



The Masthead

The Journal of the Westlawn Institute of Marine Technology

Volume 6, Issue 3

Sept. 2012

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Westlawn and ABYC Meet Their Public

Westlawn Institute's Maryland Meet Brings Students
and Faculty Together at the ABYC Office - Page 1

ABYC's First-Ever Boating Safety Clinic - Page 2

Westlawn's Maryland Student Meet

On Saturday and Sunday, July 28 and 29, Westlawn students and guests turned out for Westlawn Institute's sixth annual student meet—The Maryland Meet. Held at Westlawn Institute's parent company, ABYC, in Annapolis, Maryland, the event provided students with the opportunity to meet each other and their instructors and to further their knowledge of boat design.

After morning coffee and breakfast, the guests boarded a bus for a quick ride to the U.S. Naval Academy. There, Naval Academy grad, Gavin O'Hare guided the group on through the Academy grounds, showing everything from the exercise facilities, to the sailing program building and boats, to typical dorm rooms. Gavin made special arrangements for entry to the Rickover building (the engineering building), where Professor Joel Schubbe took the crew to see the two towing tanks, an assortment of wind tunnels and the incredibly detailed and enormous (over 16 ft. long) cutaway model of the destroyer USS Agerholm (DD-826) on deck 2.

From the Rickover building, the Westlawn crew headed to the Naval Academy Museum. Not only did the group get to take in the Rogers Ship Model Collection on deck 3, but many truly remarkable items. These included the captured World-War-II, German Enigma code machine and the Nobel Prize awarded to Albert Michelson along with the half-



Instructors Holohan & Gerr working with students

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Westlawn Drives Down Education Costs - Page 6

Design for Serviceability - Page 13

ABYC's First Annual Boating Safety Clinic



The American Boat and Yacht Council held its **FIRST ANNUAL FREE BOATING SAFETY CLINIC** at the Annapolis Maritime Museum on Saturday, August 25, 2012, just one block from ABYC's headquarters. A dozen boats were checked in-water in the slips behind the museum over the course of 6 hours. The checks included electrical, fuel and ventilation, exhaust, equipment and label areas by qualified marine surveyors who are also ABYC members. The goal of the clinic is to both perform essential safety checks according to the Standards as well as teach the boat owner how and what to check on their boat on an annual basis. Results found in the checklist, and those found in a full marine survey, can save a boat owner time and money. Some of the common items found included: battery positive terminals not protected, chafing fuel lines, leaking exhaust elbows, non-functioning navigation lights and missing CO warning labels.

Boating safety was not only present on the docks, but continued inside the museum as well where silent auction proceeds of more than \$2,000 was raised and where vendors gathered to promote their mission. On-site vendors included The National Safe Boating Council, USCG Auxiliary, BoatU.S., and the Annapolis Fire Boat, just to name a few. John Greviskis of Ship Shape TV was also on-site recording video for future show tapings. "We would have liked to have seen more boat traffic, but considering the afternoon thunderstorms, we were glad to have provided the priceless service to the owners we met," said Nina Ullrich who helped coordinate the event. "The checks are a great way to tell more people about ABYC and its life-saving mission."



ABYC has already set the date for next season's **FREE BOAT CHECKS**: Saturday May 4, 2013 at Port Annapolis Marina, thanks to Port Annapolis and Southbound Rigging. ABYC has the capability of hosting these **FREE BOAT CHECKS** in multiple cities/markets! Do you know of a marina, boat yard, or

Continued next page



A Message From the President of the American Boat & Yacht Council



John Adey

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ABYC®
Setting Standards for Safer Boating

The USCG (among many, many other duties!) is the collector, holder and analysts for the boating accidents in the US. The recreational accidents are reported annually and are available on the USCG Office of Boating Safety's website (www.uscgboating.org). The USCG takes a good hard look at these statistics and develops trends and analysis of what could have prevented the major occurrences. Trying to figure out and prevent these accidents is a huge task for a government agency with a small staff, that's where we can help. Through non-

profit grants, the ABYC is able to take the USCG's statistics, perform research and testing and find a solution to some of these issues. Sometimes the solution is relatively simple; such as increasing the depth of the lowest ladder rung to keep feet out of the propeller area. This is something that most likely will never pass the requirements to become a federal regulation, but is most certainly viable for an ABYC standard. Bottom line, the USCG relies on ABYC to standardize when regulations will not get through the process. If a regulation is needed, however, the USCG also relies on ABYC to put the standard in place to be referenced by the regulation. The most recent example is ABYC's A-33, Engine Cutoff Devices which is referenced in new proposed regulation. This is how standards and regulations work in harmony and depend on each other. ABYC always meets or exceeds the federal regs, so compliance is never a problem! Knowing the difference between a standard and a regulation is important, however. Non-compliance with a standard can definitely result in a lawsuit (in the case of an injury or misuse) but non-compliance with a regulation, now that's a possible recall! As with this and other topics, we're here to help, call anytime!

 [check out ABYC's facebook page](#)

Sincerely,
John Adey, ABYC President

ABYC Boating Safety Clinic - Continued

other location that would be interested in hosting the **FREE BOAT CHECKS?** If so, please call Nina Ullrich at ABYC at 410-990-4460 x 105 or email nullrich@abycinc.org



Westlawn's Maryland Meet - Continued from page 1

silvered/half transparent mirror used in this groundbreaking investigation. Michelson's experiment disproved the existence of aether. It was this work that paved the way for new approaches. It ultimately led to Einstein's special and general theories of relativity.

In the museum basement, some of the Westlawn students were peering into the window to the model repair room. One of the model makers looked out and asked what the group was. Hearing that they were boat-design students, he said, "Come on in." So the Westlawn crew got a wonderful and surprise bonus tour of the model-repair facility with demonstrations and explanations by the model makers themselves.

The Westlawn crew then stopped for lunch and the Drydock Restaurant in Dahlgren Hall, where—in addition to a good meal—the students got to watch the plebes undergoing close-order drill training. After lunch, it was back to the ABYC building. It was a rare opportunity for a guided tour of the Farr design office, with design engineer Chris Cochran answering a wide range of questions. It was a real privilege to glimpse the inner workings of one of the top design firms in the world.



The Westlawn crew at the U.S. Naval Academy "Yard"



A Wright airplane in Dahlgren Hall, one of the earliest airplanes used by the U.S. Navy



Model of the USS Agerholm (DD-826), U.S. Naval Academy Museum

Model Characteristics:

Length 195" (4.953 m), scale 1:24.

Identifier: Navy model catalog #413

Photo by Gibbs & Cox, ca. 1949. Curator of Ship Models archives.

Ship Characteristics:

A Gearing Class Destroyer

Displacement: 2,425 tons full load

Length: 390.5 ft (119 m)

Beam: 41.1 ft (12.5 m)

Draft: 18.5 ft (5.6 m)

Speed: 35 knots (65 km/h)

Complement: 367

The first day's formal program concluded with the Westlawn students again gathering in the ABYC building to review their drawings with Westlawn instructors Eric Holohan and Nick Di Matteo, director Dave Gerr and provost Norm Nudelman. Not only was this a great opportunity to get immediate feedback but also for students to see each other's work. As always, there was "stump the instructor." Students try to pose a question (about boats only, of course) that the instructors can't answer. We haven't been stumped yet, but there's always next year . . .

At 6:30, most of the Westlawn crew gathered for dinner at Federal House on Market Space. Good food, good talk and good drink fortified the group for Sunday's seminar.

Back at the ABYC building on Sunday, day two commenced with a get-together over breakfast followed by a lecture presented by

Continued next page

Westlawn's Maryland Meet - Continued from previous page

naval architect, Chuck Neville. Chuck provided an overview of his entire career in naval architecture, starting with his first design job working for Charlie Morgan. There were numerous examples and slides of Chuck's beautiful designs. A free-flowing question and answer session covered a wide range of technical topics. The attendees were left with much food for thought. Students agreed it had been an entertaining, valuable, and instructive get-together, with a typical comment:

"A very sincere thank you to Norm, Dave, Patti, Nick and Eric for having us all and putting the entire event together and a special thanks to Charles Neville for his time on Sunday.

As an early YD 01 student, I can say this was an enlightening event. Meeting fellow students, graduates and the faculty and finding everyone so enthusiastic about the program was just what I needed. I have arrived back home with a renewed eagerness myself and look forward to continuing my lessons."

The Enigma Machine: This was the German code machine used for war-time radio communications. The Germans considered the code unbreakable even if an Enigma Machine was captured. The U.S. Navy captured a German U-boat with this Enigma Machine aboard. A team of British mathematicians, lead by Alan Turing, then used it to do what the Germans considered impossible. They broke the code, and the Allies were able to read most German communications for the rest of the war. It was one of the pivotal moments of World War II.



Chris Cochran with the models at the Farr design office



Model in the Rogers Ship Model Collection



Instructor Nick Di Matteo (left) reviewing design concepts with Philippe Torres

U.S. Naval Academy's large towing tank. It is 380 ft. long by 26 ft. wide and 16 ft. deep and is fitted with wave-making devices to enable the study of vessels in waves as well as still-water resistance.



WESTLAWN DRIVES DOWN COSTS!

Students Can Save Thousands Of Dollars!

- Wood Foundation Scholarship
- Zero-Interest Tuition Payment Plan
- Free AutoCAD
- Deep Discounts on 3D Software

Westlawn has taken a number of strong steps designed to help lower education costs and assist students to follow their dreams and attain their goals. These steps include the Wood Foundation scholarship and finding ways for students to obtain otherwise expensive design software at low or no cost.

The Wood Foundation Scholarship

The Wood Foundation has generously sponsored a \$1,500 or \$1,000 scholarship (see scholarship details). The Wood Scholarships are available (under the terms of the Wood Foundation donation) to U.S. citizens. Take advantage of this soon! The Wood Scholarships are available to all who qualify, but only until all funds are expended. [Click here](#) for full details of the Wood Foundation scholarship.

The Wood Foundation Scholarship effectively reduces tuition to levels last offered in the 1980s.

Westlawn offers a ZERO-INTEREST tuition payment plan for all four modules of our professional diploma program, Yacht & Boat Design, as well as for our short course, Elements of Technical Boat Design.

