

# **UNIVERSITY OF TORONTO STUDENT SEISMIC DESIGN TEAM CONSTITUTION**

## **1.0 Introduction**

The official name of this recognized campus group is "University of Toronto Student Seismic Design Team". The abbreviation of this group is "UTSD".

## **2.0 Purpose and Objectives**

This section outlines the purpose and objectives of this recognized campus group.

The University of Toronto Student Seismic Design Team competes in the annual undergraduate Seismic Design Competition organized by the Earthquake Engineering Research Institute (EERI), California, United States.

## **3.0 Membership**

Non-voting membership for the University of Toronto Student Seismic Design Team is open to all University of Toronto members, including current undergraduate students, alumni, faculty and staff. Voting membership and executive member positions (Section 4.0) are only open to registered University of Toronto students and are selected through an election process with the current and/or outgoing team. General members have to register with the designated team by submitting their full name and valid email addresses.

Registered University of Toronto students are permitted to run, nominate and vote in all elections and constitutional amendments.

There is no membership fee to be registered with the club.

## **4.0 Executive Lists and Duties**

The executive committee shall be comprised of members, as follows:

### **(1) Senior Design and Analysis Specialists**

#### Role Description:

The senior design and analysis leads are responsible for the structural design and analysis of the balsa wood structure for the design competition. They will work closely with the Construction and Architecture Specialists, and with the Team Captain to develop a structural system that is sound and will withstand the loads as laid out by the Seismic Design Competition rules.

#### Role Responsibilities:

- Design, analysis, and construction of the balsa wood structure, including developing performance prediction measures

#### Role Requirements:

- Knowledge of SAP2000 for analysis purposes.
- Experience with Excel, VBA, MATLAB, Python, or other programming languages is highly useful.
- Strong understanding of fundamental structural engineering concepts Prior experience is beneficial however, guidance will be provided by the club advisors, as well as the graduate students throughout the entirety of the design process.

## **(2) Junior Design and Analysis Specialist**

### Role Description:

The design and analysis leads are responsible for the structural design and analysis of the balsa wood structure for the design competition. They will work closely with the Construction and Architecture Specialists, and with the Team Captain to develop a structural system that is sound and will withstand the loads as laid out by the Seismic Design Competition rules.

### Role Responsibilities:

- Contribute to the research, design, and analysis of the tower.
- Model and analyze towers using SAP2000
- Write the draft of the design proposal with the guidance of senior design and analysts.
- Create tests, and research for sub-projects:
  - o Dampers
  - o Material Characterization
  - o Autobuilder (Python)
  - o Geotechnical Investigation and Analysis

### Role Requirements:

- Willingness to learn SAP2000, Excel, VBA, MATLAB, Python for analysis purposes.

## **(3) Construction**

### Role Description:

The construction specialist is responsible for organizing and leading the assembly and construction of all structures for the team. Some primary tasks include sourcing material, working on constructability and design with Design and Analysis and Architecture Specialists, coordinating all construction projects, leading construction of the tower and shipping crate, conducting material testing/connection testing, experimenting new construction methods and technologies, and working with Team Captain to coordinate shipping and transport of the structure to the Seismic Design Competition.

### Role Responsibilities:

- Leading construction of the balsa wood tower
- Create models and drawings of the tower to aid in construction (using Revit, AutoCAD or equivalents)
- Interpreting virtual tower models

- Leading construction of the crate for the transportation of the tower
- Coordinating other construction projects, such as potential test towers.
- Working on constructability of the tower with the Design and Analysis Leads
- Working with the Team Captain for shipping of the structure.
- Familiarity with power tools located in Myhal Fabrication Facility.
- Exploring and experimenting with new construction and fabrication technologies (e.g. 3D printing and laser cutting)
- Establish a timeline for construction and perform quantity takeoff to ensure all deadlines are met

This position also includes research into different methods to increase accuracy, speed and constructability of the tower such as the use of laser cutting and jigs.

#### Role Requirements:

- Strong organizational skills are required to ensure the construction deadlines are met
- Good quality control
- Willingness to learn
- Strong communication skills to effectively direct other members in construction
- Ability to resolve construction errors or team conflict
- Myhal Fabrication Facility training

#### **(4) Architecture**

#### Role Description:

The architectural leads are responsible for the architectural design of the tower. They must work closely with the Team Captain and the design and analysis leads to create an architectural design that integrates well with the structural system. Additionally, it is important to ensure that the architectural design is constructible and innovative - and to establish a timeline for creating them. There are many rendering programs that can accomplish this task. In the past, the team has heavily relied on Rhino and Revit but are open to other professional software you may be comfortable with.

The programs used to accomplish this task are open ended and we are open to you using any programs you are comfortable with.

#### Role Responsibilities:

- Designing the architectural concept of the structure and working with the Design and Analysis Specialists to integrate it with the structural system
- Creating renderings of the structure for the proposal and poster submissions
- Working with the Construction Specialists to design floor plans and to ensure that the architectural elements are constructible.
- Working with Construction Specialists to create a simple prototype of the final architectural design.

