



Fort Wayne ENGINEERS' Club

Engineers' News

January 2026

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www.FortWayneEngineersClub.org

January Tour



When: Thursday January 29th @ 2:00 p.m.

Where: 4534 Industrial Rd, Fort Wayne, IN, 46825, US

Details: Byrna makes less-lethal CO2 powered pistols that are powerful yet simple to use self-defense weapons. Their patented Pull-Pierce technology makes the Byrna Pistols the easiest and fastest launchers on the market to deploy for self defense. A single trigger pull will both puncture the CO2 cylinder AND fire the first shot. No cumbersome extra steps required to ready the launcher when seconds count. They also make a wide variety of ammunition and body armor. They have a shooting booth, and items for everyone to see and even try out if you would like.

Note: Door 2 is the preferred entrance. All the doors are marked above the doors with numbers. Door 2 is on the west side of the building facing Industrial road and it is next to the shipping docks.

November Tour Summary

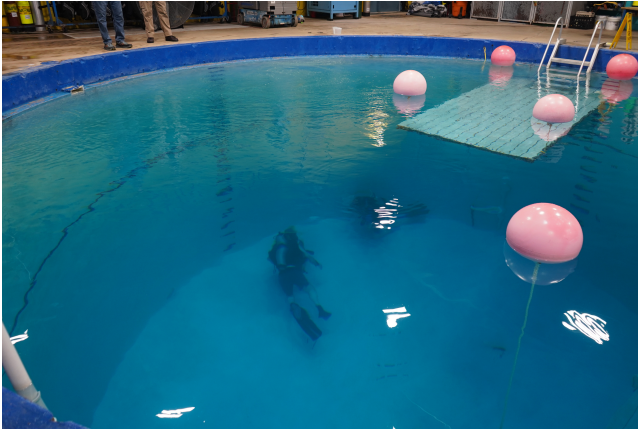


1313 Progress Road, Fort Wayne, IN 46808

The sonobuoy testing and research facility for Raytheon has been repurposed into a vibrant SCUBA facility, social resource, and store. Both of the original pools are 25 feet deep and maintained at 86 degrees F. One pool has platforms at depths of 5 and 15 feet. Beginners initially learn where they can simply stand up if encountering difficulties. The 15 foot level is a standard depth for divers to pause for multiple reasons when ascending, such as situational awareness when approaching the surface and/or if needed for avoiding the Bends. Fifteen feet is also useful for beginners to learn pressure adjustments such as their ears or flotation gear.

Pairs of divers routinely use the 25 foot bottoms of either tank for practice and recreation. Use of the pools includes use of basic gear stowed near the pools.

The store provides a multitude of possible local, social, and global activities. Several former quarries are dedicated local or regional dive sites. The final exam for Basic Certification is done at 60 feet in one of the quarries. Divers in the store had preferences that included warm waters with reef life, shipwrecks as deep as 330 feet in the Great Lakes or various oceans, and spending time with specific creatures such as octopus. By chance, all these divers were over 70 years-old. Other than the very young, age did not seem much of a limiting factor for Basic purposes. A formal medical exam is required. It seemed none of the retirees on our tour had pertinent health problems.



[Click here to read more](#)

Volunteer Positions in the Club

Vice President

Club Vice President needed! It's time once again to ask club members to fill this vital spot in the club's leadership roster. The Vice President is generally in charge of arranging club tours, though this has traditionally been a team effort so it's not really all that much work. You would be expected to attend the monthly officers meeting (from the end of August until the end of May) and at the end of your one-year term, you would automatically become club president. The typical monthly time involved would be roughly 2 hours (including attending the officers meeting). If you enjoy the club and would like to see it continue to function, please consider volunteering for this spot.

Let us know if you're interested!

Volunteer

Interested in Hosting a Tour?

Contact us today!

FY2025 FWEC Council (visit webpage)

Job Postings

[HILTI](#) is in Indianapolis is looking to hire two Field Engineers with either Civil or Structural Engineering degrees.

As this role is hybrid, they may be open to someone in the Fort Wayne area, as long as that person is generally open to some travel to visit clients.

Link to the role: <https://careers.hilti.group/en-us/jobs/12292-en/field-engineer/>

Advertise in the Engineers' News

The FWEC provides advertising space within the Engineers' News. Advertisements are only \$20 per issue and limited to ½ page of content.

November Tour Summary Continued

Basic Certification is recognized worldwide. Discussion indicated it streamlines various cruise, vacation, and resort activities.

Reasonably reliable metallurgy and manufacturing processes for tanks became generally available after World War 2. Feasible on-demand pressure regulators also became generally available after World War 2. Regulators are central technology for SCUBA ("self contained underwater breathing apparatus") and have incrementally changed, but continuous improvement has evolved mostly in the equipment they serve.

There are two systems of SCUBA. One type uses a regulator with classic pressurized air tank(s)

to deliver mildly pressurized air to the diver. This system leaves a trail of bubbles wherever it goes. Our tour was primarily about this type of SCUBA. Another type of SCUBA system uses rebreather systems. Rebreathers have a complex and much longer history. About half the recreational market in the U.S. is currently rebreathers, but they are about ten times more expensive and require exertion to breathe. Advantages of rebreathers include much longer submerged times, less noise to scare off creatures, much shorter times between dives, and more.

Metallurgy for “air” tanks steadily improved. Classic steel or aluminum tanks now allow up to 3500 psi in 50 or 80 pound gross weights. The weight is essentially unimportant in the water. Deep Blue Divers can refill tanks with atmospheric air or some gas mixtures at almost negligible cost using its own compressor. The compressor was interesting, well-filtered, and unlike automotive units.

Nowadays, the regulator also has a hose which connects into a buoyancy compensation vest. A modern diver can be tuned much like a submarine (or dirigible) with a number of potential variations. The main variable in maintaining a level swim depth may be learning to breathe evenly, because air in the lungs determines a body’s buoyancy. Buoyancy in the vest may also provide much of the energy to ascend and descend in normal use, or in emergencies (instead of the old fashioned release of a weight belt). On the water surface, the vest can provide flotation, act as a longterm life vest, and/or be regulated to float higher out of the water in rough surface conditions.

Vests also replace backboards or other ways of carrying air tanks. There are pockets for weights if needed. And pockets for other stuff. The store sells various additional pockets with adhesive backs to add wherever needed including everyday coats, storage or tool containers, and boats/cars.

Endurance of a single large aluminum tank depends on depth of dive, the amount of physical activity, and personal skills. Everyday atmospheric pressure at sea level is about 1.0 atmosphere (atm) or 14.7 psi. Pressure increases linearly by 1 atm/33 feet of depth in freshwater, so is theoretically 2.0 atm at 33 feet and 4.0 atm at 100 feet. If a tank might endure 80 minutes at 33 feet, then 30 minutes might be suitable at 100 feet (in either case with reserves for pauses to allow outgassing from the blood during or after ascent). The times discussed were not linear. Printed charts and mental math have been largely replaced by digital device(s), except for the need for good judgment.

The regulator has yet another hose to provide an easily accessible pressure gauge and perhaps an integrated computer. Properly timed ascents for the individual diver are usually depicted electronically. Nitrox in the tank(s) instead of regular air reduces the time needed for pauses and decreases the time required out of water between dives.

While beyond the level of our tour, it seemed time underwater in a day could easily be quadrupled by rebreather systems with relatively simple mixed gas and routine digital device(s).

But, there are also simple rebreathers. See [Diving Rebreathers](#) in Wikipedia if interested. In essence, carbon dioxide is scrubbed from exhaled air and oxygen or oxygen mixtures (typically nitrogen and/or helium) added from relatively small compressed tank(s). The diver's lungs typically power all or some of the air flow. Maintenance of appropriate air and pressure may involve regulator(s), valves, and perhaps electronics.

Communications between divers is mainly by hand signals when close by, and perhaps by tapping on tanks when not. Voice systems are not widely used.

The risk of attack by animals or sea life is minimal if reasonable judgement is used. Most divers allegedly make too much noise for most creatures to want to be around. When asked about sharks, our host (a former military diver with 50 years of global experience) said "Unless deliberately incited, they are mainly attracted to surface activity that looks like normal prey."

Neoprene wetsuits have been available for over a half century but retain warmth better now because of improved construction and fit. They cost \$200 and up. Dry suits are designed to exclude water and manage perspiration such that a diver wears normal clothing under the dry suit both during a dive and while exposed on the deck of a vessel. Dry suits have various interrelationships with buoyancy vests and are particularly good for cold or deep dives. Expect to pay ten times more than for a wetsuit, but dry suits can be cozy all day for many outdoor or emergency activities and are durable (potentially more than a decade).

Diving masks or goggles are readily available with various lenses including bifocals (such as for reading dive computers). Colored lenses are popular to balance spectra (especially reds) that are differentially filtered out as depth increases. Prices are similar to safety glasses. (Ed.: BEWARE of full face masks with stylishly built-in snorkels that were common in everyday stores a few years ago. People drowned even in backyard pools. Properly designed units are in the dive store which range from fairly affordable to multifunctional.)

None of us realized this facility existed. The store is well worth visiting for a worthwhile mixture of interesting discussions, practical stuff (webbing to dry suits), and glimpses into continuously advancing technologies. Repurposing of the pools seemed ideal and priced to encourage participation. We appreciated a warm welcome and encourage our members to explore.

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