Download Westlawn's catalog and enrollment forms, from the Westlawn website to read complete details of the zero-interest tuition payment. [Click here](#) for enrollment forms and [Click here](#) for the Westlawn catalog.

FREE Student AutoCAD!

Westlawn has arranged for active Westlawn students to download AutoCAD online directly from Autodesk. This is a full version of AutoCAD student release. It is not a trial version. Active Westlawn students can log into the designated sign-up page through the Westlawn student forum. This is the lowest cost for full AutoCAD ever—**no cost!** The commercial price of AutoCad is \$4,195, an enormous savings.

Orca3D Hull Modeling and Rhino General 3D-Modeling Software at Deep Discounts!

In addition, Westlawn has arranged with DRS C3 Advanced Technology Center for deep student discounts on the Orca3D hull modeling plug-in software for Rhino, plus Rhino in addition, if needed.

Orca3D Level 1 (hull design and fairing with intact hydrostatics and stability) is \$1,390 commercial **but just \$125 for Westlawn students**, a \$1,265 savings!

Orca3D Level 2 (all of Level 1 plus speed/power analysis and weight and cost tracking) is \$2,780 commercial **but just \$250 for Westlawn students**, a \$2,530 savings!

Orca Level 1 is all that's required to complete Westlawn studies, but it makes sense to take advantage of this student discount to get Level 2, which will make your advanced work go more quickly and will serve you well in your career.

You need the general-purpose Rhino (Rhinoceros) 3D modeling program to run Orca3D. If you don't already own Rhino, DRS C3 Advanced Technology Center has arranged a special Westlawn discount package price for Orca3D plus Rhino, as follows:

- Orca3D Level 1 & Rhino **\$288** (commercial price \$2,385)
- Orca3D Level 1 & Rhino/Flamingo/Penguin/Bongo **\$558** (commercial price \$3,085)
- Orca3D Level 2 & Rhino **\$401** (commercial price \$3,775)
- Orca3D Level 2 & Rhino/Flamingo/Penguin/Bongo **\$671** (commercial price \$4,475)

Savings over the full commercial prices range from \$2,907 to \$3,804 depending on the package!

To take advantage of these deep discounts for Westlawn, students must follow the student-purchase procedure on the Westlawn student forum. You *must* be a currently active Westlawn student.

The basic CAD software required to complete Westlawn is AutoCad plus Orca3D Level 1 and Rhino. So the total cost of the required CAD software to do all of Westlawn is just \$288! This matches the lowest cost for required CAD software ever!

Westlawn / profiles

Laurie McGowan of McGowan Marine Design



Laurie McGowan

My deciding to design boats for a living stems naturally from a fascination with water: lots of time spent on and in it, and an eventual desire to design and build boats that I could sail. Around the age of 15 I started drawing boats fairly seriously by first copying the work of others then drawing my own. It was a good way to develop a 3D way of imagining shapes from 2D plans. The central library near my High School in London, Ontario in the

late 70s had amazing boating, adventure, and boat design sections, so I was especially influenced by books about and by a lot of British designers, that were in circulation there at the time. It was hard to concentrate in school as I'd draw boats all the time, and I imagined how they'd move through the water and how they'd take me to distant shores.

After one year of engineering in university I realized that - at that time (it's still the same now, unfortunately) - one couldn't get to designing boats through the regular educational system very well or quickly in Canada. I checked out Westlawn, and after asking the well-known Naval Architect, Robert Harris, about the school ("yes, it's good", and "sail, sail, sail" was his reply) I started the course at the age of 19 . . . mostly to learn how to design multihulls. It was the perfect way for me to learn at the time as I could work part-time in a string of jobs, participate in several sports, and concentrate really well on the course, which I eventually completed at the age of 22.

To make a long story short, I couldn't decide how to get into designing full-time (I was worried about getting 'stuck' designing certain types

of boats while working in someone's design office) and ended up sailing a lot, working as a finish carpenter, and eventually moved with my wife to historic Annapolis Royal, Nova Scotia.

Strangely, it was while renovating historic homes that I developed a different way of seeing design elements: how built-heritage details could be incorporated into modern work and how sometimes asymmetry works better than symmetry. I always dreamt about working as a boat designer during this phase of my life, but in a way that allowed for a lot of time to be spent with our new son and to be active in our community - especially in environment and social issues. With this in mind, it was after marine illustrator Sam Manning suggested I learn how to use a computer (funny, as Sam and his wife Susan are known mostly for their use of hand tools and old ways of doing things) that I learned Mac-



LeBlanc 50: This hull was designed for experienced builders for all kinds of inshore and offshore fishing, but is mostly used for fishing lobster of southwest Nova Scotia. Despite a L/B ratio of 2:1 these boats are very seaworthy and fuel efficient.

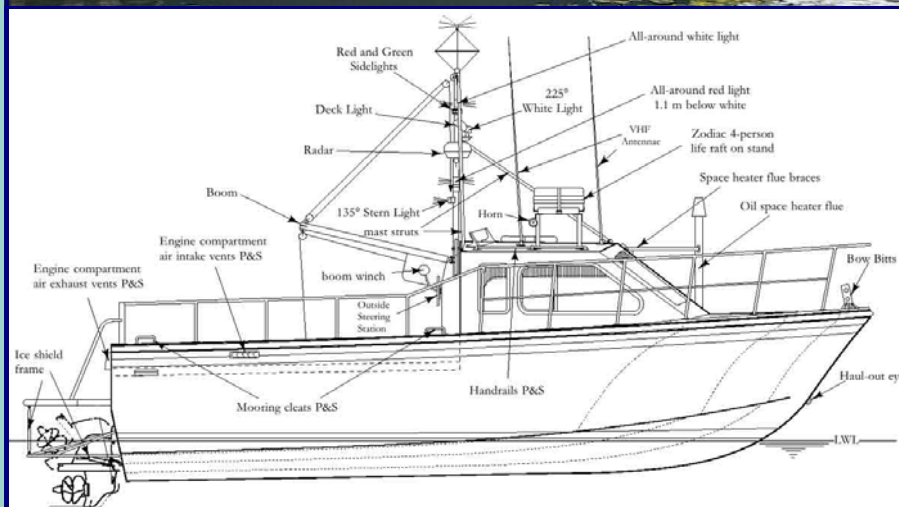
Most LeBlanc 50s are used in the winter fishery and frequently head out to fish against 40+ knots of wind and big seas while other boats remain in port. The builders of Southwest Nova Scotia are very creative and are always coming up with new hull and gear developments and the LeBlanc 50 has turned out to be a good platform for these.

Typical dimensions for the boats from this mould are 45' to 55' (13.7 - 16.8 m) with widths of 23.5' - 27' (7.2 - 8.2m), and engines are 400 - 600 hp (300 - 450

Westlawn / Profiles Laurie McGowan (Continued)

Surf and other computer applications.

Changing jobs from finish carpenter to boat designer involved five dangerous and grueling transition years as a Sea Urchin diver in the Bay of Fundy - work that's done in the Canadian winter months and in tides over 25' where we live - but that gave me a unique perspective on how water moves and how things move through water . . . especially in 6 knots of current, at times. It also gave me a way to enter local boat shops at ground level, so to speak, and not show up as the so-called expert who tells builders what to do from on high. Though my interest has always been to design cruising and racing sailboats, the reality of the past 11 years has been that most jobs involve commercial fishing boats. I've been fortunate to live in an area of Canada (Southwest Nova Scotia) that has some of the most creative workboat builders imaginable: where anything gets tried . . . at least once. The power boat work has been both varied and interesting, but also at times extremely challenging . . . especially when it comes to the application of some government regulations (I'm being polite).



LeBlanc 32 Pilot Boat: Using a demountable female mould first used on a 35' jet Lobster boat for off Cape Cod, this 32 footer is used on the north shore of the Gulf of St. Lawrence to bring pilots to iron ore ships near Sept Isles, Québec. It has turned out to be very able design and is also used for hand-line halibut fishing there. Built to LeBlanc Brothers' high standards.

Particulars:

LOA - 32.44' (9.89m)

Beam - 11.53' (3.51m)

Draft - 1.82' (0.55m)

Displacement - 10,000 lbs. (4.54t)

Power - Twin Volvo stern drives 220hp (164kW) dual prop

Top Speed - 35 knots



Halifax Submarine Climber: 50-ft. wood/epoxy playground climber beside the Museum of the Atlantic, Halifax, Nova Scotia.

Lately, work has become really interesting - some for pay, and some on-spec: from a Pilot Boat for the Gulf of St. Lawrence; to an entry

designer Michael Schacht); to a really fun playground submarine built by Tern Boat Works for the Halifax waterfront; to a small but powerful solar electric catboat cruiser; to a motorsailer cruiser for the coasts and inlets of the Carolinas. More multihull work is in the offing, which has been a long time coming and is really great.

