Fort Wayne ENGINEERS' Club

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Find us on

March Tour

Embassy Theatre

Date: Monday, March 23

Time: 6:30 pm

Location: 125 W Jefferson Blvd, Fort Wayne, IN 46802

Tour the Embasy Theatre to learn about the theatre's iconic organ. Installed in 1928, the Embassy's Grande Page Pipe Organ is one of three of its size built, and the one of two still in its original home. Built by the Page Organ Company of Lima, Ohio, the Grande Page Pipe Organ is loved by organ enthusiasts and novices alike. In 2014, the Grande Page console was restored and repaired over a ten-month period. Guests must be 18 years or older and able to climb ladders, catwalks with minimal or no railings, and tight spots. Limited to 30 guests. If interested please RSVP to info@fortwayneengineersclub.org.

Upcoming Events

April Tour: Indiana Tech (Geothermal and Wind Energy Systems)
Date: Thursday, April 23
Time: 7:00 pm
Location: 1600 E Washington Blvd, Fort Wayne, IN 46803

May Tour: TBD
Date: TBD
Time: TBD
Location: TBD

February Tour Summary

There was something to wow all who participated. This facility services most of northeast Indiana including from South Bend to Berne (zip codes 46500-469XX). Items arrive as an intermingled array of envelopes, flats, overstuffed padded envelopes of various sizes, packages of various sizes and integrities, and pallets of preprinted and/or half-sorted materials with addresses (such as magazines). Failure rates attributed to sorting processes appear to be <0.013% from all causes (Editor's math), stunningly low given relentless demands on the system.

The system is elegant in being digested into distinct simple steps. New ways of approaching each step or upgraded equipment have been inserted, tested, or run parallel with ongoing work for decades of continuous improvement. Slow or vulnerable points would seemingly be immediately obvious. It appeared efficiently and amiably set up to adapt to huge swings in workloads, oversight/security concerns of ever-changing agencies/shareholders, wet weather, extreme

temperatures, and electrical variables including static.

Normally, 0.7-1.1 million pieces of first class mail are sorted each night, 6 days per week. That count does not include packages, presorts such as bundles of subscriber magazines, and marketing inserts. Each first-class piece is processed upright (on edge) pressed between two broad conveyor belts. The initial sorts for "ordinary" first class mail utilize three machines, each about 40' long and 15' high, in sequence to identify and remove pieces that exceed design limits of machines further down the line. The first machine arranges mail upright and deletes items too thick to be sandwiched between conveyor belts. The process then sequentially isolates pieces too long or short, too high or square, and too rigid relative to length. Rigid items might damage plastic parts in older equipment or crack while going through bends. Bends are necessary to reduce the bulk of machines and precisely control conveyor belts. Successful DVDs and CDs are in package lengths capable of clearing these bends.

Many excluded items are "flats" (such as large "manila" envelopes) which are transferred to sorting machines explicitly designed for large envelopes, magazines, and catalogs. Subscriber magazines arrive in bundles, often in pallet loads, and are treated as flats.

"Ordinary" first class mail and postcards continue to a unit that accumulates and feeds pieces into an appropriate nearly-continuous line of paper. Postage stamps are electronically verified, cancelled, and a postmark applied. No mention was made of metered mail, but it must be incorporated somewhere. Postcards are more efficient because they are shorter, so more cards pass through the system in a given time.

Addresses on mail are typically processed in the Post Office's characteristic step by step manner. Each character is read and transmitted to a CPU individually to confirm clarity. The characters are reassembled by a CPU in their proper order. The characters are shrunk to a uniform size. The system then attempts to make sense of the zip code and address. Assuming a recognizable destination, the address is printed in bar code on both sides of each piece of mail. The ink may be "invisible". The bar code is confirmed as legible and the mail moved on to the next process. That next machine sorts and bunches first-class mail in order of delivery sequence for each delivery route in our northeastern region. Mail going outside our region is packaged for shipment to and final sequencing by those other regions. International mail goes to specific USPS hubs.

Data processing was less obvious to the eye than most other tours, but pervaded operations more than perhaps any of our previous tours. Our participants discussed how cleanly and properly sensors and cables were installed, traceable, and abandoned items removed (to avoid confusion).

"Ordinary" first class mail ranged from postcards to DVDs and passed by at 8-13 pieces per second per machine. They are able stop and start with mind-popping speed and accuracy if needed, but the sensors and data speeds required were generally not obvious. Visibility was generally excellent even for our group. Machines are designed with most operating stations far enough away to allow observation while operating at full speed with "safety" shielding open (for maintenance and continuous improvement?). Many shields had extensive windows. Shields appeared multi-purpose including dust exclusion, static electricity control, protecting whizzing mail, and ducting air for moisture control.

"Flats" are managed as a group in a similar manner, except they are not yet sequenced within each delivery route. The machines operate at perhaps 0.5-2 pieces per second, with more hand labor and conveyor equipment needed to feed them.

