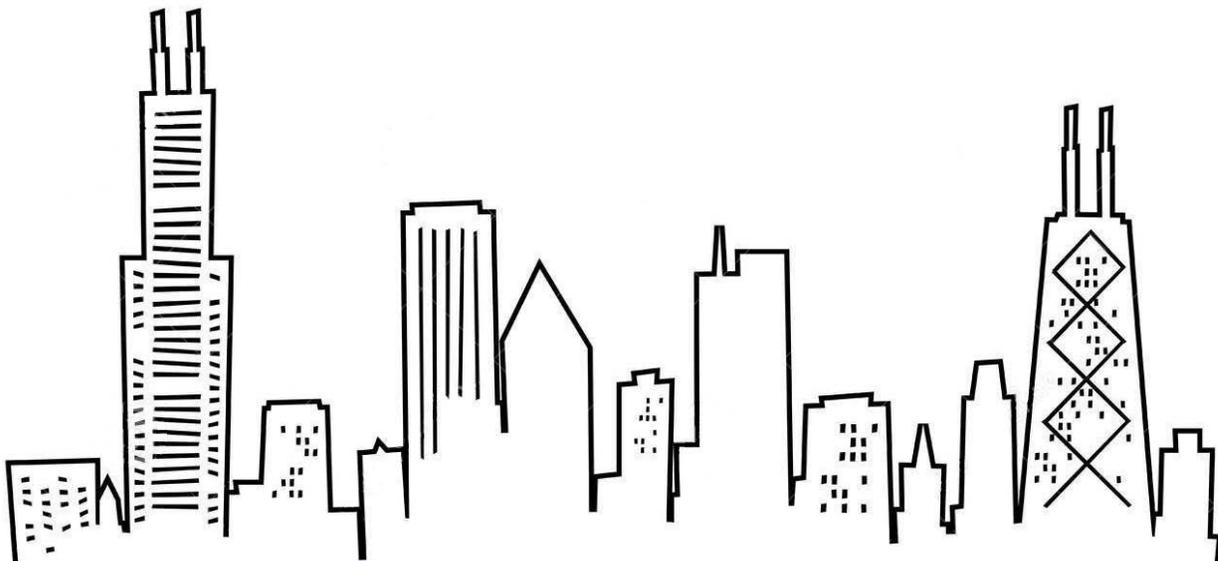




Great Lakes Student Conference

April 19-21st, 2018



Mailer Two

hosted by

UIC

Competing at GLSC 2018

The Planning Committee is excited to announce the roster of competitions that will be a part of the ASCE 2018 Great Lakes Student Conference. Attached in Mailer Two, you will find details about the competitions that have become a staple of our conference: Steel Bridge, Concrete Canoe, Technical Paper, Environmental Design, Geotechnical Design, Materials Design, Mystery Design, and Quiz Bowl. You will also find details about new competitions being added. This is part of an effort to round out the offerings of GLSC so that more of the specialties of civil engineering are covered, students of all skill levels can participate, and everyone can have more fun.

Whether you are a freshman/sophomore just learning about the material properties of concrete or a junior/senior who just loves being creative, the Concrete Frisbee and Concrete Bags competitions are created with you in mind. If you are interested in developing your surveying skills, the Surveying competition has been brought back. Students who are passionate about solving the connectivity problems facing growing urban centers will enjoy the Transportation competition. The Wooden Bridge competition offers students a chance to explore structural engineering on a smaller scale than Steel Bridge and is a great way to engage freshman and sophomore students. Throughout the conference, students can also take part in a Scavenger Hunt competition that will involve an eye for details and some help from our sponsors. A variety of Athletic competition events will be available both Friday and Saturday.

The other competition joining the 2018 roster draws from our goal this year to INSPIRE others to pursue civil engineering while giving back to our communities. The Service Activity competition is a chance for your ASCE chapter to be creative about getting involved and giving back.

As the 2018 Great Lakes Student Conference approaches, we will also share more details about the hotels offering block rates and additional items that will help your university plan for a successful ASCE 2018 GLSC.

Upcoming Important Dates

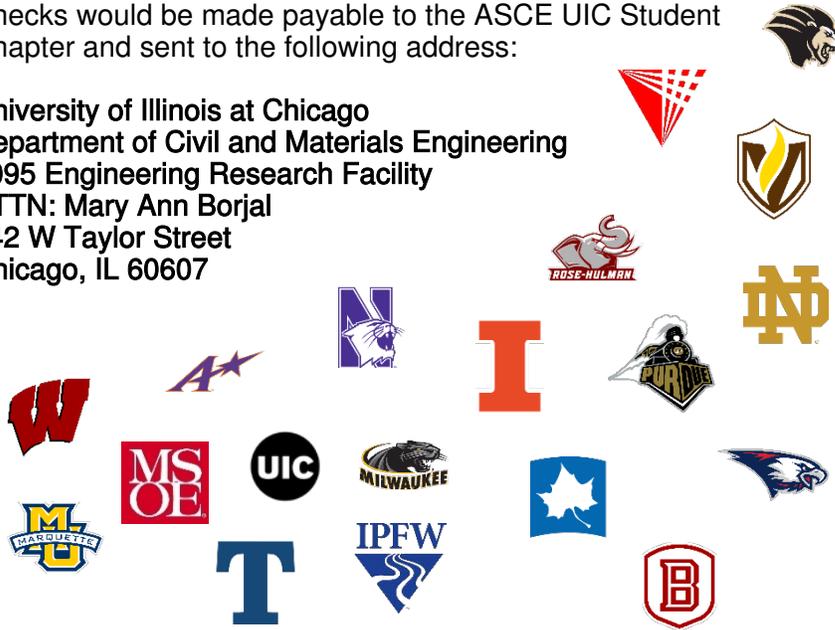
School Registration Due	December 4, 2017
Mailer III	December 18, 2017
Individual Registration Due	January 29, 2018

Registering for GLSC 2018

Registration forms for GLSC 2018 will be available on www.asceglsc.org on October 23rd, 2018. A reminder e-mail will be sent that day. At that time, the University Registration Fee of \$275 is due. The Planning Committee is trying to make an online payment available, however, each university should be prepared to submit a check.