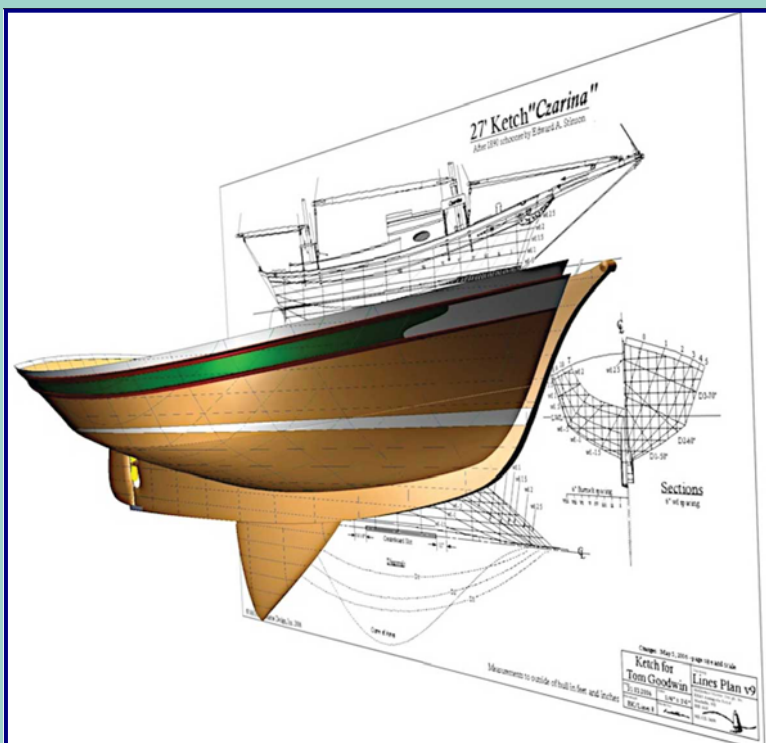
I mostly use a neat design program called TouchCad 3D that allows one to almost 'sculpt' amazing shapes, and also to send movies and pictures of work to clients in a really helpful way. This Fall I will be on a panel of Naval Architects and

try in the last WoodenBoat design competition (the 6m catamaran *Evergreen* - a collaboration with industrial/multihull

Westlawn / Profiles Laurie McGowan (Continued)

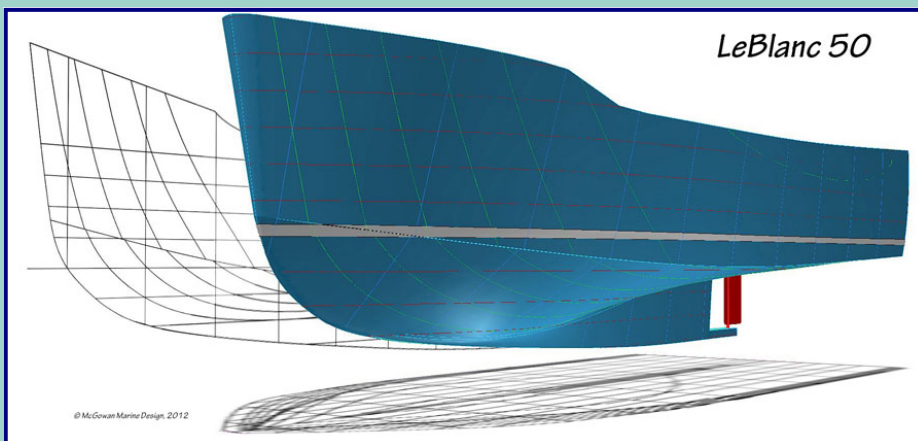
Designers at the IBEX show to explain some of TouchCAD's main features.

Designing boats is a thoroughly enjoyable, challenging, and interesting way to make a living, and though I'm not getting rich doing it (especially while living in the middle of nowhere, as far as pleasure boating goes) I realized a few years ago that I had already retired . . . if your definition of 'retirement' is *finally* to be doing what you love, while counting your pennies. For this I can thank Westlawn, in part . . . but especially a very patient wife!



Czarina: a custom 27' centerboard solar/electric ketch designed for an experienced sailor in The Bahamas. Built by Covey Island Boatworks of wood/epoxy. Featured in the Sept/Oct. 2007 WoodenBoat magazine.

LOD - 27' 1-5/8" (8.27m)
LWL - 22' 5-3/8" (6.85m)
Beam - 9' 2" (2.79m)
Draft - 3'-1" to 5'-9" (0.94 - 1.75m)



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ON THE DRAWING BOARD

ER175 By Westlawn Alumnus Ivan Erdevicki of Ivan Erdevicki Naval Architecture & Yacht Design

Erdevicki, Inc. of Vancouver, Canada and ICON Yacht b.v. of The Netherlands, teamed-up to complete the concept analysis and cost estimate to offer a complete design and build package for the ER175 high-speed superyacht, with high specification and the highest level of luxurious interior finish. ICON Yachts is currently preparing a one-metre scale model of the yacht to reveal its sleek shape, stunning looks and dynamic swept back lines with a powerful image and statement of authority, to be seen at stand QD53 Darse Nord at the Monaco Yacht Show in September.

Edmiston & Co joined the Team last week with a commitment to promote the ER175 yacht at the Show along with the seven boats they will be mooring in the Port Hercules Marina basin (stands QC3 and QH31). The design will be offered to their clients throughout the Edmiston worldwide network of brokers. They are demonstrating their keen intention to present new ideas and new styling to the superyacht community at the most important show in Europe.

The styling is a futuristic looking vessel with sleek lines and pleasing profile with a comfortable luxurious interior and an ample deck space for leisure and entertaining. With a streamlined and elegant hull, the boat features three full decks plus the fly bridge deck all elegantly incorporated within the aerodynamic superstructure and ergonomically designed layout. The interior detailed design and the decor styling are left open intentionally to be selected by a prospective client.

The exceptional 175-ft hull and superstructure are one harmonious, dynamic, integrated structure with the design directed towards the boat's efficiency, sea worthiness and overall reliability of the yacht, both for high speed dynamic stability and comfort at sea. The yacht is under 500 GRT and is designed to be built as a semi-displacement aluminum hull and superstructure with 31-plus-knots speed or a full displacement steel hull and aluminum superstructure with a lower speed but both with the transatlantic range at cruising speed.



The long-waterline hulls designed for fuel and twin diesels ensure reliable and smooth sailing. The powerful bullet-shaped bow defined by natural sweet lines will carve through the waves and provide reserve buoyancy for a smooth ride under all conditions..

On The Drawing Board . . . continued

Ivan Erdevicki Naval Architecture & Yacht Design

Four or five full-size guest suites are located on the lower deck with direct access to the main deck and separated from the crew quarters with their own lounge and access to the upper decks. The pilothouse deck, aft behind the bridge and captain's cabin, sports the sky lounge, open air bar and full size dining area shaded by a powered canvass awning, ending with a circular Jacuzzi and ample seating and sun beds for relaxation.

Aft at the lower deck level, is a large, permanent beach club for sunbathing and boarding the yacht's tender and jet skis, which are stored in the boathouse with side launching through a hydraulically operated door, without disturbing the beach-club arrangement at any time.

The ICON ER175 designed and engineered by Ivan Erdevicki Naval Architecture & Yacht Design Inc. bureau in Vancouver, Canada and proposed to be built to the highest standards by ICON Yachts b.v. for a discerning client looking for a powerful and stylish fast cruising yacht that will certainly turn heads in any port, marina and anchorage.

Length Overall: 175' 2" 53,39 m
 Length on Waterline: 169' 9" 51,74 m
 Beam Molded 30' 3" 9,22 m
 Draught: 8' 9" 2,67 m
 Displacement: 654,000 # 292 t
 Gross Tonnage: <500 GRT
 Top Speed: 16 knots (31+ knots)
 Cruise Speed: 12 knots (23 knots)
 Power: Twin Caterpillar C32ACERT marine diesels rated 1193kW (1600 bhp)
 @ 2300 rpm [pending]
 Fuel Capacity: 18,500 US Gallons
 58,700 litres
 Fresh water Capacity: 4,750 US Gallons
 17,600 litres
 Range: Transatlantic
 Range: Three Kohler 80 KW generators with instrument panels
 ICON ER175 53m
 MOTORYACHT



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SPLASHES

D&D 43 - Rùm

A Hybrid Gaff-Rigged Dayboat

Designed by Westlawn Alumnus Theo Danel

Rùm is named after the Inner Hebridean Island and is the first of the D&D 43 series. With an unusual reversed canoe bow and a gaff rig, this pure daysailer looks like she was conceived at the beginning of the last century. Underwater, however, is wholly different, with U-shaped hull sections, a deep bulb fin keel and high-aspect rudder. The boat is built by Jachtbouw Vels in composite. All the spars are varnished Oregon pine. Rùm is designed for easy transport, to fit in a container, and all the spars are shorter than the length of the hull.

Specifications:

LOA.	43' 11" (13.40m)
Beam	7' 4" (2.25m)
Draft/hull	8' 6" (2.60m)
Disp.	9,612 lb. (4,360kg)

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Conceptual Yachting

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theo@daneldesign.com



ABYC Tech. Notes

Design With Serviceability in Mind

By Ed Sherman

I write this after several recent experiences on my own new boat have reminded me that even today the matter of a boat's serviceability is often overlooked at the design phase. Further, my thinking here raises the question of whether or not the ABYC Standards should look harder at the matter of serviceability.

The question, or perhaps debate, over this issue centers on the thought that the ABYC Standards after all, are safety standards, not service standards. But that is where the issue gets clouded I think. Why? Because you could debate whether or not service access or the lack thereof might impact safety.

So indulge me here while I share with you several of the design flaws on my new boat, which I am really enjoying by-the-way, and believe to be a good quality boat . . . just with some flaws that I can correct, with a bit of effort. Effort I might add, that would have cost the builder very little during the build stage and would have truly satisfied all of my desires, but will now introduce a bit of frustration to my life. I share this because I think anyone learning or thinking about boat design needs to have someone tell them that ease of service should be a part of every designer's mindset. Indeed, the Westlawn Yacht & Boat Design program already places a strong emphasis on access and serviceability in design. Unfortunately, today the mindset of too many builders and designers often centers on ease of assembly, and absolute lowest production cost.

So, back to my new boat, it is a small center-console fishing boat made by a well-known American builder. The builder is

not known as a "price-point" builder, so there is no excuse there. The builder does participate in the NMMA certification program using ABYC Standards, hence my standards-based serviceability question.

The first revelation came as I attempted to add a DC accessory to the boat's electrical system. The system on this boat is simple. Strictly DC, no need for AC shore power. It is a basic, two-battery powered DC system. I don't even use an automatic battery isolator, all is manual select and control and just the way I want it.



This panel could only open this far due to the wire service loop being too short.

So, in attempting to access the back side of my high-quality DC switch/breaker panel to facilitate connection of DC power and negative return for my new accessory, I discovered that the builder had not allowed for enough extra wire to create what is referred to in electrical work as a service loop; enough extra wire to facilitate pulling the panel out to inspect or service the terminals on the back of the panel. I couldn't move the panel more than about 1/2 inch out from its mounting surface. There was

absolutely no easy access to the back of the panel. This revelation triggered an instant series of thoughts in my mind about the build process. This is something I've seen many times before in my some 40-year experience servicing boats. I'm referring to the common practice of installing a boat's systems before the deck or interior hull liner gets installed, without giving much thought if any, to what happens once the deck gets dropped in place.

Continued next page

Design With Serviceability in Mind - Continued

So, once slapped in the face with this realization, I began to look for other areas of hidden service nightmares, but also to make note of the points of serviceability that were standards-based.

