

Civil Engineering Times

A Word from Civil Engineering Department Chair

Greetings, once again, from Merrimack College. I'm delighted to be sending you this Alumni Newsletter written by our freshman class. Lot's of big changes this year in Civil Engineering at Merrimack College:

- We've implemented a new curriculum that is based upon several years of meetings with alumni, students and faculty, and on a careful look at our assessment data.
- We have developed a comprehensive and very exciting strategic plan for the Department. Our Mission is "to prepare exceptional civil engineers."
- We are right on target for attaining our enrollment goal of 100 by 2012 with the 35 new Civil Engineering freshmen in the Fall of 2009 and 36 this year!

The Civil Alumni Board has elected its 2010 slate of officers, Mike Walsh of CDM as President, Mike Juliano of Eagle Brook Engineering as VP and Chris Cole as Treasurer. I look forward to working with them as we continue to improve our Program.

As you may know, our main focus this year has been on our ABET accreditation. We thank you for your help this past Spring in developing the materials for our visit. In our continuing effort to establish connections with you, we have formed a group within "Linkedin.com" for Merrimack Civil Engineering Alumni. Please check it out.

More than ever, your continued interest and gifts of time, energy, and financial resources are very much appreciated by all of us in the department and college. We will always be grateful to you for your support, encouragement, loyalty and generosity! With your help, I am confident that we will be able to continue to move our Program to the leading edge of civil engineering education.

Please write us and share your thoughts with us. We value your opinions and we look forward to hearing from you!

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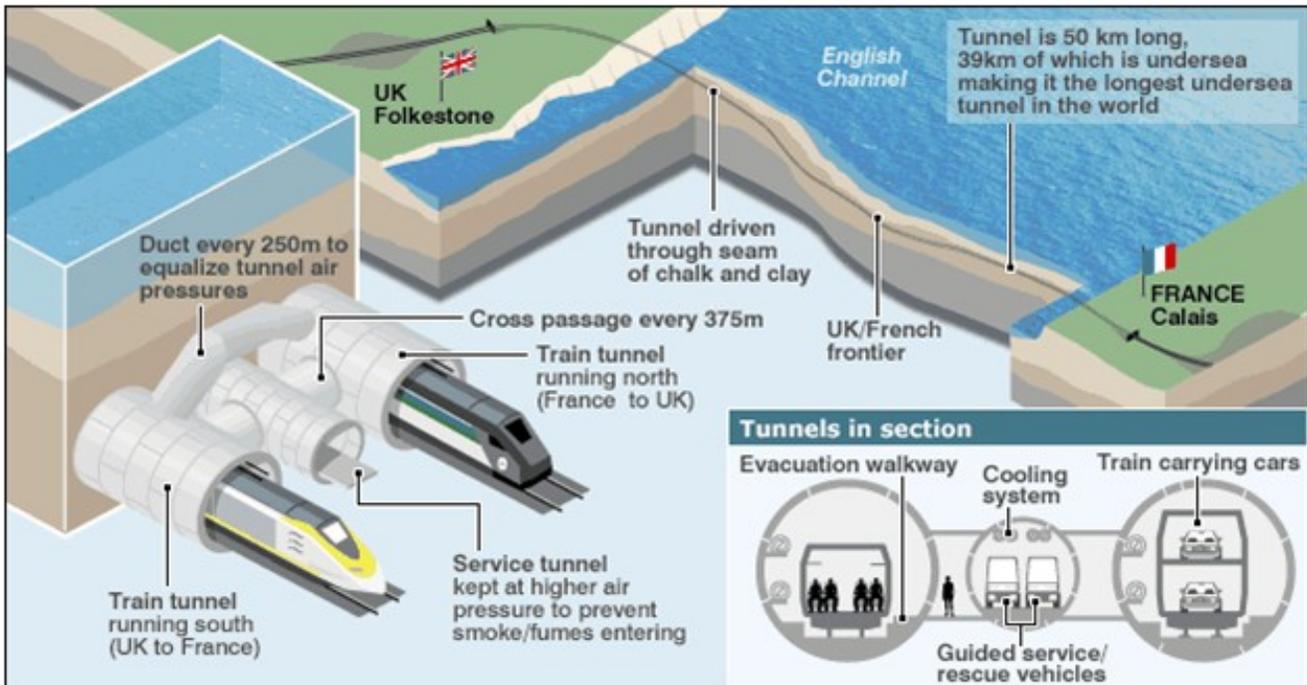
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The Seven Wonders of the Modern World

By Isadora Sartor

We are all familiar with the New Seven Wonders of the World - Great Wall of China, Christ the Redeemer Statue, Machu Picchu, Chichen Itza, The Roman Colosseum, Taj Majal, and the Petra. These New Seven Wonders were declared in 2007 by a vote of more than 100 million people (travelchannel.com). The American Society of Civil Engineers chose the biggest accomplishments of the 20th Century and came up with the Seven Wonders of the Modern World (ce.memphis.edu).