Checks would be made payable to the ASCE UIC Student Chapter and sent to the following address:

University of Illinois at Chicago
Department of Civil and Materials Engineering
2095 Engineering Research Facility
ATTN: Mary Ann Borjal
842 W Taylor Street
Chicago, IL 60607



Request for Photo/Video

The Planning Committee is requesting that your chapter begin taking photos and video of your meetings and activities. Media related to concrete canoe and steel bridge is considered exceptionally valuable. All media will then be compiled into a video featured at the banquet that concludes conference. Mailer Three will provide submission processes and deadlines.

Andrew Boysen
GLSC 2018 Co-Chair
boysen2@uic.edu
(708) 363-4211

Shiffy Feldman
GLSC 2018 Co-Chair
sfeldm6@uic.edu
(773) 225-8085

Conference Contact
uic.asce.conference@gmail.com

Environmental Design

Overview

Over the past 10 years, the Chicago-land area has been hit with an increased number of 100-year storms. A lot of the ground in the Chicago-land area is flat and heavily built-up with impervious pavement, preventing the drainage of storm water through natural ground. This has caused the storm water sewers to be overwhelmed and the backup gates leading into Lake Michigan have to be opened on occasion to handle the amount of storm water collecting on impervious pavement. By adding natural landscaping which helps with the drainage and retention of storm water, excess storm water is allowed to drain into the storm water sewers at a slower rate and the backup system won't need to be utilized as often. This greatly reduces the risk of flooding on the streets and roads.

Objective

To improve natural drainage in built-up areas and to reduce the chance of flooding on streets and roadways, we can build natural landscaping with enhanced drainage and retention of storm water. Each team will decide the best method to retain storm water. Teams will be provided with three 5-gallon buckets to hold the storm water and the natural landscaping material. The buckets will be stacked on top of one another with the top two buckets having draining holes in the bottom of the bucket. The space in between the two top buckets will be used for the materials provided. The idea is to build a water drainage/retention system that is effective and cost efficient. Each team will be scored based on the effectiveness and economic efficiency of their design in addition to the retention of road salts.

Eligibility

Each university may have one team with up to four people per team.

For teams with three students, one of the following conditions must be met, and for teams with four students, both must be met.

- One team member must be a female
- One team member must be a freshman or sophomore

Up to one graduate student is allowed. Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Material Specifications

- Sand
- Clay
- Topsoil
- Mulch
- Peat moss
- Hay (natural straw)
- Sawdust

Testing Procedure

Water containing salts will be used in this test. Three to five gallons of water will be poured into the top bucket. Different combinations of water drainage/retention materials may be packed in to the space between the bottom of the top bucket and the lower half of the middle bucket. Each team must use a minimum of three and up to seven materials. A single layer of paper towel will be placed at the bottom of the middle bucket on top of the drainage holes to prevent the packed material from falling into the bottom bucket. Water will be collected as effluent from the bottom bucket as it drains through the system. The volume of effluent water and the concentration of salts in the effluent water will be measured.

Scoring

Your score will depend on the effectiveness of your water drainage/retention material, its cost, and the final concentration of salts exiting the system.

Scoring Criteria

Volume of water retained by the system (effectiveness): 50%
Cost of material retaining the water: 30%
Concentration of salts (total dissolved solids) leaving the system: 20%

If there is a tie the team with the most effective design will be given the higher place

Technical Paper

Overview

Each participant will write and submit a paper based on the 2018 Daniel W. Mead Technical Writing competition prompt. The prompt reads: “How does the personal and professional use of social media relate to the ASCE Code of Ethics?”

For consideration:

Social media is used daily for sharing, marketing, networking, and providing personal comments on issues. Should social media posts define you as a Civil Engineer? Should they be grounds for your employer to discipline or terminate you?

It is good practice to share news stories about failing infrastructure, comment about fellow engineers/contractors, post information about upcoming contracts, or send pictures of job sites and engineering plans.

Objective

The paper must adhere to the following guidelines:

- Papers for the contest must be limited to one paper from each university, not exceed 2,000 words in length, can only be written by one person, and cannot have been previously submitted for another school or Society publication
- Authors must be undergraduate students and both ASCE Student Chapter Members and ASCE National Student Members in good standing at the time of submission to be considered.
- The paper must be written in 12-point font, single-spaced, with 1” margins.
- The paper should include a bibliography or footnotes. Reference citations should conform to official ASCE Journal Submission Guidelines, which can be found on the ASCE Publications website.

The presentation must adhere to the following guidelines:

- The presentation must be between 6 and 8 minutes in length.
- It must appropriately address the topic and support the content of the paper.

Eligibility

In order for universities to be eligible to compete in the Steel Bridge and Concrete Canoe National competitions, one undergraduate student from each university must write a technical paper.

Technical Paper



Submittals

One electronic copy of the paper must be submitted to the UIC conference email (uic.asce.conference@gmail.com) by February 28th, 2018 at 11:59 PM CST.

The presentation must be sent to the same email address by April 17th, 2018 at 11:59 PM CST.

Testing Procedure

Each participant will give a presentation during the competition weekend summarizing their response to the prompt. Competitors will have access to a computer, wireless presentation remote, and a projector to use during their presentation.

Judging

Winners will be selected by a panel of at least 3 judges to be identified by the host school. Prizes for the winners are as follows: First place \$100, Second place \$60, Third place \$40.

Scoring

The following metrics on the next page will be used to judge and score each of the competing papers and presentations:

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Technical Paper

Paper Scoring Criteria	Score
Spelling and grammar/length (2,000 words). 5%	/5
Presence of original ideas and research involved. 10%	/10
Command of subject matter. 10%	/10
Adherence to topic. 10%	/10
Overall clarity, organization, quality of paper and references. 15%	/15
Paper Subtotal	/50
Presentation Scoring Criteria	Score
Degree to which presentation addressed and supported key concepts of written paper and theme of contest. (10%)	/10
Ability to communicate key concepts from written paper and to convince audience of their importance. (25%)	/25
Personal bearing (apparel, eye contact etc.) (5%)	/5
Delivery style (reading memorized/conversational, pronunciation, proper use of technical language, enthusiasm) (5%)	/5
Time (6-8 minutes) (0.05 point penalty per second outside of the 6-8 minute range) (5%)	/5
Errors in logic or facts (up to 10 points penalty)	() penalty
Presentation Subtotal	/50
Total Score	/100

Technical Paper

Geotechnical Design

Overview

A floodwall is meant to retain a pool of water at a certain area. Within this competition, its strength will be applied as the amount of water that it will be able to hold back until failure. Once the model houses in the area are completely submerged, failure of the floodwall will be determined.

Objective

This year, the objective of the ASCE Geotechnical Competition is to create a model of a floodwall while using materials provided the day of competition and excess materials purchased by each team. The economic cost of the materials to build the floodwall and the amount of water restrained by the floodwall will determine the winner.

Eligibility

Each university may have one team with up to four people per team. For teams with three students, one of the following conditions must be met, and for teams with four students, both must be met.

- One team member must be a female
 - One team member must be a freshman or sophomore
- Up to one graduate student is allowed.

Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Material Specifications

The following materials will be provided:

- Module used to build floodwall
- Latex gloves (if needed)
- Scissors
- Box-cutter

Teams must purchase the following materials needed to design:

- Silt
- Balsa Wood
- Mesh Reinforcement

A team member must purchase materials from a designated materials store.

Geotechnical



Testing Procedure

Floodwalls must only be built out of the materials purchased (silt, mesh reinforcement, balsa wood). Each team may use any amount of the materials provided to build their floodwall that will provide protection towards the designated area of the module from the water. The main judge will determine the beginning of the competition and the end. Each team must complete their floodwall within a 90-minute time period.

Floodwalls will be tested in the same location as built. Once a team has completed their floodwall construction, testing may start once a judge is available. While using the funnel, each team will pour water into their floodwall module. Failure will be determined once the model houses become completely submerged. Once the floodwall fails, water pouring must stop, and the water retained will be weighed to determine the amount of water held by the floodwall.

If leakage in the floodwall occurs, pouring must discontinue, but the team may consider a repair. If a team decides to repair their floodwall, an additional cost of a repair team will be added to the total cost of the floodwall. No new materials may be purchased; only materials leftover from the original construction may be used.

Judging

The judges will decide each team's score based on the guidelines below. Each team is allowed to verify the correct results. Any disagreements must be discussed with the head judge immediately. **THE HEAD JUDGE'S DECISION IS FINAL.**

The final floodwall score will be determined by a ratio of the strength over the total cost of the floodwall throughout the competition.

Scoring

Each team's score will be determined by the strength of the floodwall and cost of materials used.

Score from Cost: The materials purchased by each team, as well as any additional costs if repairs are needed, will determine this scoring. Judges will tally cost throughout the competition.

Materials Design

Overview

The materials competition is designed to test participants' knowledge on concrete mixes and designs.

Objective

Teams are to design one 6" diameter by 12" height concrete cylinder. The cylinder must consist of a water reducing agent and maintain high density. Concrete mix should be able to reduce the quantity of water required while maintaining the same consistency.

Eligibility

- Teams may have up to five (5) members
- Team must complete cylinder before competition date
- At least one (1) student must be present during testing

Material Specifications

- Choice of water reducing admixture that meets ASTM C494
- Cementitious materials must consist of either of the following: Fly Ash/ Natural Pozzolans (ASTM C618), Slag (ASTM C989), or Silica Fume (ASTM C1240)
- Water to cement content (w/c) ratio must be at a minimum of 0.35
- Cement content must not exceed 600 lb/yd³
- Slump test should have a minimum height of 4 in

Testing Procedure

Each team must bring their cylinder to the designated testing area on the day of the competition. The teams will be tested on three aspects. Density of the cylinder will be measured using a balance scale. An unconfined compression test will be performed, where the cylinder will endure compressive force until failure occurs. Each team must complete their submittal by including a technical data sheet of all quantity and dimensions of materials with signature of a faculty advisor.

Materials

Judging

Judges will be responsible for recording each team's compressive strength and density. Judges may deduct points as they see fit.

Scoring

The overall scoring will be out of 100 points and based on three criteria. Teams will be scored based on the value of their compressive strength, in psi units, having a higher psi will result in a higher score. Density will be tested on the same cylinder, in pcf, given that the higher density will result in a higher score. Technical data sheet will receive full points, 100 points, when completed as judges see fit.

Scores will be weighed as follows:

- 60% for Unconfined Compression Test
- 30% for Density Calculation
- 10% for Material Technical Data Sheet

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Materials

Mystery Design

Overview

Mystery Design is meant to challenge student engineers to think critically and efficiently when encountering problems in the field.

AND THAT IS ALL FOR NOW...

Rules Release

Full rules will be made available upon check-in to GLSC on April 19th, 2018.



Mystery

Quiz Bowl

Overview

The quiz bowl will consist of two rounds. In the first round, all the entered teams will be split into 4 random groups (so there will be 4 groups of about 5 teams each). The top team in each group will advance to round two of the competition.