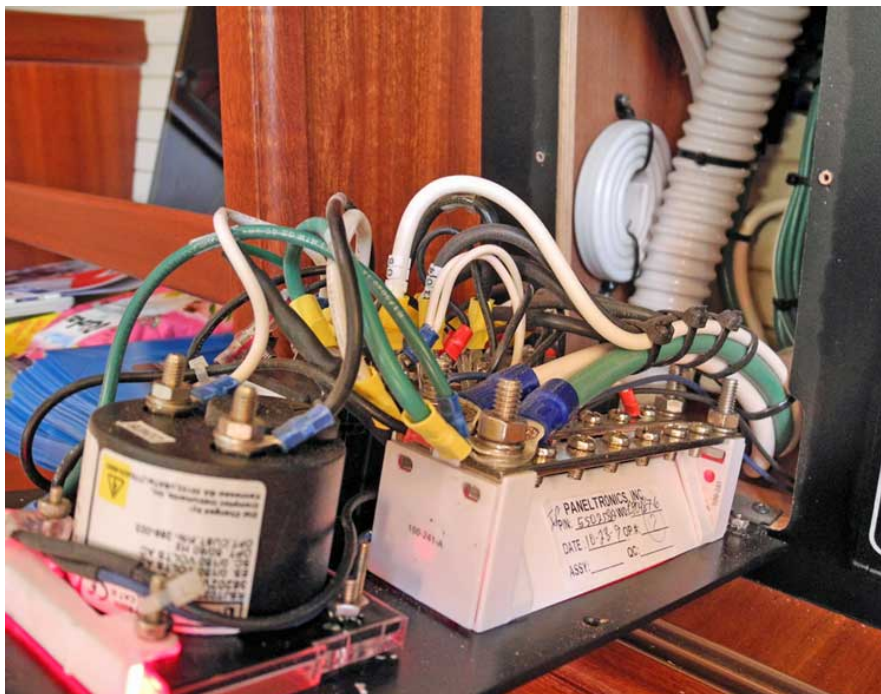
In this case, further inspection with a flashlight and mirror showed me the DC negative bus bar nicely laid out on the inside of the hull to starboard. The wire terminations look proper; the workmanship is neat and orderly; the equipment used is of the highest quality. The problem is that there is no way I can access that bus bar at this point without cutting in a deck plate under the boat's folding boarding ladder; fine for me with my experience, but what about the average new boat owner? An expensive upgrade is in order.

As for Standards-based serviceability, gasoline fuel systems have been addressed in ABYC H-24. Service access to all of the fuel system connections and fittings is mandated and in the case of my boat, either deck plates or easily removable panels have been provided by the builder to facilitate an annual check as is recommended. So yes, the builder did comply with existing standards, and yes there is some precedent for mandating serviceability when it comes to potential boat explosions due to fuel leaks.

Another area of interest to me with my boat has nothing to do with the electrical system, but rather some of the very limited plumbing on board. The boat has a fish box in the forward part of the boat. It's insulated and sized nicely for the size of the boat. It uses good hardware for the hinges, even has a gas cylinder to help the lid rise up. It's got a drain so that any ice melt can drain overboard. The drain fitting exits the hull just barely above the static waterline on the starboard side of the boat just about at mid-ship. No plastic fittings here! All nice quality cast bronze fittings that are chrome plated. The builder used good quality hose too. In all, a nice job with one glaring exception: Access to the drain fitting at the base of the molded in ice box is achievable by removing a screwed-in piece of Starboard inside the head compartment. Unfortunately, the fitting and hose clamp at

the through-hull will never be seen again without cutting in a deck plate just above it. It is buried in a section of the hull that is outboard of a large fore-and-aft-oriented stringer.

Since this fitting is right at the waterline in the static floating position, it's not required to have a sea cock. But, if there is ever a failure of the clamp, hose between the ice box and through-hull fitting, or the fitting itself, there will be no fixing it without cutting access in the deck of the boat. In fact, since the hose itself is largely buried in the boat's structure, it can't even be inspected to see if failure might be imminent. I can state from experience that while this boat is underway, water can easily enter the boat through this through-hull fitting and, unnoticed, could cause the boat to sink.



This panel can be opened fully for access because a proper service loop (adequate extra wire length) has been used.

So, the philosophical question becomes, what constitutes on-board safety; should serviceability for all fittings that exit through a boat's hull be accessible; and should the ability to easily inspect and make repairs to a boat's electrical system be considered as we look forward with our standards development?

From a design perspective, I see no question here; it should be done in my view. From a standards development perspective, it could be an interesting debate, one I'd love to participate in.

At the very least development of some basic serviceability standards could help recession-ravaged boat builders improve their customer-satisfaction indexes, but I also suspect we could help to further enhance on-board safety.

So, don't be shy, let us know your thoughts on this. You can contact me, Ed Sherman ABYC Director of Educational Programming or Brian Goodwin, ABYC Technical Director at esherman@abycinc.org or bgoodwin@abycinc.org



Know It All Contest Solution to the June 2012 Question which considered whether existing thruster wiring can be used when retrofitting a new, more powerful bow thruster.



The Know It All questions and correct answers are important design tips for students as well as other marine professionals. We suggest that you file them away for future reference.

The Question Was:

The owner of the 37-foot motorsailer, *Pretty Penny*, has asked you about installing a more powerful bow thruster. The proposed new thruster and its tube will fit without a problem. The existing thruster wiring on *Pretty Penny*'s 12-volt electric system is good-quality, tinned-copper boat cable (BC5W2) 1 AWG, and is in good condition with excellent continuity. The thruster's power cables run from the forward end of the engine compartment, with the length of the run, from the batteries to the thruster measured along the cables, of 16 feet 10 inches.

The old thruster was rated at 77 pounds of thrust, driven by a 2-hp DC motor drawing 205 amps. The new thruster is rated at 132 pounds of thrust, with a 4-hp, 12-volt DC motor drawing 290 amps.

Can the existing power cables be used for the new thruster and why or why not?

The Winners Are:

Scott A. Harroun of the U.S Coast Guard; James Reddington, PE a senior forensic engineer and ABYC Marine Master Tech; Douglas Martin; Paul Thunburg, a Westlawn student and USCG marine inspector; Charlie Johnson PE and ABYC Marine Master Tech; Kim I. McCartney, marine surveyor; Peter Banks, Westlawn grad; and Leslie Allen, a Westlawn student all submitted correct answers. This is a record-breaking eight correct answers received. Clearly, regular readers of *The Masthead* are inclined to be brainiacs. Under the contest rules, only the first three correct answers received can actually qualify for the official and coveted title of Know It All, and our three Know It Alls for this question are thus: Scott Harroun, James Reddington, and Douglas Martin. We wish to congratulate our three winners on being way too smart for their own good. In honor of their excess of sagacity, perspicacity and unbridled brain power each should henceforth be addressed only as, "Mr. Know It All." Naturally—in honor of their remarkable abilities—Westlawn caps, T-shirts, and Know It All certificates are on their way to each of our three winners.

And the Solution Is:

The answer is no. The original power cables shouldn't be used for *Pretty Penny*'s new thruster.

The voltage drop for the original installation was higher than the ideal but appears nominally acceptable as:

1 AWG (American wire gauge) wire = 83,690 Cm (Circular Mills)

The distance to the thruster, is the total distance from the power source to the load and back again.

Voltage drop = $10.75 \times 205 \text{ amps} \times 2 \times 16.84 \text{ ft.} \div 83,690 \text{ Cm} = 0.88 \text{ volts}$

$0.88 \text{ volts} \div 12 \text{ volts} = 0.073 = 7.3\% \text{ voltage drop}$

Ten percent voltage drop is considered the maximum allowable, so 7.3% was acceptable in the old installation. From ABYC Standard E-11, Table IV; however, we see that the maximum allowable amperage for 1 AWG, outside of the engine compartment, is 165 amps. Though, the voltage drop is under 10% and *Pretty Penny* has been running her old thruster over this cable, it doesn't properly comply with ABYC standards. Indeed, ABYC Table IV indicates 2/0 wire is the minimum required on the old installation.

Using the existing 1 AWG cables for the new thruster would be worse:

Voltage drop = $10.75 \times 290 \text{ amps} \times 2 \times 16.84 \text{ ft.} \div 83,690 \text{ Cm} = 1.25 \text{ volts}$

$1.25 \text{ volts} \div 12 \text{ volts} = 0.104 = 10.4\% \text{ voltage drop}$

This is over 10% and so not acceptable. Plus it exceeds the ABYC allowable ampacity of the wire of 165 amps.

We know the new thruster is drawing 290 amps. Referring to ABYC Standard E-11, Table IV, we see that the smallest size that is rated for 290 amps is 4/0.

4/0 AWG = 211,600 Cm

Voltage drop = $10.75 \times 290 \text{ amps} \times 2 \times 16.84 \text{ ft.} \div 211,600 \text{ Cm} = 0.49 \text{ volts}$

$0.49 \text{ volts} \div 12 \text{ volts} = 0.04 = 4\% \text{ voltage drop}$

This meets all requirements and is quite close to the ideal 3% voltage drop. This is excellent, but—in this case—heavy and

Know It All Contest Solution continued

expensive wire. In fact 4/0 boat cable is running about \$9.50 per foot at the moment. Assuming about 40 feet ordered for the job, that's about \$380 for the cable alone.

The superior option for *Pretty Penny's* new thruster would be to use the 24-volt version of the thruster available from the same manufacturer. This is essentially the identical unit and it delivers the same thrust with the same power, but at half the current draw—140 amps.

You could use the existing 1 AWG power cables and have even less voltage drop than with the original thruster:

Voltage drop = $10.75 \times 140 \text{ amps} \times 2 \times 16.84 \text{ ft.} \div 83,690 \text{ Cm} = 0.6 \text{ volts}$

$0.6 \text{ volts} \div 24 \text{ volts} = 0.025 = 2.5\%$

This is really ideal. Though under-10% voltage drop may be tolerated for DC motors, the lower the drop the better and under-3% drop is strongly recommended. Using the 24-volt thruster, you'd also save the labor of pulling the old cable and replacing it with the new, plus you'd save the cost of the new cable itself. This could largely pay for the 12-to-24-volt transformer that would be required. Some thruster manufacturers offer series/parallel switches that put a battery in series, instead of parallel with the others when the 24-volt thruster is used.

Yet another option would be to stay with the new 12-volt thruster, but add a largish (say, group 31) battery up near the thruster. The thruster runs directly off this dedicated thruster battery. Since the battery-charging amps are considerably less than the thruster's current draw, the original 1 AWG cables can be used to charge the new bow-thruster battery, and the cables from the bow battery to the thruster itself will be short, and so can be of modest gauge and cost.

This 12-volt battery option, however, adds the extra weight of the battery up in the bow, where it is also usually difficult to access and maintain. There is also the cost of the battery, battery box and proper mounting. It requires a charging controller for the battery, and proper ventilation as well. This is an acceptable approach, but—in my opinion—the 24-volt thruster will give superior results at a very competitive cost, possibly at less cost.

Who Will Be The Sept. 2012 Know It All Winner?

Email your answer to: nnudelman@westlawn.edu



Want to see how much you know? Want to show everyone else how much you know? The first three people to submit the correct answer to the following question will win a Westlawn tee shirt and cap, and will also receive a Know It All certificate. The answer and winners to be published in the next issue of The Masthead.

Flash Flooder is a new sloop being built at Baggy Wrinkle Boatyard under your supervision. She is:

48 ft. LOA
13.3 ft. Beam
53 in. Freeboard at midships

Flash Flooder's Cockpit is:

8.25 ft. long
6.5 ft. wide
29 in. high

The bottom of the cockpit sole is 13 inches above the waterline.

This is a well-type cockpit, with cockpit side walls the same height all around. The crew has to step up on deck to go to the companionway door to the cabin, so there is no sill or opening into the boat in the cockpit itself.

The drawings detail two cockpit scupper drains. Each has a 90-degree elbow and a screen to keep things from falling into them through the cockpit and causing clogs. Each is 1-1/2-inch in diameter.

Are these scuppers adequate under current ABYC standards?

Orca3D User Tip

Planing Craft Analysis: Static vs. Dynamic Trim

By Martin Monteverde, Naval Architect, Buenos Aires

Though focused on trim considerations as handled in Orca3D, this article provides an excellent overview of the fundamental concepts involved in planing-boat trim. — Ed.

The vessel is NOT in equilibrium
Forces are in balance, but Moments are not

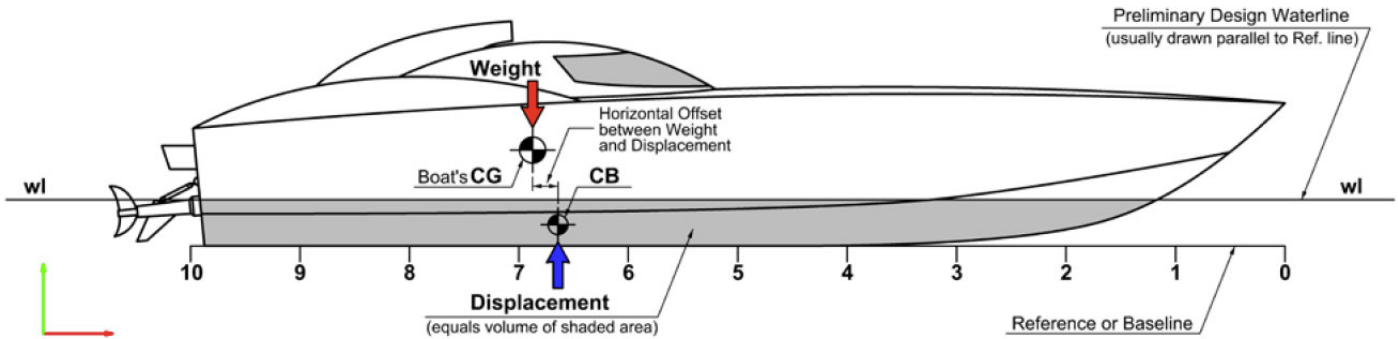


Figure 1

A question that often arises for Orca3D users is whether or not the “Static” and “Running” Trim of a fast planing craft are somewhat “geometrically” related to each other. The quick answer is “No,” but it is worth studying the question more closely to understand the answer.

Static Trim

Whether it’s about a slow displacement vessel or the fastest planing “Hot Rod” boat, the “Trim” angle, as reported by Orca3D when performing a hydrostatic analysis, is related to a “Static” condition of the hull only. That is, throughout the analysis performed the hull is considered to be “at rest,” or in physics terms, “in static equilibrium.” No dynamic effects (i.e., speed/acceleration-related forces) are taken into account under this type of hydrostatic analysis.

More specifically, when performing a “Free-Float” hydrostatic analysis in Orca3D, the reported “Trim” angle corresponds to the longitudinal (i.e., Fore-Aft) hull orientation in 3D space that results from the balance of the simple system of forces considered by this analysis, that consists of two forces only. These are the “Weight” of the craft, acting through its “CG” (Center of Gravity), and the “Buoyancy” force that acts through the “CB” (Center of Buoyancy¹).

As we all know from basic engineering mechanics, for any “structure” (i.e., our craft, yacht, or vessel) to be in a “static equilibrium” condition, it has to be verified that the net sum² of all acting forces must be zero (i.e., the net resultant force is zero), and also that the moment is zero. This is known as “pure” static analysis.

Orca3D, through its built-in algorithms, is capable of finding the final hull orientation in 3D space, after finding the solution to this both “simple” and “complex” problem.

Given a hull geometry for analysis, once a craft’s weight and CG are specified by the user, the software solves the system of equations for static equilibrium with the hull free to trim, heel, and translate vertically, until an orientation is found that results in an immersed volume, and its corresponding buoyancy force, that counteracts (i.e., is equal and opposite to) the craft’s weight.

Furthermore, the resulting solution is such that the relative position between the CG, which is “fixed” to the craft, and the CB that results from the “immersed geometry” is such that no net moment will result from this situation. In other words, this also means that Weight and Buoyancy forces are also acting through the same line of action, or that their directions are mutually coincident.

Figure 1 illustrates a typical situation before performing a “Free-Float” hydrostatic analysis. That is, the boat’s geometry is modeled with reference to a known “Baseline” (usually a horizontal, or the “x” axis line³). The boat’s weight and CG⁴ are known by the designer’s preliminary estimations, and a “preliminary” Design Waterline is drawn, usually parallel to the Reference Line at a height (or Draft) that produces a displacement (buoyancy force) that equals the boat’s weight.

Notice that in this condition what usually happens is that, even when the boat’s weight and displacement for the given preliminary Design Waterline are equal, both forces are not aligned, since, as we can see in Figure 1, there is a horizon-

¹The CB, or Center of Buoyancy, is the centroid of the wetted volume.

²Here we refer to a “vector” sum.

Planing Craft Analysis: Static vs. Dynamic Trim - Continued

The boat is in equilibrium
Forces and Moments are in balance

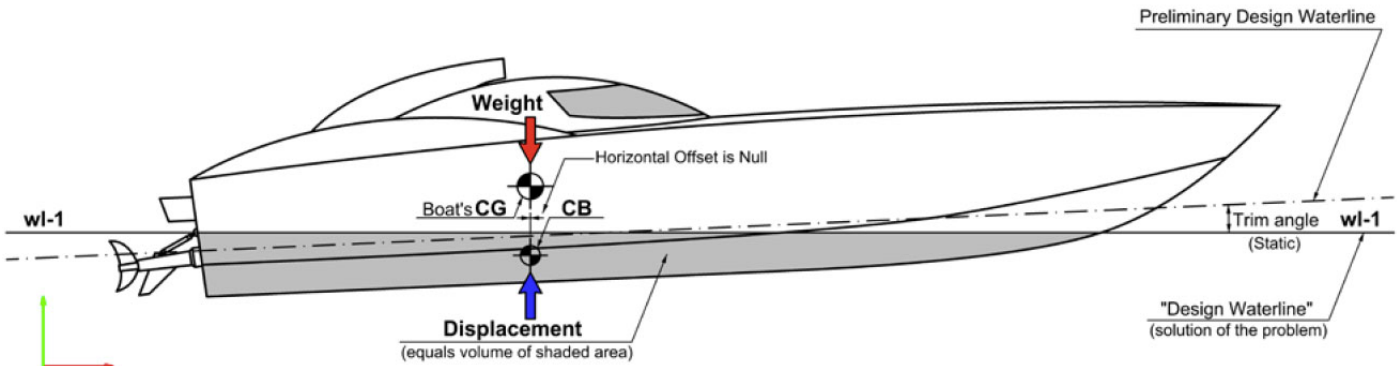


Figure 2

tal "Offset" between their corresponding directions.

The craft's weight is usually assumed to be acting along the Vertical direction, or "-z" in Rhino World coordinates, whereas the Buoyancy force is considered to be acting along the "+z" direction.

Figure 2 shows the boat's final attitude (i.e., hull orientation) after performing a Free-Float hydrostatic analysis of the case shown in Figure 1.

As can be seen in Figure 2, a new "Waterplane" was found ("wl-1") that represents the craft's actual attitude for the given weight value and CG position. This is the "Design" waterline ("wl-1").

Thus, it can be said that, with reference to the previous situation (Figure 1), the hull is now trimming by the stern by the calculated "Trim" angle; and, since the hull is considered to be "at rest," this is also called a "Static Trim" angle.

Remember that, as the boat is rotated and moved to find an equilibrium, the CG also rotates and moves with the craft, since it always remains fixed to the hull geometry. For this kind of hydrostatic analysis, it is always assumed that the CG remains fixed to the hull geometry. On the other hand, we cannot assume the same behavior with the CB, since the CB corresponds to the centroid of the wetted volume; because the shape of this volume changes at each iteration in the analysis, the CB position will change.

So, in this condition (Figure 2), we can see that the net force acting on the craft is zero (i.e., Weight = Displacement) and the net moment is also zero (the horizontal offset between these forces is zero). The boat is in "Static" equilibrium.

Note that for this simplified analysis, it is assumed that the CG lies in the Vertical center plane of the craft (usually the "x

-z" plane in Rhino World coordinates), and that the hull shape is port-starboard symmetrical. To find the final vessel attitude the hull was rotated about its transverse axis (trimmed) and moved vertically, until a new wetted volume was found, such that the Buoyancy force it generates equals the boat's Weight, and its CB is aligned vertically with the CG. Orca3D will compute the resultant static heel angle as well if the hull is not symmetric or if the transverse location of the CG is not in the centerplane.

Another simplification for the sake of this discussion is whether the final equilibrium condition of the vessel is "Stable" or not. The requirements for the "Static" equilibrium of the craft discussed so far are necessary, but not sufficient, to guarantee a "Stable" equilibrium. Once a valid "Static" equilibrium condition is achieved, the next question to ask is what would happen if we apply a small perturbation (e.g., a very small angular displacement) to the craft in the "Static" equilibrium configuration found. Will it return to the "pre-perturbation" condition, or it will adopt a new equilibrium attitude? If it will return, it is a stable equilibrium. An example of an *unstable* equilibrium is a cone, balanced point-down on a table. When perfectly balanced, it is in equilibrium, but if disturbed, it will not return to that equilibrium. Reference 3 provides further explanation of this subject, in the context of hydrostatics.

Dynamic Trim

When performing a Resistance calculation on a planing hull with the aid of the Planing Analysis module available in Orca3D, the "Trim" angle that is reported, also called "Dynamic or Running Trim Angle," comes from a similar static equilibrium analysis, but for a different kind of problem.

We say "similar," because one of the tasks that the algorithms within the Planing Analysis module has to perform is, again, to find a balance of forces and moments; but the difference here comes from the very nature and origin of the forces to be considered acting over the craft.

On a planing craft, considering that is running on calm waters at a steady speed, apart from its Weight, three (3) new

Continued next page

³The default coordinate system is positive X aft, positive Y to starboard, and positive Z up. However, Orca3D can accommodate any right-hand rule coordinate system that the user chooses.

⁴Remember that Orca3D's Weight & Cost module provides an excellent tool for weight and CG estimation on your 3D model.

Planing Craft Analysis: Static vs. Dynamic Trim - Continued

Boat is at Speed "V"
Boat is in equilibrium

Speed "V"

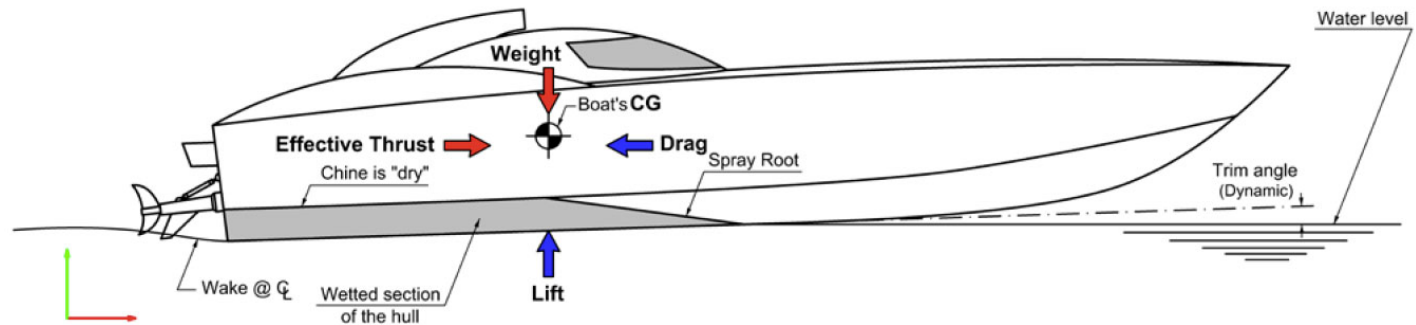


Figure 3

forces have to be considered for its equilibrium analysis, which are "Lift," "Drag," and "Thrust."

Lift is the "Vertical" component of all acting forces over the hull (e.g., buoyancy, dynamic lift), except Weight, whose principal purpose is to balance the craft's Weight.

Drag, also known as Resistance, is the "Horizontal" component of all acting forces over the hull that, for the craft to be running at a steady speed, has to be balanced by the "effective" Thrust; otherwise, the craft will slow down. Usually, the "effective" Thrust is to be provided by the propellers, or any other propulsion system under consideration, such as waterjets, etc.

Figure 3 shows the craft in a static equilibrium condition, where the Vertical and Horizontal forces are in balance, and there is zero net moment for the present system of forces acting on the craft.

This is, again, a simple static analysis, since we have reduced a complex dynamic problem into a simple static one. Notice also that, for this equilibrium condition to be achieved, the craft has to maintain a "Trim" angle. The assumption made here to simplify the analysis is to neglect any dynamic effects due to things like waves and wind (i.e.,

the boat is assumed as running on "calm waters").

The Savitsky Method

The Planing Analysis module available in Orca3D, developed and licensed by HydroComp, Inc., is based upon the very popular "Savitsky" method.

The Savitsky method relies upon a 2D "Static" representation of the problem; that is, all forces are considered lying in the Vertical centerplane of the craft. For each speed to be analyzed, the method first makes an estimation of the dynamic forces acting over the hull, mainly friction and pressure forces (magnitude, direction, and location) and, second, finds the equilibrium condition among them, including the Weight and Thrust.

In order to find the balance between the acting forces and force moments, the hull is rotated (or "trimmed") to vary the angle of attack, and moved vertically to vary the wetted area. The lift and drag force magnitudes, directions, and the position in which they act vary as a function of the angle of attack and the wetted area, and the program iterates through various combinations until the balance between the forces and moments is achieved. This will result in the steady "Running Trim" angle.

Continued next page

Hull is at Speed "V"
Hull is in equilibrium

Speed "V"

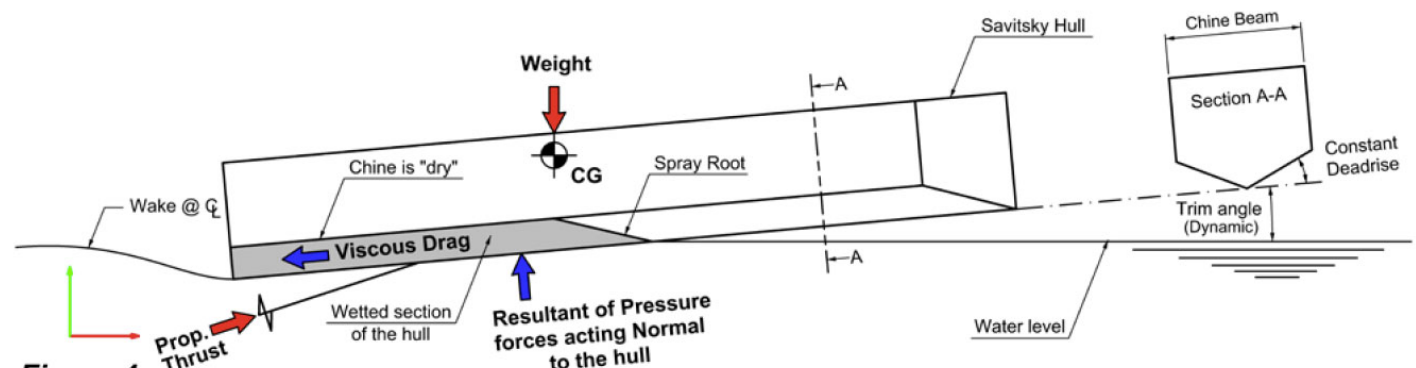


Figure 4

Planing Craft Analysis: Static vs. Dynamic Trim - Continued

Boat is at Speed "V"
This is a statically "Stable" condition

Speed "V"

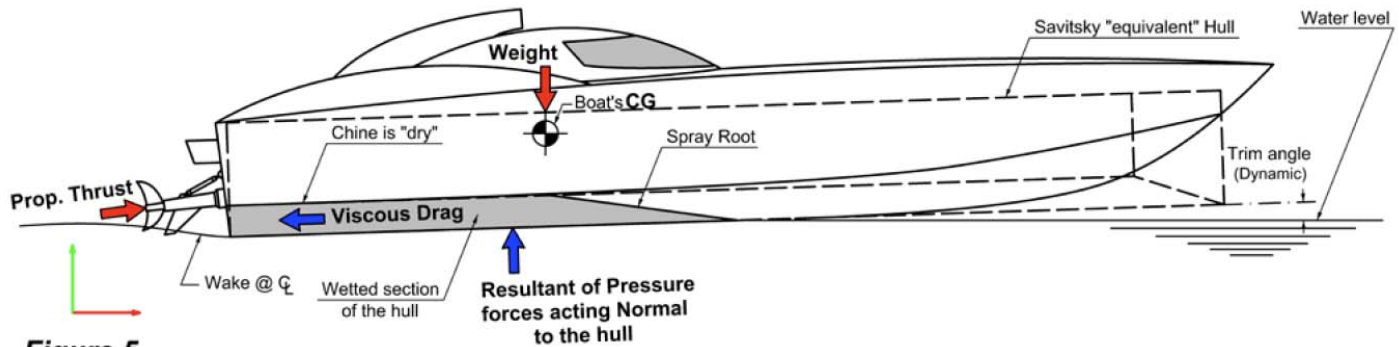


Figure 5

Again, as with the hydrostatic analysis, it is assumed that the CG remains fixed to the hull geometry at all times, as well as the Thrust line.

Figure 4 shows the "ideal" Savitsky hull, and the forces considered by this method for the most general case of analysis.

As we can see in Figure 4, the system of forces considered by the Savitsky method is slightly different from the one shown previously in Figure 3. However, the system of forces in Figure 4 can easily be resolved into components parallel to those in Figure 3. Once the equilibrium condition is found, both representations are equivalent and the Trim angle is the same as well.

We can see here that, apart from craft's Weight, the Savitsky method considers (in fact predicts) the resultant of the Pressure forces acting Normal to the hull bottom, the Viscous Drag acting along the hull's bottom (both of them acting within the wetted section of the hull), and it also considers the direction of the Propulsion Thrust, usually the shaft angle for the Propeller thrust.

One "key" aspect of the Savitsky method to keep in mind is that the hull under analysis is not the "actual" hull (i.e., the 3D modeled hull in Rhino). Instead, the Savitsky method creates an "equivalent" prismatic V-type hull, with a constant deadrise angle and chine beam over the entire length of the hull. Even with this simplification the method is very reliable, if used for the analysis of similar hull types, i.e., single monohedron hulls with nearly constant deadrise extending, at least, over the wetted portion of the hull at running speed. Some corrections for warped hulls are available in the implementation of the Savitsky method used in Orca3D.

