



# Group Policy Handbook

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# 1 INTRODUCTION

UBC Concrete Canoe is a student-led engineering design team that provides undergraduate students with the opportunity to apply classroom knowledge to solve real-world challenges. Since its maiden voyage in 2013, the team has designed, built, and raced full-scale canoes made of concrete throughout North America. Now in its 12th year, the team looks forward to competing in Moncton, New Brunswick, in the annual Canadian National Concrete Canoe Competition (CNCCC).

This handbook outlines the policies and procedures that guide the operation, culture, and governance of the team. Its purpose is to share a common understanding of expectations, responsibilities, and standards within the team. All members are expected to adhere to these rules, uphold the team's values, and contribute positively to the team's success.

## **2 SAFETY**

### **2.1 STANDARD OPERATING PROCEDURES**

All available SWP's are attached in *Appendix A - Standard Operating Procedures*.

### **2.2 SAFETY TRAINING PLAN**

New members are required to complete the following safety certifications as outlined by UBC: EDT Safety Orientation, WHMIS, and Workplace Bullying and Harassment Prevention. Additionally, we require that our members complete all necessary safety certification/workshops before working at UBC labs, and coordinate that training with the respective department personnel. Members are to read through the SWP before completing the relevant work. All site orientation, training, and confirmation that team members have a satisfactory level of competence is to be confirmed by the safety officer, team lead, or one of the co-captains.

### **2.3 SAFE WORKING ENVIRONMENT PLAN**

Team members must ensure that they have appropriate PPE available for the task at hand. First aid kits are available and monitored by team leads and the safety officer. Before work, team members must assess the workspace for any changes and new potential hazards, identify those hazards, and mitigate them. Once the work is complete, team members must return all tools and materials to their respective areas and clean the workspace of any potential contaminants.

Safety officer(s), leads, and co-captains are responsible for monitoring any safety concerns reported to our team and workspace. If action is required, it should be documented and acted upon in a timely manner.

### **2.4 PERSONAL PROTECTIVE EQUIPMENT RULES**

Appropriate PPE, either outlined in the SWP or as directed by leads, safety officer, or captain, must be worn at all times while completing the relevant work. One of the primary hazards is airborne suspended particulates, requiring everyone who's working within and around the workspace to be aware of the work being completed and wear the appropriate PPE. PPEs are acquired by the safety officer, and a team leader must be notified immediately if PPE is damaged, poorly fitted, or if supplies are running low.

### 3 MEMBERSHIP POLICY

Membership in UBC Concrete Canoe is open to all students of the University of British Columbia (UBC). Specific requirements for joining UBC Concrete Canoe are the following:

1. Must be a student currently enrolled at the University of British Columbia
2. Members must express a genuine interest in contributing to the team's goals and objectives.
3. Members must participate in all subteam and general team meetings/events specified, except for excused and communicated absences.
  - a. Absences related to health, safety, and emergencies are all excused. Communication with the executive should be made as soon as possible, within reason.
  - b. Absences related to other commitments or personal affairs should be communicated to executives ahead of time, within reason.
4. All members are required to adhere to the principles outlined in the team agreement.

We do not discriminate based on gender, race, age, or any other diversifying factors. We welcome those of all experience levels, prioritizing genuine interest over experience.

Our team members are split into three categories, detailed further in the roles and responsibilities document (see *Appendix B - Roles and Responsibilities Guide*):

1. Executives
  - a. Co-Captains
  - b. Project Manager
2. Team Leads
  - a. Senior Leads
  - b. Junior Leads
  - c. Administration
  - d. Safety Officer
3. General Members

Small focus groups/committees may be created by captains or leads as required.

Leadership positions are selected through a combination of team experience, as well as soft and hard skills. A lead must have enough technical experience to advise members, while having people skills to keep the team organized and healthy.

## **4 TEAM DEVELOPMENT PLANS**

### **4.1 RECRUITMENT AND ONBOARDING PLAN**

UBC Concrete Canoe prides itself on an open and inclusive environment with a more relaxed feel. We attend UBC events such as Imagine Day and department onboarding presentations to introduce students to the team. Information is posted on our website and social media, with an info session planned for this year.

This year, we are bringing back short technical questions in the application form to identify serious applicants. We continue to do short introductory interviews with applicants to learn more about them and let them learn more about us. New members are invited to attend each subteam's meeting in September to see how they are run and if the team is a good fit for them. Decisions to commit are expected in early October, with the roster finalized in the first week of October.

### **4.2 COLLABORATION PLAN**

UBC Concrete Canoe maintains good relationships with several other design teams and student clubs. We share our space with Concrete Toboggan and Steel Bridge, making a healthy professional relationship essential. Furthermore, we maintain close relationships with other civil-oriented groups such as Seismic, the ASCE and the CSCE student chapters. We collaborate in PO events, industry appreciation nights, and team socials.

During competition, it is paramount to develop and maintain good relationships with judges, volunteers, and competing teams. No animosity, jealousy, or harmful rivalry is tolerated. It is essential to socialize with and help other teams, including moving their canoes, setting up displays, and relaying information. These are important for a positive competition experience.

### **4.3 SUCCESSION PLAN**

Membership on the team does not expire unless a member decides to leave the team, graduates, or violates the team agreement. Knowledge transfer is facilitated by the development of a Notion platform to better organize documents from current and previous members. Departing leads are required to hold transition meetings with their successors, ensuring a smooth succession process.