Objective

The person asking the questions will choose from the topics and ask a question. Once the question has been fully read, everyone has the chance to ring the buzzer. (Ringing the buzzer while the question is being read will result in forfeiting the chance to answer the question.) The first participant to ring their buzzer will be given 15 seconds to answer the question correctly. If the answer is wrong, or if they couldn't start their answer within 15 seconds, the chance to answer is given to the contestant who buzzed in next. The team to answer correctly will be awarded one point, while any team to answer incorrectly will have a point deducted from their score.

Eligibility

Each university may have one team with up to four people per team. For teams with three students, one of the following conditions must be met, and for teams with four students, both must be met.

- One team member must be a female
- One team member must be a freshman or sophomore

Up to one graduate student is allowed. Each participant must be registered in the ASCE 2018 Great Lakes Student Conference.

Testing Procedure

In the first round, there will be four topics with five questions in each. When a team gets an answer right, they get to choose the next topic to have a question asked from. After all the questions have been answered correctly, there will be a Jeopardy question. All teams with a positive score at this point will have a chance in the Jeopardy round, and there will be 2 minutes allotted to answer this question.

Quiz Bowl



Testing Procedure Cont.

In round two, a similar system will be set up. There will be four teams playing, and four topics with five questions in each. The same guidelines will be held as in the first round; first team to buzz in has 15 seconds to answer correctly, or the question goes to the next team to buzz. After all the questions have been asked, there will be a final Challenge Jeopardy question. The first team to buzz in will have four minutes to answer this question. If they do not get it right, the next team is given the chance to answer within three minutes, and if it passed on again, there will be two minutes to answer.

Scoring

After the Jeopardy question in the first round, the team with the highest score in each of the four groups will advance to round two of the competition. The team with the highest score at the end of the Challenge Jeopardy round, including the points from round one, wins Quiz Bowl.

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Quiz Bowl



Concrete Frisbee

Overview

Each university will create a flying disc made of concrete that will be cast prior to the conference weekend. Each disc will be tested in a designated area.

Objective

The objective of the concrete Frisbee competition is to design and create a Frisbee that is durable and efficient.

Eligibility

Each university can have one team of up to four participants. Teams with two or three members must meet one of the following conditions, and teams of four must meet both:

- One team member must be a female
- One team member must be a freshman or sophomore

Up to one graduate student is allowed. Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Material Specifications

Portland cement cannot be more than 30% by mass. All reinforcement must be nonmetallic mesh. (Carbon fiber and fiberglass mesh can be used.) There is no restriction on choice of aggregates. No resins or epoxies may be used. The Frisbee should be circular in shape, solid, and without any holes. It must be smaller than a 12"x12"x2" box and larger than an 8"x8" box.

Testing Procedure

- Molds of any form can be used
- Each team can bring two concrete Frisbees to the competition, but must select one to use prior to the beginning of the competition.

Judging

Judges will evaluate the aesthetics of your Frisbee and all of the other factors that will go into your scoring (listed in the chart).

Concrete Frisbee



Scoring Category	Description	% of Total Score	Equation to Calculate Points
Distance	Boundaries will be marked and explained prior to the start of the competition. Each team will have three opportunities to throw their Frisbee, by the same person or by different people. The farthest distance of three throws will be counted. If the Frisbee lands outside of the boundaries or if the thrower's hand crosses the base- line, the throw will be disqualified.	25%	(Your throw/longest throw)*25
Accuracy	A fixed target will be placed 50 feet away from the baseline. Each team has three chances of throw- ing the Frisbee, by the same per- son or by different people. The closest distance to the target of three throws will be counted. Measurements will be taken after the Frisbee comes to rest from the target to the closest edge of the Frisbee.	25%	(Shortest distance to target/your distance to target)*25
Durability	The Frisbee will be weighted after both events have been completed; the residual weight will be used to calculate the durability. If the Frisbee loses less than 5% of its initial weight, the team shall receive the full score for this category.	20%	(Final weight/initial weight)*20

Concrete Frisbee



Scoring Category	Description	% of Total Score	Equation to Calculate Points
Weight	The Frisbee will be weight prior to the start of the events and will be compared to the lightest Frisbee.	20%	(Weight of the lightest Frisbee/weight of your Frisbee)*20
Aesthetics	Aesthetics will be based on uniformity, surface texture, finish, and overall paint job prior to the start of the competition. The scoring is at the judges' discretion.	10%	

Judging

Judges will evaluate the aesthetics of your Frisbee and all of the other factors that will go into your scoring (listed in the chart).

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Concrete Frisbee



Surveying

Overview

There will be two surveying tasks to be completed within 40 minutes. In the first task, students will use their skills and knowledge of land surveying and basic trigonometry to determine the distance between two points, the elevations of each of the points, and the bearing of the line created by the two points. For the second task, teams will have to determine the elevation of an inaccessible building.

Objective

The purpose of this competition is to evaluate team member's knowledge and understanding of land surveying equipment and techniques in a timed setting.

Eligibility

Each school can enter one team to compete. Each team must be comprised of up to four members. For teams of two or three participants, one of the following conditions must be met, and for teams of four, both must be met:

- One team member must be a female
- One team member must be an underclassman

Up to one upperclassman is allowed. Each student competing must be a registered participant of the GLSC 2018.

Material Specifications

- Total Station that is not a reflector-less model
- Tripod
- Level rod
- Measuring tape
- 2 plumb bobs
- Non-programmable calculator
- Two handheld 2-way radios

Surveying

Testing Procedure

Task #1: Distance, Elevation, and Bearing

Using a total station, the team must determine the distance between two points, the elevation of these two points, and the bearing between these two points. The team must first determine the location of each of the two points using given bearings and distances from a fixed backsight point. Both a reflector and stakeout pole will be supplied to each team. Teams can spend a maximum of 20 minutes on this task.

Task #2: Remote Building Elevation

Teams will work to determine the elevation of a building from a remote location. A benchmark will be furnished. A single point observation is allowed. Total stations are permitted for this task as long as it is not a reflector-less model. This task should take 20 minutes.