Figure 5 shows a correlation between the ideal Savitsky hull and our analysis case.

For further details of the Savitsky Method, please see Reference 1 and/or Reference 2.

Conclusion

Coming back to the initial question, we can understand now why the "Static" and the "Running" trim of a planing boat are not directly tied to each other, since each of them are the consequence of a different type of problem and analysis.

However, we have also shown that this is just a simple interpretation of such an answer, since, as explained and shown in the previous sections, it is now easy to identify Weight and CG as common factors that influence both the "Static" and "Dynamic" trim calculations.

But, again, remember that the Savitsky method doesn't take into consideration anything about the "Static" attitude of the hull when it's at rest. It simply has no means to know anything about the hull in this condition. The Savitsky method only attempts to bring us a "snapshot" of the hull, and the main forces acting over it, when the craft is running at the "steady" speed of analysis.

Since the implementation of the Savitsky method in Orca3D gets shape information from the hull in the "as-modeled" condition, it is good practice to have the model oriented so that stations give a good representation of the deadrise. In a hull without rocker in the keel, this simply means having the keel parallel to the longitudinal axis.

References:

- 1) Lewis, E.V., "Principles of Naval Architecture, Vol. II: Resistance and Propulsion," SNAME 1988
- 2) Savitsky, D., "Hydrodynamic Design of Planing Hulls," SNAME Marine Technology, Oct 1964
- 3) Orca3D Help file, in Hydrostatics & Stability/Output.

www.orca3d.com

Learn about Westlawn student pricing on Orca3D software on page 6.

News & Views

NMMA Disappointed in U.S. Court of Appeals Decision to Dismiss Boating Industry Concerns about E15

WASHINGTON, D.C., August 17, 2012 - The National Marine Manufacturers Association (NMMA) announced it is disappointed in the decision today by the U.S. Court of Appeals for the D.C. Circuit to dismiss on procedural grounds the recreational boating industry's challenge of the Environmental Protection Agency's (EPA) decision to allow E15 into the U.S. fuel supply. The Engine Products Group, a coalition of organizations that includes NMMA, sought to block the EPA decision. Other coalition members include the Outdoor Power Equipment Institute (OPEI), the Alliance of Automobile Manufacturers (AAM) and the Association of Global Automakers, Inc. (Global Automakers).

This decision puts the potentially dangerous E15 at gas pumps across the country, a troubling scenario for American boaters and the recreational boating industry.

While this decision is a setback it does not speak to the underlying merits of the case - whether EPA was in fact correct in its interpretation of the Clean Air Act to allow for a partial waiver in the first case. In his dissent, Judge Kavanaugh, who presided over the case, found that "EPA ran roughshod over the relative statutory limits" and is "flatly contrary to the plain text of the statute." NMMA is confident that were

the Court to rule on the merits of the case that it would find that EPA has overstepped its authority for a partial waiver of E15. As a result, NMMA is currently evaluating further litigation options.

Late in 2011, the EPA approved the use of E15 for a subset of on-highway motor vehicles (model years 2001-2006). Earlier that same year, the EPA approved the use of E15 for model year 2007 and newer vehicles as part of its response to a waiver petition filed in the spring of 2009 by pro-ethanol lobby group Growth Energy.

The partial waiver excluded marine engines and other non-road engines such as snowmobiles, lawn and garden equipment, the NMMA has been concerned that the waiver will lead to widespread misfueling by consumers. Recently, NMMA at its own cost distributed labels for the marine industry to warn against fueling marine engines with E15. EPA also refused to mandate that if a facility sells E15 it would also offer E10 or E0 fuel for the nation's estimated 13 million registered power boat owners or the hundreds of millions of owners of gasoline-powered equipment.

"NMMA will continue to evaluate and address policy to protect boaters from misfueling and product failures associated with incompatible fuels and will take the necessary actions to ensure compatible fuels remain available and affordable," said NMMA President Thom Dammrich. "EPA has failed

in each regard and approved E15 in violation of its clear statutory requirements."

Media Contact: Ellen Hopkins at ehopkins@nmma.org or 312-946-6249



NEW COAST GUARD REGULATIONS FOR COMMERCIAL FISHERMEN

On October 16 a new federal law will go into effect formulated to protect commercial fishermen in the dangerous environment that they work in. The new law will apply to all commercial fishing boats that operate three or more miles of shore. When the law goes into effect, these boats will now be required to pass the dockside inspection that is currently being formulated.

During the years of 2000 through 2009 commercial fishermen working the fishery off New England and New York were 37 times more likely to die on the job than were police officers according to a study reported on Boston public radio station WBUR.

Source: Soundings Trade Only Aug. 30 2012



Continued next page

News & Views — Continued

Research and innovation in yacht building central to HISWA Symposium



The 22nd edition of the biennial international HISWA Symposium on Yacht Design and Yacht Construction at Amsterdam RAI is scheduled for 12 and 13 November 2012 and will focus on science, innovation and research for and in the (Dutch) yacht building sector.

The renowned symposium will pay attention to the latest insights and developments in the field of yacht design and building for both sailing and motor boats. This year, the focus will be on research and innovation. Speakers from around the world will discuss the state of the art concerning design and propulsion. They will also concentrate on the application of glues in yacht building.

Timber construction is nothing new except if it concerns a 141 meter (462-ft.) long, 4-masted sailing yacht. The construction challenges this unique project entailed will be highlighted. The quality of the presentations will be safeguarded by international cooperation with universities and renowned institutes such as The Royal Institute of Naval Architects.

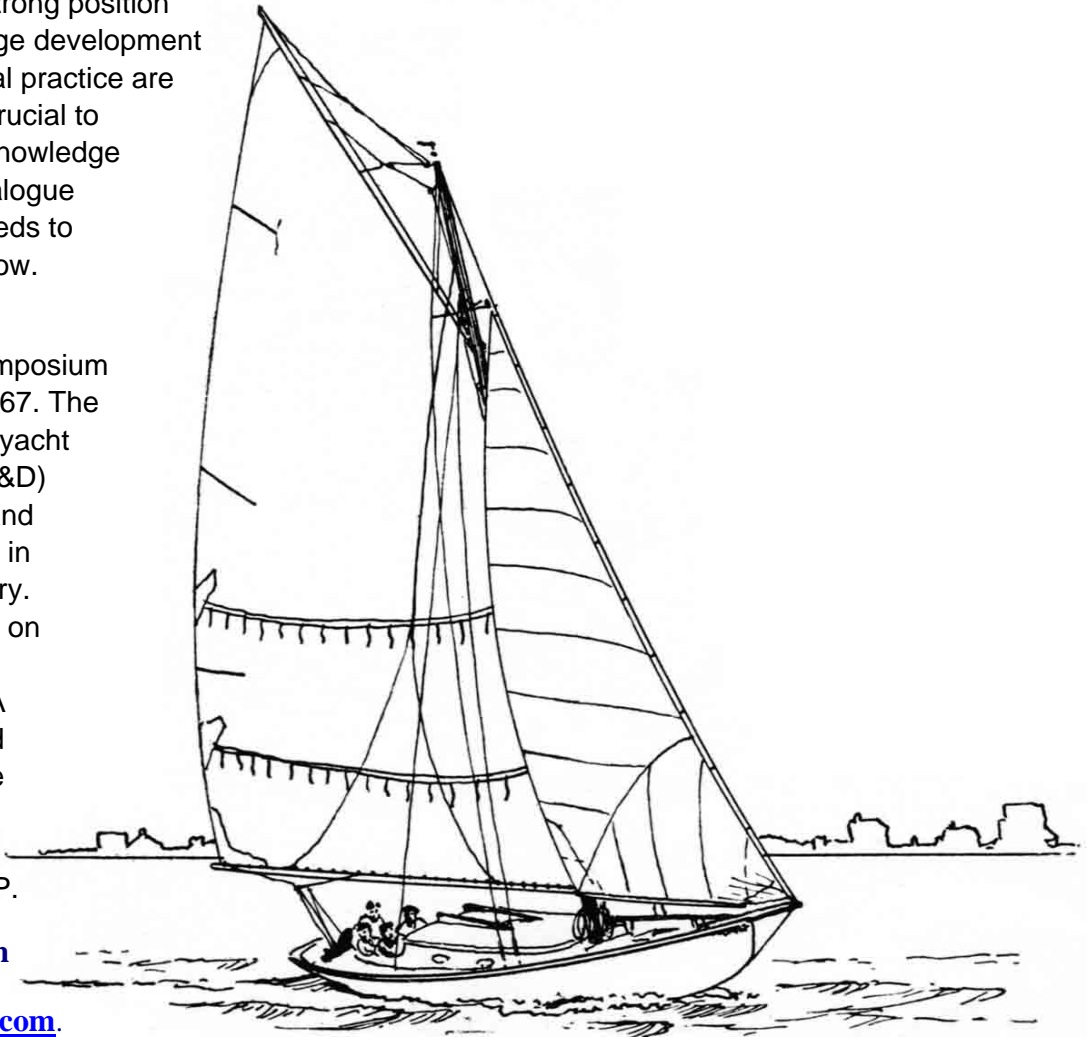
Carl Cramer, publisher of *WoodenBoat* Magazine, will chair the day: "The symposium is a renowned event among yacht designers and builders, and is one of the oldest initiatives in this field. It should be cherished." As a leading yacht-building country,

the Netherlands has a strong position internationally. Knowledge development and ties with professional practice are becoming increasingly crucial to retaining this position. Knowledge often comes about in dialogue with the industry that needs to capitalize on this knowhow.

History

The biennial HISWA Symposium was first organized in 1967. The program is of interest to yacht builders & designers, (R&D) technicians, managers and students with an interest in the yacht building industry. The HISWA Symposium on Yacht Design and Yacht Construction is a HISWA Vereniging, TU Delft and Amsterdam RAI initiative and is co-supported by MARIN, DAMEN, Royal Huisman and FEADSHIP.

For further information and registration:
www.hiswasymposium.com



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Elements of Technical Boat Design (Course No: ETD)

Elements is a comprehensive introduction to the fundamental concepts in yacht and boat design for marine professionals. Note: Graduates of Elements may transfer to continue on and complete the full professional Westlawn Yacht & Boat Design Program, receiving credit for all the subjects passed in the Elements course.