Senior leads are recommended by departing senior leads and are appointed by the co-captains. They are expected to work closely with junior leads to pass on their role, responsibility, and knowledge. Junior leads are selected by senior leads and approved by either co-captain.

New co-captains are appointed by departing co-captains. In a captain's departing year, it is their responsibility to pass on their experience to their expected replacement and/or write detailed transition documents to supplement the knowledge transfer.

#### **4.4 SENIOR MEMBER CONTINUED DEVELOPMENT**

Senior members are encouraged to take leadership and/or more specialized technical roles. They begin work earlier, starting in July for leadership roles and August for technical roles. If senior members wish not to take additional responsibilities, they are welcome to do so, but are still expected to assist more junior members where possible.

#### **4.5 ACADEMIC SUCCESS PLAN**

Members are expected to manage their time well to balance their responsibilities between the design team and their classes. Senior members often assist junior members in their academics, time permitting, and pass on their own time management or other academic strategies. Team members have all been requested to communicate with leadership if they are struggling and need to take more time for their studies, with the understanding that this is always allowed. Considerations around exams, midterms, and major projects are taken when planning meetings and should be communicated frequently. Ideally, the skills gained from Concrete Canoe can assist members in their academic and professional careers through a supportive and constructive learning environment.

## 5 STUDENT CODE OF CONDUCT

Every member is required to:

1. Conduct themselves in a professional and respectful manner;
2. Prioritize safety for themselves and those around them, following UBC safety policies;
3. Never discriminate, harass, or express any form of disrespectful behaviour as it will not be tolerated and may result in disciplinary action;
4. Act in the best interest of the team as a whole;
5. Comply with UBC Code of Conduct;
6. Contribute to the best of their ability;
7. In the case of uncertainty, team members should act in accordance with the EGBC code of ethics.

These requirements are monitored by UBC Concrete Canoe leadership. Failure to comply may result in disciplinary action and/or membership termination.

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# APPENDIX A STANDARD OPERATING PROCEDURES

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<b>SAFE WORK PROCEDURE</b>	
<b>UBC Concrete Canoe</b>	Effective date: 02/09/2025 Review date: 13/08/2025 Supersedes: 19/09/2024

## Appendix A-1 General Equipment and Material Handling

### 1. SCOPE

This document applies to all team members working in dedicated work areas (CHBE 104, and the Mixing Tent) and outlines general rules and guidelines for handling and moving equipment and materials.

### 2. PURPOSE

This document aims to eliminate or minimize the risk of general injuries, accidents, and incidents for any team member working in dedicated work areas.

### 3. BACKGROUND

As all team members will be required at one point to work in a dedicated workspace (CHBE 104), it is important for basic safe work procedures to be put into place.

### 4. RESPONSIBILITY

All team members: Shall abide by the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to the Team Safety Officer.

Team Captain(s): Shall enforce the safe working procedures and practices outlined in this document.

Team Safety Officer: Shall enforce the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to UBC CAIRS.

## 5. REFERENCES AND DEFINITIONS

### Definitions:

- Centralized Accident / Incident Report System (CAIRS): UBC's online accident and incident reporting system that the Team Safety Officer must submit a report to immediately following an accident or incident.
- CHBE 104: The engineering design team workspace shed, located near the East exit of the Chemical Engineering and Biological Engineering Building.
- Mixing Tent: The space created by erecting a tent for mixing. This space is set up outdoors and has walls to hold in particles.
- PPE: Personal Protective Equipment, to be worn and fit *before* beginning any work in dedicated work areas.
- Safe Work Procedure (SWP): This document, outlines specific steps and procedures that users must follow while undergoing the task in question.

## 6. TRAINING REQUIRED

### Required training and orientation:

- Engineering Design Team Safety Orientation 2025/2026
- WHMIS 2015 General Audience
- Preventing and Addressing Workplace Bullying & Harassment Training
- Site-specific orientation in the following locations:
  - CHBE 104 by the Team Safety Officer
  - EDC Composites Room by the Team Safety Officer

## 7. MATERIALS/EQUIPMENT

Not applicable for this SWP.

## 8. HAZARDS

General hazardous conditions and situations:

<ul style="list-style-type: none"><li>• Falling of heavy objects onto toes</li></ul>
<ul style="list-style-type: none"><li>• Injury/damage to back/neck due to unsafe lifting practices</li></ul>
<ul style="list-style-type: none"><li>• Slips/falls due to dusty/wet/slippery floors</li></ul>
<ul style="list-style-type: none"><li>• Injury/damage to eyes/face due to fine particulates, flying shrapnel, etc.</li></ul>
<ul style="list-style-type: none"><li>• Injury/damage to hands/arms due to improper use of power tools</li></ul>

## 9. CONTROLS (for above listed hazards)

Mitigative controls and PPE:

<ul style="list-style-type: none"><li>• Before moving anything, the lifter must check that their path is clear and that surrounding people are aware of the intended movement</li></ul>	<ul style="list-style-type: none"><li>• Steel-toed boots or toe caps must be worn when working with or near heavy objects</li></ul>
<ul style="list-style-type: none"><li>• Lifter must practice proper heavy lifting techniques, such as lifting with legs, using two hands, and not twisting while lifting heavy or large/awkward objects</li></ul>	<ul style="list-style-type: none"><li>• Not applicable</li></ul>

