

### **Non-Member Fees**

A \$100 fee will be charged to non-members who wish to attend the conference. SAWE suggests that you instead purchase a membership at \$50, which includes the \$5 enrollment fee, or purchase a membership with the SAWE Handbook on CD for \$75. Membership is \$45 annually.

### **Social Events**

Reservations for special/social events should be made at time of conference registration. Space is limited and is subject to availability. Payment must be received upon request of event registration and will not be confirmed until payment is received. All event registration information will be retained by the Social Events Chairs and may be verified at time of conference check-in if desired. All social events are detailed in this announcement, and prices are listed below.

Sunday Event - Seattle Center	\$100
Monday Event - Pioneer Square	\$35
Monday Event - Tillicum Village	\$100
Tuesday Event - Pike's Place Market	\$50
Wednesday Event - Beverage Tour	\$70
Thursday Event - Boeing Tour	\$50

### **Other Information**

Seattle is well-known for its mild and damp climate. It is often cold and rainy in May, so please bring appropriate attire if you plan to venture out into the city; a light coat and an umbrella are advised. Walking shoes will be preferred for the social events, and some classes and tours require special footwear.

### **Inquiries**

Inquiries about SAWE should be made to the Executive Director.

Ron Fox  
Society of Allied Weight Engineers, Inc.  
5734 Lucia Walk  
Long Beach, CA 90803-4015 USA  
Phone: 562-596-2873 Fax : 562-596-2874  
Email: [ron.fox@sawe.org](mailto:ron.fox@sawe.org)

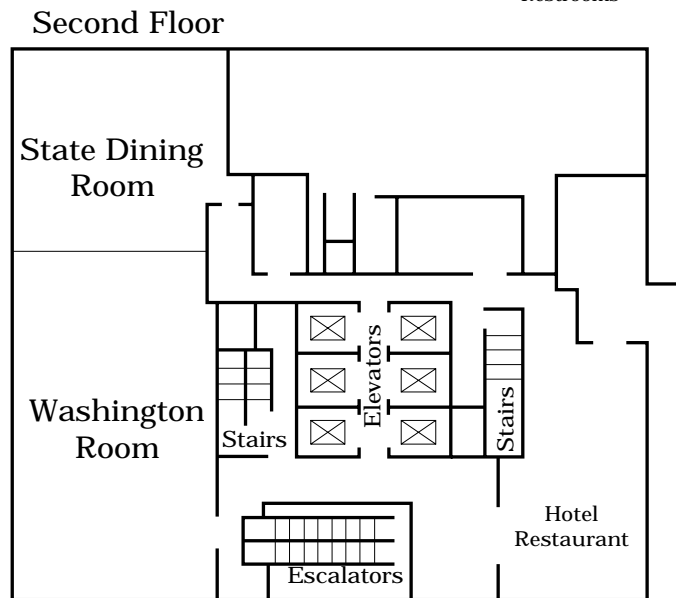
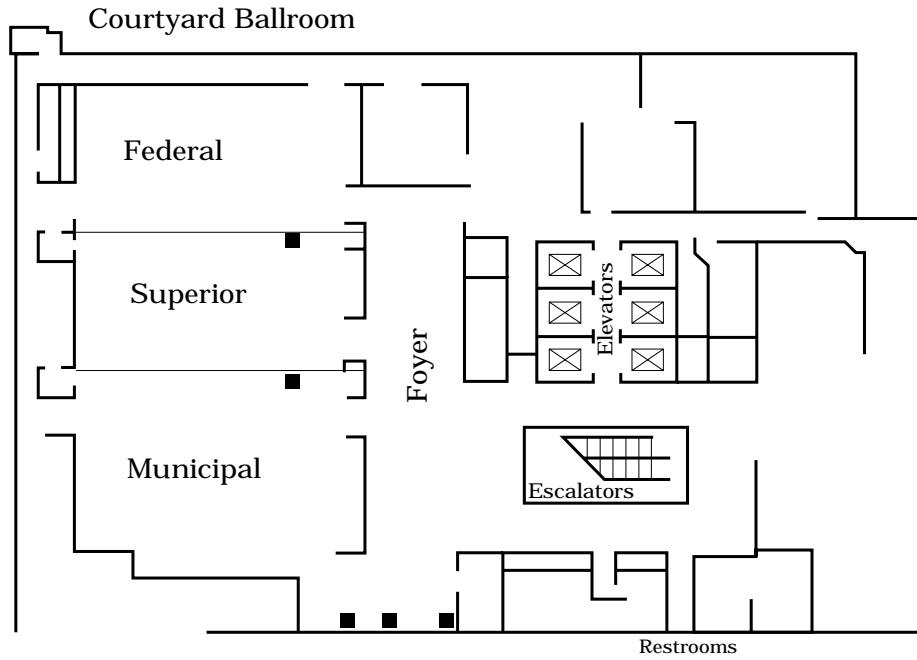
Inquiries about the 2008 Conference should be made to

Edward Davis email: [edward.w.davis@boeing.com](mailto:edward.w.davis@boeing.com)  
Patrick Mitchell: email: [patrick.m.mitchell@boeing.com](mailto:patrick.m.mitchell@boeing.com)



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Seattle Renaissance Hotel Floor Plans:





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