A new package sorting line is essentially in beta testing. It is hand fed to assure packaging is adequate and help orient addresses for machine reading. After reading, the mixture of padded envelopes and various box types continue down a conveyor about 75' long while magically sliding off either side into the mouths of specific mail bags (< 2' x 2' openings!). It seemed both labor friendly and efficient while moving slightly faster than the "flats". This replaced a cascade of physically-demanding hand sorting procedures and freed up people for more productive tasks, typically Post Office contracts in the evolving e-commerce environment.

USPS has standard trays, bags, and pallets for outgoing mail. If needed, trays or bags may be machine weighed at high speed and conventional shipping labels printed.

First-class mail has been declining at a rate of 7% per year but opinions varied widely regarding long-term outlook for postal systems. Businesses write off expenses and believe electronics have eclipsed physical mail. But, a vast number of households cannot justify the incessant cost, time, and attention required for secure electronics. Most have had ugly experiences with security breaches and fraud originating in business and government equipment.

The business argument also underestimates movement of physical items by postal systems directly and indirectly. We observed many pallets of e-commerce envelopes and small packages waiting to be sorted. Our tour revealed USPS increasingly moves goods when other shippers cannot or economically will not provide delivery.

Sincere thanks to our many tour hosts: USPS itself, Martin Hunnicut (facility manager), Paul Barrett (engineer), and amiable workers among the operations.

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.

Next Meeting
Date: Tuesday, April 7th
Time: 7:00 pm
Location: Indiana Tech McMillen Library Room ACC-201

FWEC roster for FY2019-2020

President: John Magsam
Vice President: Nate Berndt
Treasurer: Ryan Stark (info@fortwayneengineersclub.org, or phone 456-0809)
Secretary: Marna Renteria
First-year Board Members: John Renie, Craig Welch
Second-year Board Member: Rob Cisz, Bert Spellman
Third-year Board Member: Dave Gordon, Morgan Miller
Editor of Engineer News: Morgan Miller
Membership and Contact Chair: Dave Schaller
Northeast Indiana DiscoverE Chair: Rob Cisz

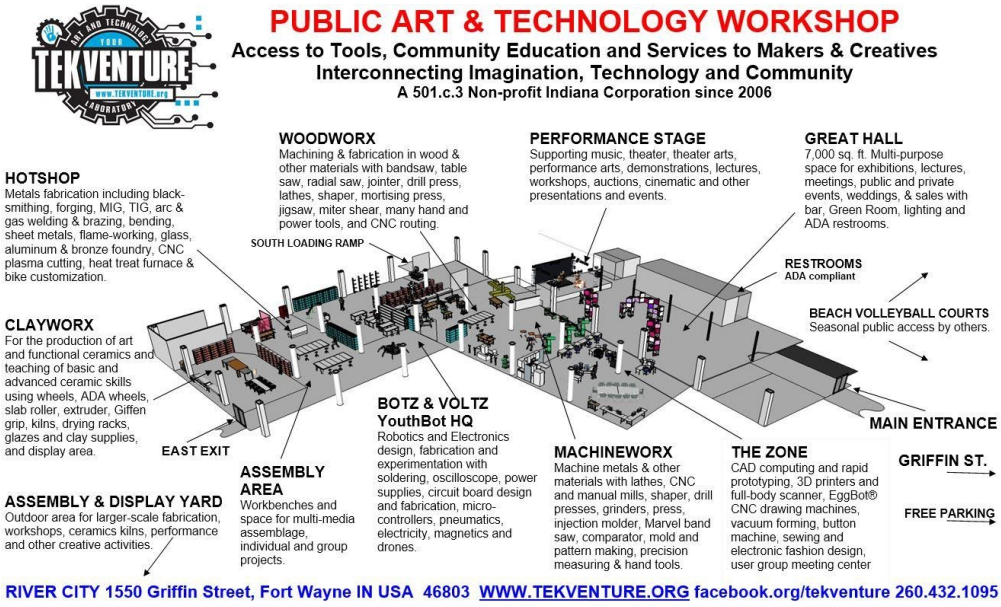
Local Opportunities

Ivy Tech Seeking Engineering Technology Adjunct Faculty

Ivy Tech Engineering Technology is looking for Adjunct (part-time) faculty to teach students in a variety of courses including C/C++ Programming, CAD in Mechanical Design, Mechanical Documentation, and Electrical Engineering Technology. Adjunct faculty assist students in reaching their goals by providing effective instruction and assessment within the framework of common syllabi provided by the school. If you're interested in teaching the future engineering workforce, reach out to Cait Cramer at ccramer15@ivytech.edu. Applicants must have a bachelor's degree in Engineering or Engineering Technology and availability at least one night a week.

TekVenture Meetings Open to The Public

TekVentue holds a free public Open house and Social with pizza and drinks every last Friday of each month at 6 pm. All ages welcome. The first floor is 15,000 sq. ft and entirely handicap accessible. Various clubs meet there. The clay working area is booming. Computers are available. There are a stage and some theater. Productions each year. Some underutilized space is available for working on motor vehicles, near their machine shop.
Got something you want to make, a technique you want to learn or a tool you want to use? Come to TekVenture and start Making your future! See tekventure.org.This location has also substantially lowered their overheads and costs of membership.



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