Scoring

Each task will be scored based on accuracy, field book neatness, and presentation. In the case of a tie in overall scoring, the tie will be broken by the submission times of the team's field book.

Task #1: Distance, Elevation, and Bearing

- Accuracy
- First place: 50 points
- Second place: 40 points
- Third place: 30 points
- Participation: 5 points
- Field Book
- First place: 15 points
- Second place: 10 points
- Third place: 5 points

Task #2: Remote Building Elevation

- Accuracy
- First place: 50 points
- Second place: 40 points
- Third place: 30 points
- Participation: 5 points
- Field Book
- First place: 15 points
- Second place: 10 points



Concrete Bags

Overview

Each school will provide a corn hole board made of concrete. Students will compete in a double elimination tournament. The match-up will be chosen at random. Judging will be based on scoring in the tournament, aesthetics, and technical criteria related to the concrete mix design and adherence to the specified dimensions.

Objective

The objective of the Concrete Corn Hole Competition is to use knowledge of concrete mix design to construct a corn hole board that will be used in a fun and friendly corn hole tournament at the 2018 ASCE Great Lakes Student Conference.

Eligibility

One (1) team per school will be allowed to participate in the concrete corn hole competition. Teams shall consist of two (2) to four (4) students. Only one (1) of the students may be a graduate student. Each team shall have a designated captain.

Submittals

Teams are required to submit to the judges a mix design spreadsheet that contains the following information:

A. Cementitious Materials

Teams are permitted to use any of the following cementitious materials as long as they meet the ASTM standard for the material:

- Portland or Hydraulic Cement (ASTM C150 / C595 / C1157)
- Fly Ash (ASTM C618)
- Slag Cement (ASTM C989)

Silica Fume (ASTM C1240) The water to cementitious materials ratio (w/cm) must be 0.35 or greater.

B. Aggregate Aggregates must pass a 1/2 in. (12.7 mm) sieve and be retained on a # 200 sieve. The concrete must contain at least 30% aggregate by volume of concrete.

C. Admixtures Chemical admixtures that meet ASTM C494 and/or ASTM C260 are allowed.

Concrete Bags



D. Reinforcement Teams are allowed to use fiber reinforcement (ASTM C1116) or reinforcement grid.

Mix Design Spreadsheet Format

University Name	Concrete Bags	Amount Used, lbs.	Specific Gravity, unit-less
Cementitious Materials	Name of Cementitious Material 1: Name of Cementitious Material 2:		
Aggregate	Aggregate Material 1: Aggregate Material 2: (if applicable)		
Admixtures	Water Chemical Admixture (if applicable)		
Reinforcement	Details of reinforcement		
Total		Total Weight	Total Volume

Concrete Bags



Material and Dimension Specifications

The board is to be four (4) feet in length and two (2) feet in width. The hole will be six (6) inches in diameter. The center of the hole will be nine (9) inches from the top edge and one (1) foot from either side (refer to Figure 1). All dimensions shall have an allowable tolerance ± 0.25 inches. There are no minimum or maximum thickness requirements for the board. Cornhole bags will be provided by UIC at the time of the tournament. They will be 6 in. x 6 in. and weigh 15 ± 1 oz. A support structure for the boards will also be provided and is detailed in the playing field section. The support system will be constructed with 2x4s and have a lip at the bottom that will stop a board from sliding down the incline, as demonstrated in Figure 4.

Teams are encouraged to decorate their boards as creatively as possible. The board can be finished with any variety of textures, stains, and sealers. The name of the university you represent must be displayed on the board.

Testing Procedure

Each game will be played to twenty-one (21) points; the first team to reach or exceed 21 points will be declared the winner. A round consists of one (1) player from each team throwing all four (4) bags. Each game will consist of however many rounds it takes for one team to reach at least 21 points with a margin of victory of at least 2 points.

Bags that land on the board and stay on the board are worth one (1) point. Bags that go through the hole are worth three (3) points. Bags that bounce onto the board from the ground do not count and must be removed before the next bag is thrown. Bags that were on the board and pushed off by another bag do not count. At the end of the round, teams' points will be totaled, and the difference of the teams' points will be awarded to the team that had the highest score. Each round will result in only one team being awarded points to their overall score.

At the end of the round, teams' points will be totaled, and the difference of the teams' points will be awarded to the team that had the highest score. Each round will result in only one team being awarded points to their overall score.

Judging

Each team can submit only one (1) board for judging and tournament play. Teams must submit their board, mix design form, and concrete corn hole scoring summary sheet to the judges.

Concrete Bags



Scoring

Scoring will be based on scoring in the tournament, aesthetics, and technical criteria related to the concrete mix design and adherence to the specified dimensions.

Tournament Score = Σ (margin of victory) \times winning percentage

The tournament score will be normalized to a 50-point scale.

Disqualifications

Teams that lose two match-ups are eliminated from further competition. Board failure results in a 10-point deduction. Failure to meet any of the specified criteria will result in a fifteen (15)-point deduction from the Technical Criteria Sub-Total.

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Concrete Bags



Transportation

Overview

The Chicago Department of Transportation (CDOT) plans to redevelop the area around Chicago Union Station to improve passenger transportation and interchange facilities, consistent with Chicago Metropolitan Agency for Planning's GO TO 2040 regional plan. The objective of the plan is to make the terminal more inviting for passengers and provide more direct and convenient transfers to buses, trains, taxis, shuttles, pick-up/drop-off as well as create a terminal that is vibrant, a civic asset, and a catalyst for growth in the West Loop and region

Union Station is one of the region's key transportation facilities and economic drivers. It is the third-busiest railroad terminal in the United States, serving over 300 trains per weekday carrying about 120,000 arriving and departing passengers – a level of passenger traffic that would rank it among the ten busiest airports in the U.S. Most travelers at Union Station take Metra commuter trains. The Station is also the hub of Amtrak's network of regional trains serving the Midwest as well as most of the nation's overnight trains, which connect to the Atlantic, Gulf, and Pacific coasts.