<ul style="list-style-type: none"> <li>• After working in any workspace, members must utilize mops, towels, dust pans, brooms, vacuums, etc. to minimize dust and liquid on floors</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<ul style="list-style-type: none"> <li>• Members should always move and use equipment and materials with care to minimize the risk of disturbing fine particulates or causing small pieces of shrapnel to become airborne</li> </ul>	<ul style="list-style-type: none"> <li>• Safety glasses must be worn in all dedicated work areas at all times</li> </ul>
<ul style="list-style-type: none"> <li>• Members should have basic training to use the equipments</li> <li>• Always orient the tools away from user and other people when not in use</li> <li>• Ensure that tools are off before plugging it to a power source</li> </ul>	<ul style="list-style-type: none"> <li>• Safety gloves must be worn when handling power tools</li> </ul>

**10. PRE-PROCEDURE SET-UP**

Set-up procedure:

- All members must fit and wear the required PPE *before* any work may be commenced in any dedicated work area
- Long hair and any loose pieces of clothing must be tied back
- Complete 5/360 Safety protocol

**11. PROCEDURE**

General safe working practices and procedures:

- There will be zero tolerance for horseplay or unsafe behaviour in or around dedicated workspaces
- If unsure or uncomfortable while completing a task or using a piece of equipment, the team member should refrain from continuing the task, and contact the Team Safety Officer
- Ask for help when lifting heavy objects

## **12. POST PROCEDURE/TAKEDOWN**

Take-down and clean-up procedure:

- All working surfaces, including desks, tables, and floors, must be wiped down/swept/cleaned to remove liquids and dust
- All equipment shall be properly and safely stored back in their dedicated areas in CHBE 104
- All furniture and equipment, including desks, tables, and chairs, shall be neatly placed to the sides of the work area to maintain clear access through the workspace
- Return all used equipment and materials to its dedicated location

## **13. EMERGENCY PROCEDURES**

In the event of an emergency, all team members are expected to follow their Engineering Design Team Safety Orientation training from the UBC Risk Management Services and follow the Building Emergency Response Plan for the respective workspace. All members will check in with the Team Safety Officer and await further instruction.

## **14. OTHER IMPORTANT INFORMATION**

Not applicable for this SWP

## **15. REVIEW AND RETENTION**

This SWP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.



## 16. DOCUMENT APPROVAL SIGNATURES

<b>Initial Creation Date: 15/09/2017</b>		
<b>Revised By: Muhamad Nabil Alhanif</b>		
<b>Date</b>	<b>Name</b>	<b>Title/Position</b>
15/09/2017	Ellen Chen	Co-Captain / Safety Officer
12/09/2018	Joshua Gowe	Safety Officer
19/09/2019	Bailey Yee	Mix Team Co-Lead / Safety Officer
30/09/2020	Ryan Carrusca	Co-Captain
12/10/2021	Adèle Lépine	Safety Officer
30/09/2022	Matthew Tse	Co-Captain
19/09/2024	John Sturgess	Co-Captain
13/08/2025	Muhamad Nabil Alhanif	Co-Captain



<b>SAFE WORK PROCEDURE</b>	
<b>UBC Concrete Canoe</b>	Effective date: 02/09/2025 Review date: 13/08/2025 Supersedes: 19/09/2024

## Appendix A-2 Concrete Batching & Mixing

**1. SCOPE**

This document applies to mix team members batching and mixing concrete in the Mixing Tent and outlines general rules and guidelines for moving, batching, and mixing concrete materials. \*Note: Mixing done in the CEME labs falls under the department's existing SWP

**2. PURPOSE**

This document aims to eliminate or minimize the risk of injuries, accidents, and incidents for mix team members working in the Mixing Tent.

**3. BACKGROUND**

All mix team members will be working in the EDC Composites Room to help prepare different concrete mixes during the design phase of the project schedule. Weekly mix lab sessions include the movement of necessary equipment and materials to and from CHBE 104 and the Mixing Tent, and batching and mixing of concrete in the Mixing Tent.

**4. RESPONSIBILITY**

All team members: Shall abide by the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to the Team Safety Officer.

Team Captain(s): Shall enforce the safe working procedures and practices outlined in this document.

Team Safety Officer: Shall enforce the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to UBC CAIRS.

## 5. REFERENCES AND DEFINITIONS

Definitions:

- Centralized Accident / Incident Report System (CAIRS): UBC's online accident and incident reporting system that the Team Safety Officer must submit a report to immediately following an accident or incident.
- CHBE 104: The engineering design team workspace shed, located near the East exit of the Chemical Engineering and Biological Engineering Building.
- Mixing Tent: The space created by erecting a tent for mixing. This space is set up outdoors and has walls to hold in particles.
- PPE: Personal Protective Equipment, to be worn and fit *before* beginning any work in dedicated work areas.
- Safe Work Procedure (SWP): This document, outlines specific steps and procedures that users must follow while undergoing the task in question.

## 6. TRAINING REQUIRED

Required training and orientation:

- 5500 30M Half-face Respirator Fit Testing
- Engineering Design Team Safety Orientation 2025/2026
- WHMIS 2015 General Audience
- Preventing and Addressing Workplace Bullying & Harassment Training
- Site-specific orientation in the following locations:
  - CHBE 104 by the Team Safety Officer

## 7. MATERIALS/EQUIPMENT

Necessary equipment/materials:

- Half-face respirators
- Gloves
- Safety Goggles
- Mixing drills
- Industrial Mixer
- Concrete testing cylinders
- Duct tape and Sharpie markers
- Mineral oil and paper towels
- Kitchen scales and wood planks
- Batching bowls
- Empty mixing buckets
- Syringes
- Solo cups
- All concrete materials required to prepare the mix, as outlined on the mix design printed for each lab

## 8. HAZARDS

General hazardous conditions and situations:

- |   |
|---|
| <ul style="list-style-type: none"><li>• Irritation of skin, eyes and lungs from contact with concrete, various vapours, or fine particles</li></ul> |
| <ul style="list-style-type: none"><li>• Injury/damage to fingers, hands, clothes, or hair during mixing of concrete</li></ul>                       |

## 9. CONTROLS (for above listed hazards)

Mitigative controls and PPE:

<ul style="list-style-type: none"><li>• While working in the mix tent, members shall move and act with caution as to avoid coming into contact with concrete, chemical vapours, or fine aggregate particles</li></ul>	<ul style="list-style-type: none"><li>• Half-face respirators, gloves, and safety glasses must be worn at all times</li></ul>
<ul style="list-style-type: none"><li>• Members using the mixing drill must ensure that nearby members are aware of the operation of the drill</li><li>• In between uses of the mixing drill, the drill must be unplugged from the wall to prevent accidents involving the drill coming into contact with someone's clothes, hair, or fingers/hands</li><li>• Members using the batch mixer must be orientated with its usage and safety features. Nearby members must be made aware of its operation.</li></ul>	<ul style="list-style-type: none"><li>• Loose hair and clothing must be tied back before mixing begins</li><li>• Safety features of the batch mixer must be engaged and in working order</li></ul>

## 10. PRE PROCEDURE SET-UP

Set-up procedure:

- At least three members must navigate the cart while transporting materials and equipment from CHBE 104 to the EDC Composites Room
- Communication best practices are reviewed
- Complete 5/360 Safety protocol
- Ensure all members have necessary PPE
- Set up the mixing workspace

## 11. PROCEDURE

General safe working practices and procedures:

- Batching of concrete materials must be done carefully so as not to agitate fine particles (such as 3M Glass Bubble Aggregate and Silica Fume)
- Mixing of concrete must be done only when all other materials have been completely batched and all members in the Mixing Room are aware of the operation of the drill
- Cylinder test samples shall be prepared quickly so as to not allow the concrete to set before being packed into the cylinder, yet carefully to minimize the amount of concrete dropped/spilled onto the floor
- Any split materials must be immediately cleaned up in an appropriate manner
- PPE must always remain on inside the workspace
- If a non emergency incident occurs team members will report it to a team lead or captain for the proper documentation and next steps

## 12. POST PROCEDURE/TAKE DOWN

Take-down and clean up procedure:

- All working surfaces, including desks, tables, and floors, must be wiped down/swept/cleaned to remove liquids and dust
- The Mixing Tent shall be taken down by at least 3 members
- At least three members must navigate the cart while transporting materials and equipment from the Mixing Tent to CHBE 104

## 13. EMERGENCY PROCEDURES

In the event of an emergency, all team members are expected to follow their Engineering Design Team Safety Orientation training from the UBC Risk Management Services, and follow the Building Emergency Response Plan for the respective work space. All members will check-in with the Team Safety Officer and await further instruction.

## 14. OTHER IMPORTANT INFORMATION

Due to the confined space of the Mixing Tent, no more than eight (8) team members should be present and active in the work space at once, to avoid accidents/incidents due to a lack of space

## 15. REVIEW AND RETENTION

This SWP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.



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<b>Date</b>	<b>Name</b>	<b>Title/Position</b>
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19/09/2024	John Sturgess	Co-Captain
13/08/2025	Muhamad Nabil Alhanif	Co-Captain



<b>SAFE WORK PROCEDURE</b>	
<b>UBC Concrete Canoe</b>	Effective date: 02/09/2025 Review date: 13/08/2025 Supersedes: 19/09/2024

## Appendix A-3 Canoe Construction

**1. SCOPE**

This document applies to all team members involved in the construction of the canoe in CHBE 104, including concrete placement and finishing, and outlines general rules and guidelines for handling, placing and finishing fresh concrete.

**2. PURPOSE**

This document aims to eliminate or minimize the risk of injuries, accidents, and incidents for any team member working in CHBE 104.

**3. BACKGROUND**

As all team members will participate in canoe construction, and thus, be required to work in the dedicated workspace (CHBE 104), it is important for basic safe work procedures to be put into place.

**4. RESPONSIBILITY**

All team members: Shall abide by the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to the Team Safety Officer, their respective Lead or either Co-Captains

Team Captain(s) and Senior Leads: Shall enforce the safe working procedures and practices outlined in this document.

Team Safety Officer: Shall enforce the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to UBC CAIRS.

## 5. REFERENCES AND DEFINITIONS

### Definitions:

- Centralized Accident / Incident Report System (CAIRS): UBC's online accident and incident reporting system that the Team Safety Officer must submit a report to immediately following an accident or incident.
- CHBE 104: The engineering design team workspace shed, located near the East exit of the Chemical Engineering and Biological Engineering Building.
- Mixing Tent: The space created by erecting a tent for mixing. This space is set up outdoors and has walls to hold in particles.
- PPE: Personal Protective Equipment, to be checked for wear and tear, worn and fit *before* beginning any work in dedicated work areas and confirmed by a team lead.
- Safe Work Procedure (SWP): This document, outlines specific steps and procedures that users must follow while undergoing the task in question.

