

## Maine-built 37' daysailer nears finish

French & Webb, award-winning custom yacht builders in Belfast, Maine, are putting the final touches on a Mark Fitzgerald-designed 37-footer. Her traditional lines are crafted with cold-molded construction and belie the level of sailing performance anticipated.

A 5'-6" fin keel and 11,200 lbs displacement are matched with a 46' GMT carbon mast and 583 sq.ft. of sail. She's set up for singlehanded and friendly daysailing but features beautiful interior work with aft galley, full beam head, forward stateroom and saloon with settees, so she'll be a pleasant weekend cruiser. Isn't she a beauty?

More info is at [frenchwebb.com](http://frenchwebb.com) and [markfitzmarine.com](http://markfitzmarine.com).



French & Webb's cold-molded hull.



Mark Fitzgerald's design for 37-footer.



Life at the South Pole doesn't always look this hospitable. The Keck Array is inside the inverted cone at far right.

## GMT carbon fiber legs support Keck Array on South Pole ice

The Harvard Smithsonian Center for Astrophysics has installed a Keck Array at the South Pole. This complex high-tech project is a set of reflective mirrors that collect background microwave radiation which has been filling the universe since the Big Bang.

GMT built the carbon fiber legs supporting the Array. Carbon fiber formulated with special resins handles extreme temperatures, doesn't become dangerously brittle, resists expanding and contracting, and is lighter than metal yet can handle heavy loads. Weight is critical as everything destined for the Pole must be flown in.

The Keck Array requires tolerances of  $\pm 0.0005$ ". (No problem: our wafer pallets have a tolerance of  $\pm 0.0002$ "!) But working at the South Pole is very difficult. Average temperature is  $-57^{\circ}\text{F}$  and has

sunk to  $-117^{\circ}\text{F}$ . There are strong winds, high snow loads, ice, and months of darkness.

The Keck Array has now been functioning for a full Antarctic year. Harvard Smithsonian's John Kovac says, "Your carbon fiber tubes in our telescope's beam-mapping mirror support structure worked out exactly as we had hoped. The six-legged support came together late in the season, but the deployment worked to plan and the mirror went up smoothly. Heavier tubes would have made erection impractical without a crane. Stiffness of the overall structure was fantastic."

"Thanks for all your help and expert advice! This was a very challenging and unusual application. The end result demonstrates that we got the design and execution just right."



GMT support structure for the Keck Array.



View of the Array from above.

## Owner selects 3rd GMT rig for Apogee refit

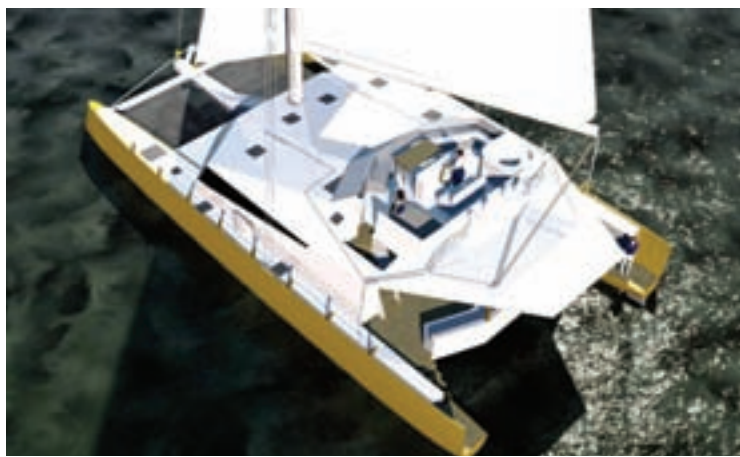
Sandy Wakeman is a blue water sailor who's long enjoyed cruising and racing *Pilgrim*, his handsome Able Apogee 58 designed by Chuck Paine. GMT played a part in *Pilgrim's* original build, and had supplied a carbon fiber furling mast for her first owner. With this year's Bermuda race on the horizon, just six months away, Sandy decided to re-rig his boat. His objective was to remove weight aloft and increase his mainsail's size and performance.

This skipper once again chose GMT as his custom spar maker. Sandy told us, "Pretty cool that we're replacing one GMT mast with another. This will be my third carbon fiber GMT stick. We had one in our Able Apogee 50 and we've sailed over 40,000 miles with GMT masts on both boats. I guess you could say I'm a loyal repeat customer!"

We calculated that a new non-furling carbon spar would shed 220 lbs up high where it really counts. Switching from wire to rod rigging eliminates even more weight. Sandy also recognized the value of GMT's PowerFurl™ boom: It has all the convenience of a furling main with a lower center of gravity, plus compatibility with today's full-roach, fully battened, higher performance mainsails. So he's getting one!



*Pilgrim in Centennial 2006 Bermuda Race.*



*Computer rendering of Pilgrim Supercats' advanced concept 70-foot catamaran.*



*This is state-of-the-art in multihull style.*

## GMT picked for complex cat job

GMT is working on several projects for Pilgrim Supercats, a progressive Brazilian yacht maker, headed by Marco Raymundo. The firm is known for undertaking technologically challenging work.

One project involved building three crossbeams, a mast, and a PowerFurl™ boom for their new Pilgrim 70 catamaran. The 34' carbon fiber beams support 50 tons and more than 400,000 ft/lbs of torsional load. Each beam uses over 700 pounds of prepreg carbon-epoxy, 900 lbs lighter than a comparable alloy structure. We produced parts that were within 0.06" of tolerance over the entire span.

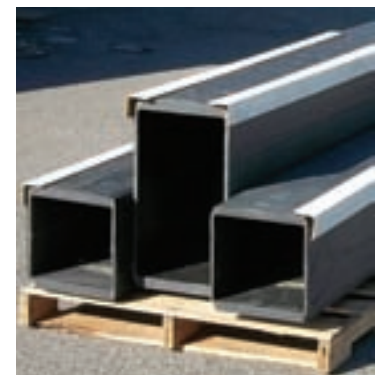
This PowerFurl™ boom is the strongest we've built to date. Its laminate thickness varies from over

3/4" down to 1/8". The boom shell is made by a resin infusion technique, usually not possible when thick regions of unidirectional carbon fiber are required, as in this boom. But GMT has developed a ground-breaking technique to infuse the entire shell at one time.

GMT President David Schwartz said, "We're honored Pilgrim chose to work with us. They're on the leading edge of boat building in South America and are technologically innovative and demanding."

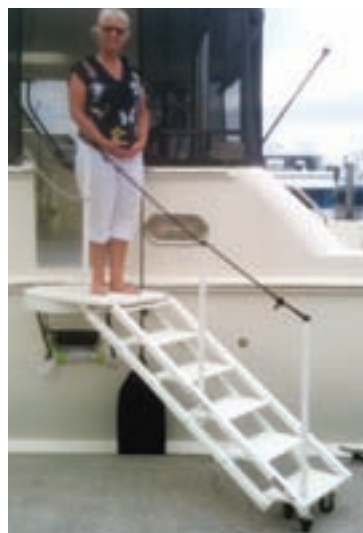
Pilgrim's VP & co-founder, Diogo Guerreiro, had this to say about the project and GMT: "The Pilgrim 70 is a revolutionary catamaran – a new concept. Because we pay strong attention to every detail, we selected GMT based on

their experience and technology building carbon fiber masts and booms. And they did more than we asked – GMT interacts with clients during the whole process, adding new ideas and suggestions, so that working together we can achieve the best result."



*Cross beams before shipment to Brazil.*

## SeaStairs: easy boarding for elegant boats



*GMT's SeaStairs installed 'down under'.*

GMT's carbon fiber SeaStairs are custom made for each client and their individual yachts. Because each stair is so personalized, it's not unusual for us to hear back. Here's an example from a customer from down under:

"We're back in Australia and the install of the stairs on the portside has just been completed. You are to be congratulated. The stairs are magnificent, beautifully engineered, and look wonderful."

"Your install instructions were simple to follow and, via our numerous emails, amazingly you have nailed the attachment to the hull exactly and to perfection."

"A photo of the stairs and my delighted wife is attached. The stairs have been a hit in the yard, so perhaps further business will result. It has been a real pleasure to do business with you. The result speaks for the attention to detail that ensured a perfect outcome."

GMT is developing a larger set of SeaStairs for a Nordlund 106' Monk-designed expedition yacht. The owner suggested a mounting system that's similar to a camera-mount. A single SeaStair can be used on either side of the hull (a mechanical stair would have required separate units). And light weight equals portability! More in our next issue.



Photo: Nicolas Claris

GMT's experience with carbon fiber led to Langan Design selecting us to fabricate the custom arch which supports navigation and safety gear on the award-winning superyacht Calliope.

## Superyacht *Calliope* lands coveted awards

For the superyacht *Calliope*, a fabulous 42.3m luxury craft built by Holland Jachtbouw, 2011 was an outstanding year.

In May *Calliope* received the World Super Yacht Award for Best Three-deck Semi-displacement or Planing Motor Yacht. In October at the Showboats Design Awards 2011 in Palm Beach, Florida, the prestigious Golden Neptune trophy was awarded to *Calliope* for Best Exterior Styling and Design in a Semi-Displacement Motor Yacht.

Langan Design Associates of Newport, RI, were the naval architects, with interior styling by Rhoades Young and interior decoration by Candace Langan. GMT is proud to have been chosen to construct the 30' arch and the distinctive arms which support the radar tower and provide shade to the spacious sundeck and Jacuzzi. Yachts International Magazine described these arms as a "feat of engineering." Carbon fiber construction makes the structure appear much lighter than it

otherwise would, contributing to *Calliope's* style and elegance.

Sam Howell, naval architect at Langan Design, had this to say about the project: "Langan Design approached GMT Composites to build the carbon fiber arch and supporting arms for the superyacht *Calliope*, based on GMT's years of experience successfully tackling complex custom fabrication projects. The arch represented some significant manufacturing challenges, and GMT delivered on

time and to spec. They more than met our expectations, and now the arch beautifully and gracefully carries *Calliope's* radar tower, with minimum weight aloft."

Carbon fiber dampens vibration and improves precision in the navigation, communication, and safety gear mounted on the structure. The reduction in topside weight, especially up high where it most affects rolling stability, improves propulsion efficiency and reduces fuel consumption.

## Carbon bling at a store near you?

The David Yurman Group, a well-known name in jewelry, asked a designer to explore bracelet ideas using carbon fiber in combination with 18 carat gold and sterling silver. GMT fabricated the rope using special braided carbon fiber. We applied complex resins and coat-

ings to the carbon fiber, giving the bracelets a jewelry-grade clear finish that accentuates the weave.

David Yurman is evaluating the bracelet shown below, and several other concepts. Perhaps you'll soon be able to give (or receive) this high-performance bling.

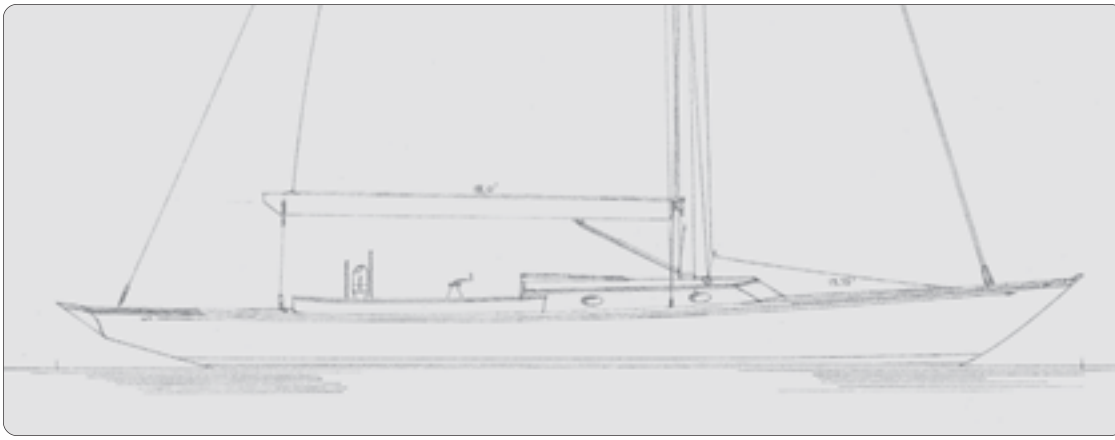


Photo: Rick Tomlinson

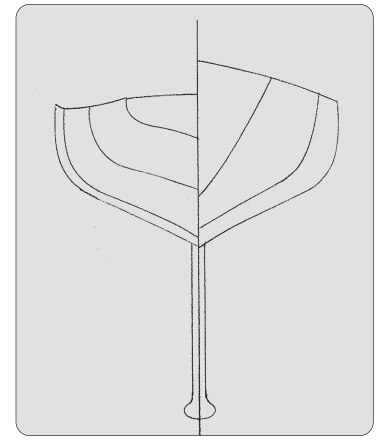
## Lady B: another star superyacht

We've previously described GMT's construction of a 20' (6.1m) carbon composite rudder for the 147' (44.7m) yacht *Lady B*. In May this Dubois-designed and Vitters-built sloop received a Judges' Commendation as "best sailing

yacht 30m-45m" at the World SuperYacht Awards. Vitters' Director Louis Hemming said, "We consider the *Lady B* yacht a perfect example of a modern performance-cruising sloop. We're very proud to deliver head-turning sailing yachts."



Profile sketch of Lark, designed by Jim Taylor of Marblehead and currently being built for a Maine client by Brooklyn Boatyard.



Lark's elegant hull promises performance.

# Sleek sloop to set sail Downeast in June

Steve White, owner of Brooklyn Boat Yard, sent us news of a yacht he's building. To be named *Lark*, she's set to launch in June.

"This 47' gentleman's daysailer was originally designed by Bob Stephens of Brooklyn Boat Yard. We launched her in 2001 and she proved to be a very satisfactory boat. A client liked her and

after taking her for a quick sail, asked us to build him a new one."

"The client asked Jim Taylor of Taylor Yacht Designs in Marblehead, MA, for an up-to-date keel, rudder and rig. The new keel is 6" deeper than before, thinner, and has a shorter cord length. The rudder is deeper and has a higher aspect ratio, and the new rig is 2'

taller. The sloop also has 2" more freeboard, 2" more cabin height, and a redesigned cockpit. We did these changes in-house."

"Because of quality, price, and delivery, GMT was an easy choice to supply a new carbon mast and lightweight PBO standing rigging. We look forward to working with David and his crew again."

Steve said the owner was an avid racer around Blue Hill and Mt. Desert Island. With a Sailtec hydraulic package for vang and adjustable backstay tensioner, we're eager to see how *Lark* performs in the Eggmoggin Reach Regatta. We're pretty sure her owner will hear a lot of praise no matter how his boat finishes!

## Precise pallets

Silicon wafers are the heart of integrated circuits for electronics. Production requires high precision; only a pallet of aerospace-grade high-modulus carbon can face the

challenge of holding wafers steady and jitter-free without deflection during fabrication.

KLA-Tencor, a large manufacturer of machines to measure wafer geometry, has been a GMT customer for over 12 years. Cur-

rently we're working on a pallet upgrade designed to improve function and productivity, and make it easier to set up and calibrate pallets in their machines. This is the kind of service that keeps our clients coming back.



Detail of GMT precision wafer pallet.

## As GMT grows, we're adding new staff and toasting old timers



L-R: Jonathan Craig, Rich De Silva and Joe Cabral.



L-R: Senior shop technician Carl Gustafson and office manager Cathy Antone.

We're growing! Jonathan Craig is our new Director of Sales and Marketing. His experience includes 10 years as Sales Director for Fiberspar, a pioneer in carbon fiber for marine and industrial applications.

Also joining us is Joe Cabral, a seasoned shop technician with over 27 years in the composites

industry. Prior to GMT, Joe worked at Fiber Glass Laminators, Pearson Composites, and Shannon Yachts.

Three people who just celebrated their 10th anniversary with us are senior shop technicians Rich De Silva and Carl Gustafson, and our office manager, Cathy Antone. We're proud to have them on our team!



Lightweight high-strength masts, booms, poles, struts, and composite structures for marine and industrial applications.

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