More details about the plan can be found at the:

<https://www.cityofchicago.org/dam/city/depts/cdot/CDOTProjects/Chicago-Union-Station-Master-Plan-Study.pdf>

Objective

The objective of this competition is to propose a revised design of the intersection on West Adams St. /Canal St. that accommodates multiple modes of transportation efficiently, safely and economically with the overall objective of promoting "sustainable development".

The location is viewable on Google Maps in this link:
<https://www.google.com/maps/@41.8793742,-87.6395148,19.56z>

Eligibility

The teams should comprise of no more than 8 participants and at least one person must be present during conference to interact with the judges.

Transportation



Submittals

For the revised design of the intersection, all equations used for the intersection design must be presented with each variable defined. At least one sample calculation must be shown for each equation used and the manual from which the formulas are referenced must be cited.

For the LOS analysis, all calculations or software output sheets must be presented with appropriate references to the manuals used.

Separate cost estimate tables for the construction and the maintenance of the proposed intersection should be developed. Tables should be detailed and include unit cost and total cost for each item, as well as 10% mobilization cost and 15% contingency. The maintenance cost estimation table should show maintenance costs assuming that maintenance would occur every 1.5 years for a total of 15 years. Cost estimate references should be cited.

All submissions mentioned above will be compiled in a written report and will be formatted in this order:

- Cover Page
 - Include school name and names of all contributing members.
- Table of Contents
- List of Figures & Tables
- Introduction
 - A description of the project, design constraints, and parameters
- Intersection Design
 - Description of the proposed design
 - Discussion of the design decisions made and why they are appropriate
 - Discussion regarding how the proposed intersection affects the various modes of transportation
- Intersection Level of Service Analysis
 - An explanation of how the intersection Level of Service analysis was conducted and the results
- Cost Estimates
 - An explanation of how the cost estimates were conducted and the results
- Summary
 - Provide an overview of the report
 - Identify the unique features of the design
 - Identify how the revised design meets the “sustainable development”
- References

Submittals Cont.

- Tables
 - Level of Service results table
 - Cost estimate tables
- Figures/Plans
 - Trip distribution assumptions figure
 - Intersection design plans
- Technical Appendices
 - Intersection design sample calculations
 - Intersection Level of Service calculations

The above is an indicative list. Participants should feel free to include sections as they feel important, though adhering to the page limit.

The main part of this report (Introduction to Summary) should not exceed 15 pages. The Cover Page, Table of Contents, List of Figures & Tables, References, Tables, Figures/Plans, and Technical Appendices are not included in this page count.

All bids should be submitted to uic.asce.conference@gmail.com on or before **April 5th, 2018**. The subject of the email should be "Transportation Bid [School Name]".

Testing Procedure

Revised Design of Intersection

The intersection design will focus on the plan view design intersection. The design should incorporate accommodations for all modes of transportation including pedestrians. The plan view should indicate the centerline, edge line, medians, shoulders, sidewalks, bike lanes, bike paths, and any other part of the roadway, including striping and signage.

All equations used for the intersection design must be presented with each variable defined.

At least one sample calculation must be shown for each equation used and the manual from which the formulas are referenced must be cited.

Intersection Level of Service Analysis

An AM and PM peak hour intersection Level of Service (LOS) analysis should be conducted for the intersection. The analysis should be conducted using the Highway Capacity Manual method. The calculations can be done by hand or using an intersection analysis software (Synchro, HCS, Vistro, Traffix, etc.). All calculations or software output sheets must be presented with appropriate references to the manuals used.

The following existing information should be used for the analysis



Testing Cont.

An AM and PM peak hour intersection Level of Service (LOS) analysis should be conducted for the intersection. The analysis should be conducted using the Highway Capacity Manual method. The calculations can be done by hand or using an intersection analysis software (Synchro, HCS, Vistro, Traffix, etc.). All calculations or software output sheets must be presented with appropriate references to the manuals used.

The following existing information should be used for the analysis:

Street	Direction	Daily Volume
West Adams Street	Westbound Through	32,000
	Westbound Right	6,000
	Westbound Left (only for CTA buses)	400
Canal Street	Eastbound Through	26,000
	Eastbound Left	4,000
	Eastbound Right (only for CTA buses)	600

The rate of growth of traffic is expected to be 1.5% every year. Total duration of construction could be expected to be 2 years. Any information not available could be reasonably assumed, however should be clearly mentioned along with justification. The use of Google street view is recommended. The intersection does have some construction activity at present, which may be ignored.

Judging

At least one person from each team must be present at conference to present their submission and interact with the judges.

Scoring

Scoring will be based off the creativity of your team's design, how well it accommodates multiple modes of transportation efficiently, safely and economically with the overall objective of promoting "sustainable development".



References

The following references are recommended for the analysis and design of the intersection. This is not an exhaustive list. Teams may utilize other resources with appropriate referencing:

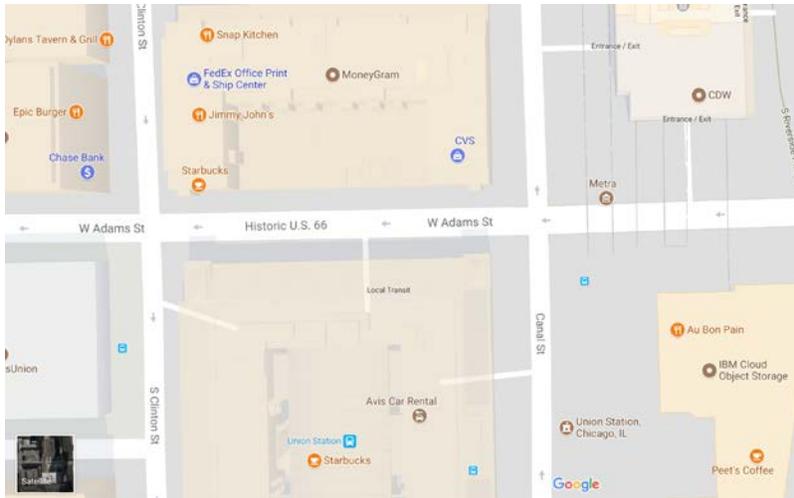
1. Rodegerdts, L.A., B. Nevers, B. Robinson, J. Ringert, P. Koonce, J. Bansen, T. Nguyen, J. McGill, D. Stewart, J. Suggett, T. Neuman, N. Antonucci, K. Hardy, and K. Courage. Signalized Intersections: Informational Guide. Report FHWA-HRT-04-091. Federal Highway Administration, Washington, D.C., 2004.
2. Manual on Uniform Traffic Control Devices. U.S. Department of Transportation, Washington, D.C., December 2003.
3. National Committee on Uniform Traffic Laws and Ordinances, <http://www.ncutlo.org/> February 26, 2007
4. Kell, J. H., and Fullerton, I. J., Manual of Traffic Signal Design. 2nd Edition. Institute of Transportation Engineers, Washington, D.C., 1998.
5. Orcutt, F.L. The Traffic Signal Book. Prentice Hall, Englewood Cliffs, New Jersey, 1993.
6. Traffic Engineering Manual. Section 3 - Signals. Florida Department of Transportation, Tallahassee, Florida, March 1999
7. De Camp, G., and R.W. Denny. "Improved Protected-Permitted Left-Turn Signal Displays -- The Texas Approach." ITE Journal. Institute of Transportation Engineers, Washington, D.C., October, 1992, pp. 21-24
8. ITE Technical Committee 18 (P.S. Parsonson, Chair). "Small-Area Detection at Intersection Approaches." Traffic Engineering. Institute of Transportation Engineers, Washington, D.C., February 1974, pp. 8-17
9. A Policy on Geometric Design of Highways and Streets. American Association of State and Highway Transportation Officials, Washington, D.C., 2004
10. Mannering and Washburn, Principles of Highway Engineering and Traffic Analysis, 5th Edition, Wiley, 2013



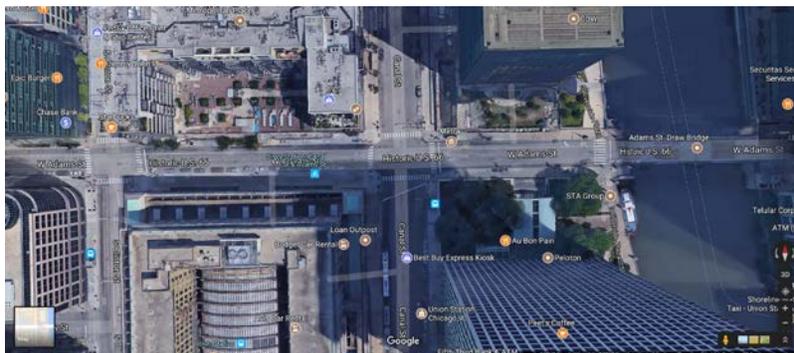
References Cont.

11. Highway Capacity Manual, Transportation Research Board
12. Complete Streets Chicago: Design Guidelines, City of Chicago

Location Map



Satellite View



Transportation

Service Activity

Overview

Civil engineers have an ethical responsibility to hold paramount the safety, health and welfare of the public while striving to comply with the principles of sustainable development in the performance of their professional duties. Reflecting the spirit of our profession, the 2018 ASCE Great Lakes Student Conference will feature a community service activity with all components to take place before the conference.

Objective

The purpose of this competition is to encourage community service within the field of civil engineering.

Eligibility

Teams must consist of five (5) or more undergraduate or graduate student chapter members. Teams may include one (1) faculty advisor.

Submittals

- Each team will submit no fewer than 15 photographs of the service activity. Photographs should be taken with a 12-megapixel camera or greater. Images should be clear and include a one sentence caption with the names of those photographed. A photo consent form should be used in with **ALL** participants seen in photographs, especially those who are not ASCE Student Chapter Members.
- Each team will submit unedited video footage of the activity of no less than one and a half minutes. One minute of video footage should include set-up before the activity and the activity taking place. Thirty seconds of video footage should feature an ASCE student member who participated in the activity and answer the question “What does giving back to the community mean to me as a future civil engineer?” Videos should not include any music or loud noises.

Service Activity



Submittals Cont.

- Each team will submit a document to include: the caption for each photograph, the file name for the photograph for which the caption is associated, a list of participating ASCE Student Chapter Members, and an explanation of no more than 250 words describing the service activity to include date, location, description of activity, and expected impact on the community.
- Electronic submittals shall first require access to a Google Drive folder. One participant from each university shall submit an e-mail to uic.asce.conference@gmail.com requesting access no later than **March 4th, 2-2018 at 11:59 PM CST** (Subject: Service Activity Google Drive Request [University Name]). A link to a folder will be provided in which universities should upload photographs, videos, and the document no later than **March 26th, 2018 at 11:59 PM CST**.

Specifications

- Chapters will plan, fund, and execute a community service project in their local community prior to the conference.
- The project must benefit a non-profit entity, including but not limited to a local school. The project must relate to civil engineering.
- Evidence that at least five (5) team members participated is required in the form of the submitted photographs and list of participating members.

Judging

No formal judging will occur.

Scoring

Points will be awarded for successful completion of all submittals. Partial points or credit will not be awarded.

Service Activity

Wooden Bridge

2018 Great Lakes
Student Conference

Overview

The wooden bridge competition tests knowledge on bridge design, materials, and efficiency. Each school will bring their bridge to conference ready for testing, as well as a very simple report that shows calculations on an anticipated PV value.

Objective

The object of the wooden bridge competition is to achieve as high a PV value as possible. Your PV value is L/W ; the maximum load in pounds that your bridge can hold before failure divided by the weight of your bridge in grams. The school with the highest PV value wins the competition, second wins second place, and so on.

Eligibility

Each university may have one team with up to four people per team.

For teams with three students, one of the following conditions must be met, and for teams with four students, both must be met.

- One team member must be a female
- One team member must be a freshman or sophomore

Up to one graduate student is allowed.

Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Submittals

Each team will submit a short report on the procedure of predicting the PV value. Teams must show the calculations used to predict the mass of the bridge based on quantity of each material used, as well as the predictions of how large a load the bridge can carry.

Material and Design Specifications

Bridges are to be made of:

- Basswood sticks
- Plywood plates
- Wood glue
- Bridges can be Warren, Howe, Pratt or any combination of the three.
- The bottom chord must span 24 inches.

Wooden Bridge



Material and Design Specifications Cont.

- A bridge floor is not required.
- The top and bottom chords must be parallel.
- The width and height must be such that a 3.75" x 3.75" block can pass through your bridge with clearance.

Testing Procedure

- The bridge will be weighed prior to testing.
- The bridge must rest freely on two end supports without clamps or such.
- The load will be applied in the center of the bottom chord via a metal rod.
- Bridge will be loaded continuously, from zero pounds until failure.
- The maximum load (that causes failure) will be recorded and used to calculate your PV.

Judging

Judges will weigh the bridges, apply the loads, and record the maximum load. They will then calculate the actual PV and compare the value to the estimated/predicted value.

Scoring

- Points will be given based off of two factors:
 - How close your actual PV was to your calculated PV (we will need to see a simple report of the calculations you made to anticipate your PV).
 - How large your actual PV value comes to.
 - For your reference: A PV value of 2.0 or higher is amazing, while a PV value of 1.25 or lower is not very good, so try to calculate for as high a PV as possible.

Disqualifications

- If your bridge cannot rest freely on the end supports, and instead slips off, that is an automatic failure.
- If your bridge exceeds the maximum weight of 100 grams, that is an automatic failure, as that creates an unfair advantage to other teams who followed the weight guidelines.



Scavenger Hunt

Overview

Teams will work together to complete as many tasks as possible on the Scavenger Hunt list in order to earn as many points as possible.

Objective

The purpose of this competition is to encourage participation from students not competing in other events, especially underclassmen.

Eligibility

Each university may have one team with up to four people per team.

For teams with three students, one of the following conditions must be met, and for teams with four students, both must be met.

- One team member must be a female
- One team member must be a freshman or sophomore

Up to one graduate student is allowed.

Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Submittals

- Teams may only submit one photo per task. Each photo should be named as follows: "SCHOOL ABBREVIATION_TASK NUMBER" (e.g. UCI_7). All photos must be in JPEG format.
- Photos must be uploaded to each school's designated folder in the Google Drive. One participant from each university shall submit an e-mail to uic.asce.conference@gmail.com requesting access no later than **April 16th, 2-2018 at 11:59 PM CST** (Subject: Service Activity Google Drive Request [University Name]).
- All entries must be received by 4:00 PM **April 21st, 2018**.

Scavenger Hunt



Judging

- Teams will download the Scavenger Hunt List the morning of the event available on the conference website
- Teams will require at least one digital camera or camera phone. Teams will use them to take photos of themselves as proof of completing each task

Scoring

- Teams are responsible for properly submitting and labeling their photos
- Submission of photos will be accepted until the deadline. Any photos submitted after this time will not be judged
- Deadlines/requirements will be printed on the Scavenger Hunt List
- All submissions will receive a time stamp upon submission, which will be used in the case of a tie to determine a winner

Disqualifications

- Any photos that are not labeled correctly will not be judged

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Scavenger Hunt



Volleyball

2018 Great Lakes
Student Conference

Objective

This competition's purpose is to inspire the spirit of Conference and competing.

Eligibility

Each school will appoint up to six players to represent their team.

. Teams of four must meet one of the following conditions and teams of six must meet both of them:

- One female
- One underclassmen

No limit on the number of graduate students that can participate.

Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Procedure

- 6 players on a team, 3 in front, 3 in back OR 4 players on a team, in any formation desired
- Ball is in if it hits the line, out if it is completely out of the boundaries.

Scoring

Each university to send a complete team (of four or six) will receive 10 spirit points. The school that comes in 1st place will receive an additional 5, 2nd place an additional 3, and 3rd place an additional 2.

Disqualifications

- Maximum of 3 hits on each side
- One player may not hit ball twice in succession
- Catching, holding, or throwing the ball is not allowed

Volleyball

Tug-O-War

Objective

Teams of 5 participants each will be pitted against each other to test teamwork skills and conference spirit. Teams will be chosen randomly, as a way for students to mingle with others from schools other than their own. Spirit points will be awarded to students who participate (one per student). At the award dinner, there will be a surprise for the school with the most spirit points.

Eligibility

Each competing school can send up to eight students with a minimum of four. Teams of four-five must meet one of the following conditions and teams of 6-8 must meet both of them:

- Two females
- Two underclassmen

Up to one graduate student is allowed.

Each participant must be registered in the 2018 ASCE Great Lakes Student Conference.

Testing Procedure

- The flag will be attached to the middle of the rope and there will be two cones fifteen feet away on each side.
- The team that pulls the rope beyond the cones wins and moves on to the next round.

Scoring

Each student who participates in the game will receive a spirit point.

Disqualifications

- Sitting on or kicking the ground is not allowed.
- Pulling the rope over one's shoulder is a foul.
- Lowering elbow below the knee is a foul.
- Two fouls will result in the team's disqualification.
- Gloves are not allowed.
- Wrapping the rope is not allowed.

Tug-O-War