Topics include: Hydrostatics, Stability and Trim, Principles of Resistance, Drawing of Hull Lines, Ergonomics and Interior Design, Fiberglass Boat Design and Construction.

[CLICK HERE](#) for a detailed syllabus

[CLICK HERE](#) for more details and enrollment information on this and other Westlawn essential continuing education courses

Metal Corrosion In Boats (Course No. TT500)

Course No: TT 500

This comprehensive distance-learning course will provide a firm foundation in the causes of metal corrosion. It also teaches current practices in its prevention, reduction, and cure.

Topics include: galvanic corrosion, electrolytic corrosion, wastage, pitting, velocity effects, and cathodic protection. The cause and mitigation of corrosion of stainless steel, copper- and nickel-based alloy, aluminum, iron, and steel are studied. Special consideration is given to problem areas underwater, on deck and aloft, and in engine and fuel systems

[CLICK HERE](#) for a detailed syllabus

[CLICK HERE](#) for more details and enrollment information on this and other Westlawn essential continuing education courses

ABYC Courses and Schedule for 2012

The ABYC education department has been providing industry certifications, training, high school and college curriculum, and industry seminars for over twenty years. They are providing the marine industry with the skilled workers required to build and maintain modern small craft of all types.

ABYC is currently scheduling on-site factory training for 2012. Please call ABYC for custom tailored, flat rate, instruction by top industry trainers at your facility (410-990-4460, Ext. 104).

The Marine Technician Certification Program developed by ABYC with "NOCTI Certification"* has proven to be the industry standard. ABYC continues to provide the highest quality marine education and training throughout the country and throughout the year.

For course dates and descriptions [Click Here](#)

*NOCTI (National Occupational Competency Testing Institute) is a regular provider of the assessments on which many certifying bodies depend for measures of applicants' standards-based knowledge and skills. Certificates benefit employers by showing that applicants have acquired specific skills. The status of having a certified staff can lead to higher sales and customer satisfaction.



All Westlawn Courses are nationally accredited by the Accrediting Commission of the DETCC

THE DISTANCE-LEARNING ADVANTAGE

Distance learning is the cost-effective way to advance your career or train your employees:

- no travel, little or no time lost from work
- no on-site or off-site set up and no facility rental
- no visiting instructors
- modest tuition costs
- start when you want
- study at your own pace

Yacht & Boat Design Program



ACCREDITED BY
RINA
THE ROYAL INSTITUTION
OF NAVAL ARCHITECTS



ABYC
Setting Standards for Safer Boating

Training Links & Events Schedules



Class Notes

Advance Your Career. Train Your Employees.

ABYC is the acknowledged leader and certifying body in education for the marine industry. We offer technical classes that progress from entry level to advanced courses, meeting the needs of every experienced marine professional seeking improved skills. ABYC educational programs support the career path of individual technicians and provide a training curriculum for marine businesses. Our goal is to provide continuing, convenient education to improve the quality and professionalism of our industry.

[Check the Class Calendar & Register Online](#)

Find an ABYC class in your area and then [click on the course title](#) to read the course description, prices and to register online.

[Learn About the ABYC Certification Program & Courses](#)

Read about the ABYC Certification program, who should become certified, how to certify and the eight different areas you can get certified in.

[Need to Re-Certify?](#)

The two most important reasons to recertify are your career and yourself. If your certification is about to expire your certification is about to expire.

[ABYC Class Schedule Through December 2012](#)

Oct 15, 12 - Oct 18, 12	EL400 - Marine Electrical Certification, Jacksonville, FL
Oct 15, 12 - Oct 18, 12	MS400-Marine Systems Certification, Kilmarnock, VA
Oct 30, 12 - Nov 02, 12	EL400 - Marine Electrical Certification, Portland, Oregon
Nov 06, 12 - Nov 09, 12	DE400 Marine Diesel Engines and Support Systems Certification, Mystic, CT
Nov 13, 12 - Nov 16, 12	EL400 Electrical Certification, Seattle Washington
Nov 13, 12 - Nov 16, 12	MS400 - Marine Systems Certification, Gulf Shores, Alabama
Dec 04, 12 - Dec 06, 12	CB400 - Composite Boat Builder Certification, Biddeford, Maine
Dec 04, 12 - Dec 07, 12	MS400-Marine Systems Certification, Halifax, Canada
Dec 11, 12 - Dec 14, 12	MS400 - Marine Systems Certification, Mystic, CT
Dec 11, 12 - Dec 14, 12	MS400 Marine Systems Certification, Seattle, WA
Dec 17, 12 - Dec 19, 12	CB400 - Composite Boat Builder Certification, Miramar, FL
Jan 08, 13 - Jan 11, 13	ELC200 Introduction to Basic Electric and Corrosion Protection, Essex, CT
Jan 08, 13 - Jan 11, 13	ELC200 Introduction to Basic Electric and Corrosion Protection, Lake Ozark, MO
Jan 29, 13 - Feb 01, 13	EL400 Electrical Certification, Annapolis, MD
Feb 25, 13 - Feb 28, 13	MC400 Corrosion Certification, Annapolis, MD

Training Links for Westlawn Distance Study

Click on Topic for more information:

[Professional Yacht & Boat Design,
4-Course Sequence](#)

[Elements of Technical Boat Design](#)

[Continuing Education](#)

[Applications & Enrollment](#)



**All Westlawn
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nationally accredited
by the Accrediting
Commission of the
DETCC**



2012 NMMA Boat Shows

For a Complete listing of NMMA
shows [CLICK HERE](#)



The Future of Marine Technology Begins at IBEX

The International BoatBuilders' Exhibition & Conference
October 2-4, 2012 Kentucky Exposition Center, Louisville, Kentucky, U.S.A.

It's three full days of technical and business seminars, meetings, exhibits, product demos, conferences and business opportunities. Visit us at the Westlawn booth number 2545. www.ibexshow.com

Training Links & Event Schedules (continued)

ABYC Webinars

ABYC is now offering webinars as a new and exciting learning tool to train marine professionals. Webinars are good for you and your company because they:

- Are relatively inexpensive
- Are monthly
- Are current and topical
- Can be viewed in real time or on your own time
- Can be archived for members
- Help you train your staff
- Give you a taste of an ABYC certification class

A typical webinar might feature an ABYC instructor or other industry expert doing a 60-90 minute talk with a Power-Point presentation on a relevant topic. You might hear Ed Sherman talking about new battery technology or Captain Dave Rifkin discussing corrosion or John Adey explaining the details of a new ABYC standard. We have learned how to stream these presentations to your computer in your office with top quality sound, graphics and deliverability.

Order a pizza and gather your technicians in for a shop lunch. Have them all listen and view the presentation. Each one of them will learn something to take to the boat with them. This will make expertise and knowledge synonymous with your company and your technicians.

Go to the class calendar on the ABYC Website and sign up for one



RINA



The Royal Institution of Naval Architects

2012 Events Program

RINA organizes a programme of international conferences, workshops and training courses, covering a broad range of experience and opinion on research, development and operation on all aspects of naval architecture and maritime technology.

For more information about any event, click on a title.

Marine and Offshore Renewable Energy

26 - 27 September 2012, London, UK [Register Now](#)

Marine Coatings - Risk Management Course **2 October 2012, London, UK [Registration Open](#)**

Contract Management for Ship Construction, Repair and Design Course

3 - 5 October 2012, London, UK [Register Now](#)

Marine Heavy Transport & Lift III

24 - 25 October 2012, London, UK

[Register Now](#)

Book by 24/09/2012 and save £100

ICSOT Indonesia: Developments in Ship Design & Construction

7 - 8 November 2012, Ambon, Indonesia [Register Now](#)

2012 President's Invitation Lecture and Dinner

21st November 2012, London, UK

SAFEGUARD Passenger Evacuation Seminar

30 November 2012, London, UK [Register Now](#)

Historic Ships 2012

5 - 6 December 2012, London, UK [Call For Papers Open](#)

For a complete listing of upcoming RINA events, go to:

http://www.rina.org.uk/events_programme

Masthead Archive

All back issues of *The Masthead* are available online.

[CLICK HERE](#) to read the back issues of *The Masthead*

NEW!! Online Searchable Combined Index for All Issues of The Masthead

With 24 issues and counting, there is a vast store of information in all the issues of Westlawn's quarterly online journal, *The Masthead*. All issues are always free and always available online. But how can you find articles on specific topics or by specific authors in all these issues? We've made it easy! Click on the link below and you'll get a searchable PDF file, which is the *Combined Index* of all issues. Use the *find* function to search for the information you want, then download or open that issue. The *Combined Index* will be updated with each new issue, so it will always be current.

[CLICK TO ACCESS THE MASTHEAD COMBINED INDEX](#)

Ship's Store

[Click here](#) to visit our ship's store for Westlawn caps and tee-shirts, bronze spline weights (*see picture below*), and a selection of marine books.



SUBSCRIBERS

There are over 8,500 subscribers to *The Masthead*, Westlawn Institute's quarterly E-journal.

Our readers are yacht and boat designers, boatbuilders, marine techs, surveyors, boat design students, and members of the boating public.

The Masthead

The Journal of the Westlawn Institute of Marine Technology

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We're on the Web at
www.westlawn.edu

Who We Are

Westlawn is a not-for-profit educational affiliate of the [American Boat and Yacht Council \(ABYC\)](#). Our school is nationally accredited by the [Distance Education and Training Council \(DETC\)](#), and is listed as an accredited school by the [U.S. Department of Education](#) and by the [Council for Higher Education Accreditation](#). The Westlawn Yacht & Boat Design Program is also accredited by the [Royal Institution of Naval Architects \(RINA\)](#).

Our Mission

Founded in 1930, the mission of the Westlawn Institute of Marine Technology is threefold:

- To provide our students with the skills and knowledge required to build a rewarding career in the profession of yacht and small-craft naval architecture via distance learning.
- To support continued growth of the recreational and small-craft marine community through the development of well-trained, safety-oriented, boat designers developing better products for the benefit of the boating public.
- To provide continuing education to marine-industry professionals.

ABYC
www.abycinc.org

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