#### Role Requirements:

- Experience with, or ability to use, rendering software, such as but not limited to Revit, Rhino etc.
- Ability to cooperate with other sub-teams, such as Design and Analysis and Construction.

- Ability to resolve team conflict

## **(5) Media Manager**

### Role Description:

The media communications lead are responsible for the advertising of all Seismic Design Team and EERI UofT chapter events as well as keeping the social media platforms of the team up to date (Instagram, Facebook, LinkedIn etc.)

Additionally, the media communications and graphics lead will also be designing the poster submission for the competition.

### Example design programs:

Canva  
Adobe Illustrator  
Adobe Photoshop  
Adobe InDesign  
Microsoft PowerPoint

### Role Responsibilities:

- Maintaining and regularly updating all social media platforms
- Designing the poster submission for the Seismic Design Competition which includes a rendering by the Architecture leads.
- Designing graphics for competition promotional material (competition T-Shirt, etc.)
- Writing and maintaining the website content
- Updating sponsors through social media platforms of the team's progress.
- Working with the Team Captain to develop timeline of relevant events
- Promoting guest lectures
- Plan events and dinners to engage general members, graduate students, alumni and sponsors
- Develop visuals on our website to showcase our team's achievement
- Provide suggestions for social events
- Initiate a team feedback process for deciding preferred social events
- Connect the UTSD with other design teams or clubs

### Role Requirements:

- Strong organizational skills are required to ensure that all platforms are kept updated
- Creativity and the ability to use graphics software, such as Adobe Illustrator.

## **(6) Finance and Sponsorship**

### Role Description:

The sponsorship lead organizes all sponsorship-related endeavors and is responsible for the budget of the team. They will work with other team members to set and meet funding goals.

The primary tasks of the sponsorship lead are working with the Team Captain to develop budget/funding plan, heading all internal (EngSoc, Skule funding) and external

funding (Corporate Sponsorship), updating/expanding the Sponsorship Package and organizing any other funding events deemed necessary.

Role Responsibilities:

- Setting the team budget for the year
- Contacting sponsors early in the design process to secure corporate funding and/or support for the design team
- Completing and submitting applications for internal funding opportunities such as EngSoc and CPSIC.

Role Requirements:

- Confidence to contact professionals for sponsorship
- Strong organizational skills to ensure applications are submitted by deadlines

**(7) Digital Solution Specialist**

Role Description:

The digital solution specialist is responsible for designing, creating and/or updating the team's website with relevant team information: sponsors, upcoming events, etc. They will work closely with the Team Captain and the Media and Graphics Lead to design the desired layout. In addition, the specialist will be assisting the Design and Analysis Specialists to develop programs and analytical tools that improve our design process.

Role Responsibilities:

- Structuring the website layout
- Adding all sponsors logos and descriptions to the website
- Designing and develops tools and programs to improve our team's design process

Role Requirements:

- Experience with, or ability to, design and update a website
- Knowledge in basic data structure and algorithm designs
- Knowledge in fundamental data analysis methods and tools

**4.1 Termination of Executives or General Members**

Any member of the club who fails to fulfill their responsibilities to an adequate standard or is negligent in fulfilling their responsibilities may be given notice of removal. Non-disclosure of a significant or continuing conflict of interest is also grounds for notice of removal. The member up for removal shall have the right to defend his/her actions. A vote will be held at an executive meeting, and a two thirds majority vote of the current executives present in favor of removal is required. The member must have the right to an appeal before the general membership and the majority vote of the general membership will have the final say on the matter. The member will be removed from the club's membership and will lose any privileges associated with being a member of the club.

Executive members are subject to the same termination or impeachment process and as determined by the vote may lose their executive position along with their membership to the club.

### **5.0 Elections**

Elections will be held within the established dedicated membership of the club to determine the executive positions for the following year. Elections will occur two weeks after the completion of the competition.

### **6.0 Finances**

The Finance Director shall keep all records of all income and expenses and shall be responsible for presenting the group's financial health at the annual general meetings. The Executive Committee will vote on expenditures of over \$500.00 by majority vote.

The group's executive or members may not engage in activities that are essentially commercial in nature. This is not intended to preclude the collection of membership fees to cover the expenses of the group, or of charges for specific activities, programs or events, or to prohibit groups from engaging in legitimate fundraising. However, the group will not have as a major activity a function that makes it an on-campus part of a commercial organization, will not provide services and goods at a profit when that profit is used for purposes other than those of the organization, and will not pay salaries to some or all of its officers.

### **7.0 Meetings**

There will be two annual general meetings at the start of each semester as well as biweekly executive team meetings.

General sub-team meetings will be determined and organized by leads when necessary.

### **8.0 Amendments**

All constitutional amendments shall require a two-thirds majority to be passed at general meetings by registered University of Toronto members.

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By signing this document, I hereby acknowledge that I have completely read and fully agree with my roles and responsibilities in the University of Toronto Student Seismic Design Team:

Full name:

Signature:

Date signed: