



Engineers' News

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December Tour Summary

Host: Master Spas

Date: Thursday, December 3rd

Time: 3:00 pm

Location: 510 Sumpter Drive, Fort Wayne, IN 46804

FWEC members attended a tour of Master Spas' newest facility. This facility underwent a 2 yr renovation as it was previously Fort Wayne Plastics. This new facility would allow Master Spas to make a new home for their swim spa operations and be designed from the ground up for optimal production. You might know Master Spas for your backyard hot tub, but the newest trend in the market today, is what is called a swim spa. This tub allows owners to actually swim, row, exercise or even lounge. With the real benefit being a full size pool is not needed in your yard. As of June 2019 this facility became operational and has increased overall swim spa output from a maximum of 15 spas per day to 30 spas per day.



The impact of Covid-19 has increased the sales of these tubs as well, as athletes and families are staying home and using their properties more everyday. If you were to go and order a swim spa today the Master Spas' team could have it in your yard somewhere around the August 2021 timeframe. Typical lead times are 6-8 weeks, which would allow you to prepare all the other items needed for one of these very

large hot tubs. This lead time also allows the Master Spas' team adequate time to manufacture these complex pieces of equipment.

The swim spa itself is built very similarly to other smaller hot tubs, but really is scaled up. It all starts with a sheet of acrylic being heated and then vacuum formed to make up the shape and the overall "tub" of the assembly. This required the use of one of the largest vacuum form machines in the country and can create parts up to 25 ft.



This isn't always easy though, especially when you are trying to please company spokesman, and 23 time gold medalist Michael Phelps. Michael wanted a deeper tub and vacuum forming experts told Master Spas' it wasn't possible, but they were able to achieve the added depth through their process. Once the acrylic tub is molded it moves onto getting its fiberglass exterior. The tub itself is coated in 3 consecutive layers of fiberglass matting from chopper guns that spray the glass and resin onto the surface. Then associates use rollers and brushes to wet out the matting and eliminate air which can be a cause for weakness in the layers. PVC piping is added in between and around specific areas to strengthen the tub, allow for pipe routing points, and give lifting points when removing from the base.



The tub then enters a large room with a cutoff saw and a lot of dust collection. The saw will remove the rough top edge of the saw and operators with respirators and air breathing devices will drill the holes for the jets. Upon exit, a team will begin to plumb the water and airlines as well as install all the jets and pumps. The wood framing is then assembled around the tub and it is prepared to be flipped

onto its base. The base is designed with a high density foam to give the tub a solid level platform to sit on. it then enters a special piece of equipment to rotate the assembly as it heads into testing.

Each tub is water tested to check for any leaks of the system prior to exiting. The water is pumped into the tub and then pumped out to accelerate the process. This water being used is filtered, heated, and treated to give it the most similar testing atmosphere as it would experience in your backyard. They are then powered up to validate pump



functions and look for issues.



Quality control is managed through a fun and colorful array of rubber ducks. The duck will receive a yellow duck when it arrives to quality control, upon completion of inspection if it passes it will receive a green duck and if it fails and is in need of repair it gets a black duck. This visual mgmt. system allows operators to quickly identify what is happening with each specific tub. Upon completion the tub moves onto getting prepped for shipping. The entire base of the tub is sprayed with a low density polyurethane foam. This not only adds insulating value, but it reduces noise

and helps to keep all the plumbing intact during cycling. Once this process is completed the tub moves into its final stage of getting its exterior covers and gets a final detail, in and out. The acrylic tub can be buffed or repaired if any scratches are found. Then it gets a shrink wrap and is packaged for shipment.

A special thanks to our tour host for another fun and informative tour!



Upcoming Events

FWEC - Dave Schaller

March 25, 2021 at 6:30 pm

200 E Berry Street, Fort Wayne, IN

Join us for a presentation by one of our FWEC members to discuss current topics in Semi-Truck engineering and use. The presentation will be held at Citizens Square in the Omni Room.

NIRCC - Dan Avery

April 29, 2021 at 6:30 pm

200 E Berry Street, Fort Wayne, IN

Join us for a presentation by the NIRCC to discuss the region's transportation and

roadway planning council. The presentation will be held at Citizens Square in the Omni Room.

General Info

Thank you for the donations, returned postcards, and positive comments! These levels of support and guidance have significant impact on the continued vitality of Fort Wayne Engineer's Club which has been active since 1935. We appreciate your continued support and participation in club events!

Fort Wayne Engineers Club dues are \$0. Donations are welcome but strictly voluntary. In recent years, club funds have helped support Discover-E, annual bridge building contests in schools, academic awards, networking events, mentoring, our website, and facilitating free tours. Please see FortWayneEngineersClub.org, LinkedIn, or Facebook for updates on current Club activities, other news, and/or prior newsletters.

Those participating in activities through FWEC and our hosts does so strictly at their own risk, including disease exposures. Participation in club events is voluntary, free, nonprofit, and solely for the benefit of participants and the community at large.

Anyone with an interest may participate unless restrictions are specified for specific events, such as minimum age or minimum safety attire.

Local Opportunities

Experimental Aircraft Association Chapter 2

The Experimental Aircraft Association's Chapter 2 is still active. Check the [EAA-2 website](#) for current information!

TekVenture

TekVenture needs donations in cash or membership to help with heating costs while repairs continue after the fire. Membership is the most useful because growth in official numbers has additional impact. See TekVenture.org, a 501(c)3.

Interested in hosting a tour?

Contact us at info@fortwayneengineersclub.org

FWEC Board Meetings

The FWEC board meets eight times a year to plan and organize tours for our members. These meetings are open for anyone to attend. We are always looking for new members to join our team! If you are interested in being a board member please attend our next board meeting or contact us at info@fortwayneengineersclub.org.

**The FWEC has an urgent need to fill the club's Treasurer Trainee position. If you are interested in this opportunity please contact us!

Next Meeting

Date: Tuesday, February 2, 2021

Time: 7:00 pm

Location: 502 E Pettit Ave, Fort Wayne, IN 46806

FWEC roster for FY2020-2021

President: Nate Berndt

Vice President: TBD

Immediate Past President: John Magsam

Secretary: Marna Renteria

Treasurer: Ryan Stark

Treasurer-Trainee: TBD

First-year Board Members: Dave Gordon, TBD

Second-year Board Member: John Renie, Craig Welch

Third-year Board Member: Rob Cisz, Bert Spellman

Editor of Engineer News: Morgan Miller

Membership and Contact Chair: Dave Schaller

Northeast Indiana DiscoverE Chair: TBD

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