Channel Tunnel (England & France) - The Channel Tunnel links the UK and France through an underwater tunnel. It was a dream to unite the UK with the rest of Europe. It was started on December 1, 1987 and finished on May 6, 1994.



CN Tower (Toronto) - The CN Tower is the world's tallest freestanding structure soars 1,815-feet. The tower can withstand 260 mph winds because of its wind tunnels. It transmits 16 of Toronto's media signals. It was started on February 6, 1973 and finished on June 26, 1976.

Empire State Building (New York City) - The Empire State Building is the best known skyscraper in the world. It was the tallest building in the world for more than 40 years. It is best known for have been built in a year and



45 days. Although it is not the tallest building in the world it is still a standard for which all other skyscrapers have been judged for the last 65 years. Started on January 22, 1930 and finished on May 1, 1931.



Golden Gate Bridge (California, USA) - The Golden Gate Bridge was once the world's longest and tallest suspension bridge. At the time it was something never before accomplished, to place a bridge right on the mouth of an ocean harbor. Civil engineers fought the bad weather and built the bridge in 4 years. The bridge has withstood many earthquakes. Started on January 5, 1933 and finished on May 27, 1937.

Itaipu Dam (Parana River, Brazil & Paraguay) - The Itaipu Dam is the largest dam in the world. It was constructed on the seventh largest river in the world. Engineers shifted the



course of the river in order to create the dam. The Itaipu Dam supplies 28 percent of all the electric energy in Brazil's south, southeast and central-west regions, and 72 percent of Paraguay's total energy consumption. It was started on January 1970 and finished on May 5, 1984.

Netherlands North Sea Protection Works (Netherlands) - The



North Sea Protection Works consists of two monumental steps the Dutch took to win their struggle to hold back the sea. Step one, a 19-mile-long enclosure dam was built. The immense dike, 100-yards thick at the waterline, collars the neck of the estuary once known as Zuiderzee. Step two, the Delta Project, was intended to control the treacherous area where the mouths of the Meuse and Rhine Rivers break into a delta. The North Sea Protection Works exemplifies the ability of humanity to exist side-by-side with the forces of nature. Was started in 1950 and finished on May 10, 1997.

Panama Canal (Isthmus of Panama) - The Panama Canal is one of Civil Engineer's greatest triumphs. After the canal had been dug on time and on budget there was



still a question remaining: How to tame the floodwaters of the Chagres River, known to rise 25-feet in a single day during monsoon season? Their answer was to create a dam. As each part of the canal opens the water level changes for ships to be able to go by. It was started on January 1, 1880 and finished on January 7, 1914.

Events Calendar

By Kyle Bell, Cassandra Summit and Sabrina Boggio

ASCE Meetings - Mendel building, room 141 on Thursdays at 5pm.

Steel Bridge Competition Meetings -Mendel building, room 141 on Thursdays at 6pm.

Concrete Canoe Competition Meetings - Mendel building, room 141 on Mondays at 7pm.

Ice Cream Social - The Merrimack chapter of ACSE started off this year's events early with the Annual Fall Ice Cream Social, which was held on September 16th.

ABET - ABET will be visiting Merrimack in November.

5th Annual Bruins Game - November 15th against the New Jersey Devils at the TD Garden in Boston.

Catapult Contest - Students compete to build a catapult that will be able to launch an egg into a frying pan 60ft away to win a \$15,000 scholarship for up to 4 years.

Annual Alumni Golf Tournament - The ASCE Student Chapter and Civil Engineering Alumni Association hosts an annual golf tournament to raise money for the Fitzgerald Fund. The last tournament raised about \$2,000.

Empty Wall - There is a contest being held for ideas to fill the empty "Dead Engineers Wall". The winner will receive a reward that has not been announced yet.

2011 Steel Bridge Competition - This year Merrimack will be competing in the regional steel bridge contest on April 29th-30th at Univerite Laval in Quebec, Canada. The annual competition involves the design and fabrication of a 20-foot long steel bridge that is judged based on a combination of aesthetics, performance, and cost. The top three finishers will go on to compete nationally. The 2011 National Student Steel Bridge Competition will be held at Texas A&M University.

2011 New England Regional Concrete Canoe Competition - the Concrete Canoe Competition is taking place at the University of Evansville in Evansville, Indiana on June 16th-18th. Special plaques awarded include "Best Design Paper", "Best Oral Presentation", and "Best Final Product". Also, Men's and Women's Slalom/Endurance race, Men's and Women's Sprint Race, and lastly, "Spirit of Competition".

Masters Program - The Engineering department has been discussing the development of a Masters Program.

Annual End of the Year BBQ - More information coming soon.

Also coming up throughout the year - guest speakers, pizza socials, and assisting local middle school students with an engineering competition.

Professor Westerling Brings Changes to New Orleans

By Rebecca Read



When one thinks about New Orleans the first thing that comes to mind is the disaster that Hurricane Katrina left behind. On August 23, 2005 everybody in our country was devastated and saddened to see much of the city of New Orleans and surrounding parishes destroyed within a couple of hours. Sure our country grieved and was devastated, but only a portion of our population really got a feel for how tragic this storm really was. One of the few witnesses to the vast devastation was Professor David Westerling of Merrimack College's civil engineering department. A few years after the catastrophe, Professor Westerling took advantage of an offer to go down to New Orleans and use his expertise in engineering to help out with the current situation.

On July 31, 2007, Professor Westerling published a research paper on the Long Fellow Bridge in Boston, titled: Legacy of Neglect that raised quite a commotion. It was published in newspapers around the country, including the Boston Globe, and Professor Westerling appeared on several news channels and also presented several lectures. The main purpose of his paper was to make everyone aware of the dangers of this corroding bridge and to point out that the bridge provides transportation to thousands of people each day and the cost to maintain it was well worth it if it could save hundreds of lives. It was ironic that the day after this paper was published the I-35W Bridge in Minnesota collapsed. After that bridge collapsed, Professor Westerling's paper became even more popular and relevant and the majority of civil engineers in this country were

reading it. During this time period, and in connection with his work on the Long Fellow Bridge, Professor Westerling became acquainted with Robert Cerasoli, the Inspector General for the Commonwealth of Massachusetts.

When Robert Cerasoli was unanimously voted to become the first-ever Inspector General of the City of New Orleans in 2007, he called upon Professor Westerling to work with him. In the summer of 2008, Professor Westerling went down to New Orleans to work with on the infrastructures and repairs of the destroyed city. Soon afterward, Professor Westerling stepped into the position of Inspector General in New Orleans. Professor Westerling was involved in road construction, designing pump stations, and the city budgeting. Professor Westerling said that what New Orleans is doing for the future is making it so that a disaster such as Katrina only occurs once in a hundred years. He also stated that the ideal goal is to make it so that the destruction caused by a storm like Katrina only has a chance of happening once in 500 years. Professor Westerling recognizes that would require an expensive design, but he stated, "every life is valuable and if New Orleans is hurting, everyone is hurting."

Professor Westerling helped to rebuild New Orleans, he made it so the office of Inspector General is a permanent position in the City and it receives .075% of the budget of the city of New Orleans. After taking on the role of Inspector General from 2008-2010, Professor Westerling stepped down to have Edouard Quatrevaux take over his position. The citizens of New Orleans have expressed their gratitude that someone is providing oversight to hopefully prevent such widespread devastation in the future.

Riverbank Filtration Tunnel & Pump Station (Katie Rougeot) - Riverbank Filtration project was set up to obtain future Safe Drinking Water Act regulations. The new filtration tunnel is located in Louisville, Kentucky. The goal is to make a purification process that uses the water from the riverbank, this helps remove contaminated particles from the river water. The water from the Ohio River is filtered through the sand and gravel of the riverbank then it filters into the plant for more treatment. The tunnel acts a blockade for the removal of pathogens. It also abolishes problems caused by Zebra mussels and Asiatic clams that blocks the water. The chances of chemical spills and pesticides are dramatically reduced.

The project cost a total of \$50 million and is 7,800 feet long. It was complete in spring of 2010. The tunnel took 2 years of construction but a decade of planning. Building the tunnel was a tight fit. The tunnel was a narrow 10 feet in diameter, working conditions consisted of dim lighting with a temperature of mid-60s. The crew worked over a 10 hour shift, at the end of the day they were lifted up in a metal cage 180 feet to the surface.

The Riverbank water requires much less treatment. The water already has the correct amount of turbidity, the only thing the Payne plant must do is chlorinate it. Besides all the great benefits, Louisville water was the first water company in the nation to take both underground collector wells and tunneling and combined them.



Alumni News

By Cody Coutinho and Erich Hayes

The Civil Engineering Alumni Association has been busy this past year scheduling events for students and alumni. In the past they have ranged from conferences to steel bridge building. They have gone to Tufts University to compete in a steel bridge building competition that was sponsored by the American Institute of Steel Construction and American Society of Civil Engineering. This is where they fabricate a 20 foot long steel bridge that is judged on a combination of aesthetics, performance and cost. The Civil Engineering Alumni Association, along with the ASCE, hosted the Third Annual Merrimack Golf Tournament as a fundraiser for Merrimack College. This year's event raised \$2,000 to support student activities and projects in the Fitzgerald Fund.

The latest program that the Civil Engineering Alumni Association has put together was when Merrimack's very own Professor Gary Spring, hosted a four-week-long summer program with high school students this past July. This program was sponsored by the U.S. Department of Transportation, Massachusetts Highway Department, and Merrimack College. It opened the eyes of 10th, 11th, and 12th grade students to future transportation careers.

The Civil Engineering Alumni Association is very active in extracurricular activities. They keep students within Merrimack College and others in the community oriented with each other.



ASCE



An Interview with the ASCE

Interview by Steven Souza



One of the major civil engineering clubs at Merrimack College is ASCE (American Society of Civil Engineers). Erich Hayes is a freshman majoring in Civil Engineering at Merrimack. During a brief interview with him, I asked him several questions about the club. One of the main questions I asked him was what is ASCE all about? He explained that ASCE does many different things. The club does a lot of fundraising and several charity events. However, one of the main purposes is to further educate civil engineering majors. There is a lot you can learn from your peers especially out of the classroom in a more realistic atmosphere. "Especially as a freshman," Erich explains, "I've learned a great deal from upper classmen who have already been through a couple years of engineering classes."

At first, Erich claimed to only join ASCE to be involved in school. Coming in as a freshman he didn't know much about civil engineering. However, after joining ASCE, he said he has learned a lot. What sorts of things do you do at the club meetings? "Well, right now we are working on designing a bridge for a national steel bridge competition. I had no clue about how bridges worked prior to this club. It's only been a couple of weeks and already I feel like I'm in a better position to succeed than other C.E majors who aren't in ASCE." He also told us about a concrete canoe competition they compete in. Both competitions are important to the club and one of the main goals of the club is to win each competition. By winning, the club brings prestige and honor to Merrimack's name. This is very important because engineering companies look first to well recognized colleges to recruit for jobs.

Would you recommend involvement in this club for incoming freshman next year? "Absolutely, I would definitely recommend it. I have already met a lot of people just from this club who have taught me a lot about engineering through their experiences. Last week, we had a guest speaker who is going to be taking us on a field trip to a construction site. This will show us what an actual job site will look like. The benefits of joining ASCE are unlimited. I've learned so much already.

About the ASCE Student Chapter (Rebecca Read and Cassandra Summit) - Merrimack College's American Society of Civil Engineers (ASCE), is led by president Richard Matson, vice president Caroline Vatele, treasurer Bo Boynton, and secretary Joe Giampa. The ASCE club does many different activities and projects throughout the course of the school year. One of the major events that they participate in is the annual Steel Bridge competition. This competition involves designing and constructing a twenty foot long steel bridge that is judged base on a combination of cost, performance, and aesthetics. The top three finishers, from each of the ASCE conferences, go on and compete in the National Student Steel Bridge competition. The 2011 National Student Steel Bridge competition will be held at Texas A&M University.

For the first time in ten years the ASCE is going to be participating in the New England Regional Concrete Canoe Competition. The requirements for this competition are to construct a canoe using a hull design that has been developed by the Canadian National Concrete Canoe Competition. In general, the 2011 canoe is a 20-foot long hull with a maximum beam width of approximately 31 3/16 inches located at a distance of approximately 10 feet, 2 inches from the bow. The canoe will be judge on aesthetics, performance, durability, and how well it relates to the hull design that was given to everyone.

The student chapter is also involved in a lot of other activities. They host guest speakers, pizza socials, trips to see the Bruins Hockey game, an annual golf tournament, and assisting middle school students with an engineering competition. To learn more about the ASCE student chapter visit www.merrimack.edu.





Credits

- "About the ASCE Student Chapter" by Rebecca Read and Cassandra Summit
- "The Seven Wonders of the Modern World" by Isadora Sartor
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