## 6. TRAINING REQUIRED

### Required training and orientation:

- Engineering Design Team Safety Orientation 2025/2026
- WHMIS 2015 General Audience
- Preventing and Addressing Workplace Bullying & Harassment Training
- Site-specific orientation in the following locations:
  - CHBE 104 by the Team Safety Officer or a Co-Captain



## 7. MATERIALS/EQUIPMENT

Necessary equipment/materials:

- Safety glasses
- Gloves
- Dust mask
- Canoe foam mould
- Tuck Tape and PAM
- Cleaning supplies
- Handwash Station

## 8. HAZARDS

Hazardous equipment, conditions or materials:

<ul style="list-style-type: none"> <li>• Micro splinters from improper handling of carbon fibre mesh</li> </ul>
<ul style="list-style-type: none"> <li>• Concrete Chemical Burns</li> </ul>
<ul style="list-style-type: none"> <li>• Suspended Silica Dust</li> </ul>

## 9. CONTROLS (for above listed hazards)

Mitigative controls and PPE:

<ul style="list-style-type: none"> <li>• Carbon fibre mesh must be handled with caution, and contact with bare skin must be avoided when possible</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves must be worn at all times</li> </ul>
<ul style="list-style-type: none"> <li>• Care must be taken when placing concrete and wash off</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves must be worn at all times</li> </ul>

any concrete that comes into contact with your skin	
<ul style="list-style-type: none"><li>• Use wet cleaning method on work areas and avoid disturbing dust</li></ul>	<ul style="list-style-type: none"><li>• Dust masks must worn at all times</li><li>• Safety Glasses must be worn at all times</li></ul>

## 10. PRE-PROCEDURE SET-UP

Set-up procedure:

- Open the bay door to improve ventilation and hand out PPE
- Move equipment and furniture in CHBE 104 out of the workspace to provide adequate space for team members to work
- Communication best practices are reviewed
- Follow the 5/360 Safety protocol.

## 11. PROCEDURE

General safe working practices and procedures:

- There will be zero tolerance for horseplay or unsafe behaviour in or around CHBE 104, especially near the canoe
- Clear communication must be used to coordinate team members and sub-teams
- Mix sub-team will mix in a covered mixing tent outside for improved ventilation. Reference the mix SWP for more information
- Hull sub-team receives mix and places mix via the predetermined order taking care to minimize hazards and conflicts.
- PPE must always remain inside the workspace
- If a non-emergency incident occurs team members will report it to a team lead or captain for the proper documentation and next steps

## 12. POST-PROCEDURE/TAKE DOWN

Take-down and clean-up procedure:

- All working surfaces, including desks, tables, and floors, must be wiped down/swept/cleaned to remove liquids and dust
- All equipment shall be properly and safely stored back in their dedicated areas in CHBE 104
- All furniture and equipment, including desks, tables, and chairs, shall be neatly placed in their original locations to maintain clear access through the workspace

## 13. EMERGENCY PROCEDURES

In the event of an emergency, all team members are expected to follow their Engineering Design Team Safety Orientation training from the UBC Risk Management Services, and follow the Building Emergency Response Plan for the respective work space. All members will check-in with the Team Safety Officer or Captain and await further instruction.

## 14. OTHER IMPORTANT INFORMATION

Not applicable for this SWP

## 15. REVIEW AND RETENTION

This SWP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.



## 16. DOCUMENT APPROVAL SIGNATURES

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12/10/2021	Adèle Lépine	Safety Officer
30/09/2022	Matthew Tse	Co-Captain
19/09/2024	John Sturgess	Co-Captain
13/08/2025	Muhamad Nabil Alhanif	Co-Captain



<b>SAFE WORK PROCEDURE</b>	
<b>UBC Concrete Canoe</b>	Effective date: 02/09/2025 Review date: 13/08/2025 Supersedes: 19/09/2024

## Appendix A-4 Canoe Sanding

**1. SCOPE**

This document applies to all team members sanding concrete in around the CHBE 104 Design Space and outlines rules and guidelines for sanding procedures.

**2. PURPOSE**

This document aims to eliminate or minimize the risk of injuries, accidents, and incidents for any team member performing sanding procedures. Additionally, this document strives to reduce the impact on surrounding workspaces and the environment.

**3. BACKGROUND**

After the canoe has been cured and demoulded, the canoe must be sanded before further finishing can be applied. Team members working on the finishing of the canoe may be required to perform sanding procedures.

**4. RESPONSIBILITY**

All team members: Shall abide by the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to the Team Safety Officer.

Team Captain(s): Shall enforce the safe working procedures and practices outlined in this document.



Team Safety Officer: Shall enforce the safe working procedures and practices outlined in this document, and report any potential hazards, near misses, and incidents to UBC CAIRS.

## 5. REFERENCES AND DEFINITIONS

Definitions:

- Centralized Accident / Incident Report System (CAIRS): UBC's online accident and incident reporting system that the Team Safety Officer must submit a report to immediately following an accident or incident.
- CHBE 104: The engineering design team workspace shed, located near the East exit of the Chemical Engineering and Biological Engineering Building.
- Mixing Tent: The space created by erecting a tent for mixing. This space is set up outdoors and has walls to hold in particles.
- PPE: Personal Protective Equipment, to be worn and fit *before* beginning any work in dedicated work areas.
- Safe Work Procedure (SWP): This document, outlines specific steps and procedures that users must follow while undergoing the task in question.

## 6. TRAINING REQUIRED

Required training and orientation:

- Engineering Design Team Safety Orientation 2025/2026
- WHMIS 2015 General Audience
- Preventing and Addressing Workplace Bullying & Harassment Training
- Site-specific orientation in the following locations:
  - EDC Composites Room by the Team Safety Officer

## 7. MATERIALS/EQUIPMENT

- Sandpaper
- Orbital sanders
- Half-face respirators
- Vacuum
- Water & Spray Bottles

## 8. HAZARDS

General hazardous conditions and situations:

<ul style="list-style-type: none"><li>• Injury/damage to the respiratory system due to accidental and/or prolonged exposure to fine particulates</li></ul>
<ul style="list-style-type: none"><li>• Creation of hazardous dust</li></ul>
<ul style="list-style-type: none"><li>• Slips/falls due to dusty/wet/slippery floors (wet sanding)</li></ul>

## 9. CONTROLS (for above listed hazards)

Mitigative controls and PPE:

<ul style="list-style-type: none"><li>• Before the sanding procedure begins, ensure proper clothing and PPE are worn</li></ul>	<ul style="list-style-type: none"><li>• Gloves, Long sleeved clothing, Steel-Toed Boots, safety glasses, and half-face respirators must be worn at all times while sanding</li></ul>
<ul style="list-style-type: none"><li>• After working in any workspace, members must utilize mops, towels, dust pans, brooms, vacuums, etc. to minimize dust on floors</li></ul>	<ul style="list-style-type: none"><li>• Wet sanding shall be used at all times other than exempt circumstances. Wet sanding minimizes exposure to airborne</li></ul>

	dust by capturing the dust in water.
<ul style="list-style-type: none"><li>• After wet sanding, members must utilize mops and towels to dry any pools of water</li><li>• In the event of large spills, inform other people in the area and put up slippery warning signs</li></ul>	<ul style="list-style-type: none"><li>• Not applicable</li></ul>

## 10. PRE-PROCEDURE SET-UP

Set-up procedure:

- All members must fit and wear the required sanding PPE *before* any work may be commenced in any dedicated work area
- Long hair and any loose pieces of clothing must be tied back
- Doors must be fully shut and sealed to avoid leakage of fine particulates, or dust into non-dedicated working areas
- Protect floors with newspaper or other absorbent material to prevent water splashing from the canoe onto the floor.
- Complete 5/360 procedure

## 11. PROCEDURE

General safe working practices and procedures:

- Wet sanding is highly preferred due to the minimal creation of dust. If dry sanding is to be conducted, discuss first with the Safety Officer and Team Captains for additional safety controls
- Do not have hand sanding and power sanding operations happening at the same time on the canoe. If multiple power sanders are used, ensure that they are separated from each other by a far enough distance to prevent injury.

- Carefully and gently sand the canoe. Sand in small areas at a time and check progress regularly to ensure that the sanding depth is correct.
- Start with a low grit sandpaper and progressively move to higher grits when the canoe has been completely sanded.
- Be aware of loads being applied to the canoe to minimize potential damage caused by sanding

## **12. POST-PROCEDURE/TAKE DOWN**

Take-down and clean-up procedure:

- All working surfaces, including desks, tables, and floors, must be wiped down/swept/cleaned to remove liquids and leftover particulate matter
- All furniture and equipment, including desks, tables, and chairs, shall be neatly stowed away from the work area to maintain clear access through the workspace

## **13. EMERGENCY PROCEDURES**

In the event of an emergency, all team members are expected to follow their Engineering Design Team Safety Orientation training from the UBC Risk Management Services and follow the Building Emergency Response Plan for the respective workspace. All members will check in with the Team Safety Officer and await further instruction.

## **14. OTHER IMPORTANT INFORMATION**

Not applicable for this SWP

## **15. REVIEW AND RETENTION**

This SWP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.



## 16. DOCUMENT APPROVAL SIGNATURES

<b>Initial Creation Date: 15/09/2017</b>		
<b>Revised By: Muhamad Nabil Alhanif</b>		
<b>Date</b>	<b>Name</b>	<b>Title/Position</b>
15/09/2017	Ellen Chen	Co-Captain / Safety Officer
12/09/2018	Joshua Gowe	Safety Officer
19/09/2019	Bailey Yee	Mix Team Co-Lead / Safety Officer
30/09/2020	Ryan Carrusca	Co-Captain
12/10/2021	Adèle Lépine	Safety Officer
30/09/2022	Matthew Tse	Co-Captain
19/09/2024	John Sturgess	Co-Captain
13/08/2025	Muhamad Nabil Alhanif	Co-Captain

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## APPENDIX B

# ROLES AND RESPONSIBILITIES

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# INTRODUCTION

## PURPOSE

The purpose of this document is to clearly define the roles, responsibilities, and expectations of each position and subteam within UBC Concrete Canoe. It serves as an operational guide for current members and should be considered as a living document.

## REFERENCES AND DEFINITION

Definitions:

- Primary subteam: Subteams of which members must be a part of. These include either hull, mix, structural, construction, software, or leads.
- Secondary subteam: Subteams of which members can either join full-time (as their main subteam), or part-time (in addition to a primary subteam). These include paddling and project management.
- CHBE 104: The engineering design team workspace shed. Located near the East exit of the Chemical Engineering and Biological Engineering (CHBE) Building.
- PPE: Personal Protective Equipment. To be checked for wear and tear, worn and fit *before* beginning any work in dedicated work areas and confirmed by a team lead.

## GENERAL STRUCTURE

UBC Concrete Canoe team structure is divided into three categories, listed below:

1. Executives
  - a. Co-Captains
  - b. Project Manager
2. Team Leads
  - a. Senior Leads
  - b. Junior Leads
  - c. Administrative
  - d. Safety Officer
3. General Members

Each subteams consist of at least one (1) senior lead and general members. Subteams may choose to recruit up to two (2) junior leads to act as leads-in-training. Senior leads are responsible for managing the operation of their respective subteams. They report directly to the

captains and work in close collaboration with the other leads. Junior leads assist senior leads in running the subteam, and are to act as acting lead in the absence of senior leads.

Small focus groups/committees can be created by captains or leads as required.

## **ROLES & RESPONSIBILITIES**

### **CO-CAPTAINS**

Co-Captains serve as the central communicators with APSC and act as the main point of contact, both internally and externally. They are responsible for the day-to-day running of the team, addressing any questions, comments, or concerns from team members.

Responsibilities:

- Primary point of contact, both internal and external
- Address any questions, comments, and concerns within the team
- Ensure all members have completed the required safety certifications as outlined by UBC
- Maintain CHBE 104 inventory with team leads
- Plan out budgets with the project manager
- Assists other subteams and leads as required

### ***Short-term Planning Captain***

Responsibilities:

- Communicate internally with each subteam and administrative/executive members
  - Tracking current progress
  - Relaying due dates of milestones and submission materials
- Leading proposal compilation and competition deliverables
- Coordinate with leads to facilitate team purchases

### ***Long-Term Planning Captain***

Responsibilities:

- Organize and coordinate due dates and milestones throughout the year
- Facilitate large team purchases, i.e. mould and capital expenses
- Apply for PAF and other funding
- Organize meeting rooms with UBC
- Communicate externally with other captains



## **PROJECT MANAGER**

The project manager oversees internal communication and financial activities. These activities include tracking reimbursements, monitoring income and expenditures, and recording sponsorship invoices. The PM also handles the team calendar, ensuring all events are tracked and communicated properly.

Responsibilities:

- Manage and assess the efficiency of different communications methods within the team
  - Ensure effective coordination between subteams
- Manage team finances
  - Submit and track reimbursement requests
  - Monitor income and expenditures
  - Document sponsorship invoices
  - Coordinate with Director of Project Finance and Director of Sponsorship on future budgeting
- Manage the team calendar
  - Follow up with leads to update the calendar weekly, or as soon as an event is announced

## **SAFETY OFFICER**

The safety officer is responsible for checking and enforcing safety regulations. They report directly to the captains and serve as a liaison between the team and UBC Safety & Risk Services. They are a critical member of the team, and play a pivotal role in ensuring that UBC Concrete Canoe operates safely, responsibly, and in compliance with university standards.

Responsibilities:

- Acquire PPE and first-aid kits as needed
- Maintain inventory of PPE and first-aid kits, including their expiry date
- Be aware of UBC's safety regulations and the team's safety protocols
- Inform and enforce safety regulations
- Report and document any safety violations
- Monitor members for continued safety standards

## HULL

Hull is a primary subteam responsible for developing and testing different canoe hull designs, using FreeShip and SolidWorks. They work closely with the structural subteam to iterate on and analyze new designs. In the second term, they oversee the preparation and casting of the canoe, coordinating with the construction subteam. Members are trained not only in design software, but also in casting techniques, to ensure a smooth casting day.

General responsibilities:

- Develop and test different canoe designs
  - Perform resistance, stability, and maneuverability analysis
  - Work with the structural subteam throughout the iterative process
- Produce required hull deliverables as outlined by the RFP
  - Write the hull section report
  - Create a canoe cross-section for display
- Maintain knowledge transfer among members
  - Attend hull lecture sessions
  - Attend casting practices
- Execute hull responsibilities on casting day
  - Reinforcement selection, set-up, and construction
  - Concrete placement and finishing
  - Canoe aesthetics (staining, inlays, etc.)

### ***Senior Hull Lead***

Senior hull leads are responsible for managing the hull subteam. They serve as the main point of contact to and from the subteam.

Responsibilities:

- Manage and track hull deliverables
- Teach hull design materials
- Coordinate casting practices with the mix and construction subteams
- Lead canoe construction portion of casting day in conjunction with structural & construction
- Determine future leads and potential within the hull team



### ***Junior Hull Lead***

Responsibilities:

- Assist with managing hull deliverables
- Act as acting lead in the absence of senior leads

## **MIX**

Mix is a primary subteam responsible for developing and testing different concrete mix designs. Their main objective is to create a mix that is lightweight, strong and waterproof. Members are trained to experiment with fundamental and innovative ingredients of concrete to create a final mix recipe for the canoe.

General responsibilities:

- Develop and test out different mix designs
- Determine the best mix design and the required mix materials
- Maintain inventory of material organization and storage in CHBE 104, in collaboration with other leads and co-captains
- Produce the required mix deliverables as outlined by the RFP
  - Mix design
  - Mix report section, MTDS, display section, and all necessary worksheets and paperwork
    - Ensure MTDS are up-to-date
  - Required strength number, in coordination with structural

### ***Senior Mix Lead***

Senior mix leads are responsible for managing the mix subteam. They serve as the main point of contact to and from the subteam.

Responsibilities:

- Arrange mask fitting and training with the captains
- Manage and track mix deliverables
  - Ensure mix designs are within scope
  - Complete all required testing
- Manage mix inventory and storage in CHBE 104
  - Report all depleting materials/equipment or purchases required to the captains
  - Do an inventory at the start of each year to determine the starting point
  - Maintain a clear understanding of the mix supplies available at all times
  - Ensure all materials and supplies are prepared and available ahead of casting day
- Teach mix learning materials
- Coordinate casting practices with the hull and construction subteams
- Lead mix construction portion of casting day

- Determine future leads and potential within mix team

### ***Junior Mix Lead***

Responsibilities:

- Assist with managing mix deliverables
  - Assist with calculations and RFP items
- Manage mix inventory and storage in CHBE 104
  - Keep a clear inventory and notify senior leads/captains of any depleting resources
  - Maintain space organization
  - Ensure all required equipments are working and in proper locations
- Act as acting lead in the absence of senior leads
- Lead mix team research

## **STRUCTURAL**

Structural is a primary subteam mainly responsible for calculations and producing the mould design. Members are trained in SolidWorks and structural calculations. They work closely with hull and mix subteams, advising them on design demands and constraints.

General responsibility:

- Research ways to improve the structural integrity of the canoe
- Create SolidWorks model of the canoe based on FreeShip
  - Work together with the hull subteam to iterate and test the canoe designs
- Create a mould design based on hull
- Produce required structural deliverables as outlined by the RFP
  - Perform the required structural calculations
  - Write the structural report section
  - Provide the required strength numbers for the mix subteam

### ***Senior Structural Lead***

Senior structural leads are responsible in managing the operation of the structural subteam. They serve as the main point of contact to and from the subteam.

Responsibilities:

- Manage and track structural deliverables
  - Produce the required strength demands for mix
  - Coordinate with the hull subteam to produce the final mould design
  - Check on calculations and write the structural report section
- Teach structural learning materials
- Lead canoe construction portion of casting day in conjunction with hull & construction
- Determine future leads and potential within the structural team

### ***Junior Structural Lead***

Responsibilities:

- Assist with managing structural deliverables
- Act as acting lead in the absence of senior leads

## CONSTRUCTION

Construction is a primary subteam responsible for managing construction-related deliverables. Their main tasks are to assist hull in preparing for casting day and to construct the crate and display for competition. Construction activities begin in the second term; interested team members are recruited from other subteams at the end of term 1. Members are trained in carpentry and the use of power tools.

Responsibilities:

- Pre-casting day
  - Organize training for new construction members
  - Inventory and organize materials
    - Ensure all required materials and equipment are ready for casting day
    - Coordinate with the safety officer to ensure sufficient PPE
  - Coordinate with the hull and mix subteams to hold casting practices
- Casting day
  - Organize shifts for team members
  - Perform quality checks
- Post-casting day
  - Check canoe daily
    - Refil humidifier
    - Water the canoe
- Canoe transportation
  - Design and build a crate to transport the canoe
  - Research ways to mitigate damage in transportation
  - Arrange transport for other competition deliverables
- Build the competition stand & display
- Write the Engineer's notebook as outlined by the RFP

### ***Senior Construction Lead***

Senior construction leads are responsible for managing the operation of the construction subteam. They serve as the main point of contact to and from the subteam.

Responsibilities:

- Manage and track construction deliverables
  - Prepare materials for crate and display construction, in communication with captains
  - Lead the building of the crate and display
  - Lead the writing of the Engineer's notebook
- Train other members in carpentry and the use of power tools
- Manage storage in CHBE 104 in collaboration with other leads and captains
  - Report all depleting materials/equipment or purchases required to the captains
  - Maintain clear record of construction supplies and tools available
  - Ensure all materials & supplies are prepared and available ahead of casting day / project delivery date
- Lead construction projects
- Determine future leads and potential within the construction subteam

### ***Junior Construction Lead***

Responsibilities:

- Assist with managing construction deliverables
- Manage inventory and storage of CHBE 104 with other leads
- Act as acting lead in the absence of senior leads

## **SOFTWARE**

Software is a secondary subteam responsible for managing the team's website and developing the team's design software. They aim to replace the aging FreeShip software with an in-house one, better suited for the team's needs and wants. Members are trained in programming, specifically in C++.

Responsibilities:

- Maintain and update the team website
- Discuss with other subteams and leads to figure out design software requirements
- Develop and maintain the design software
  - Currently built with OpenCascade and Qt6

### ***Software Lead***

The software lead is responsible for managing the operation of the software subteam. They serve as the main point of contact to and from the subteam. They are the primary handler of all software-related accounts.

Responsibilities:

- Create and track timelines for software deliverables
- Create and manage all software-related accounts
- Arrange discussion sessions with other subteams to figure out their needs

## **PROJECT MANAGEMENT**

The project management team acts as a bridge between the technical and all non-technical/non-competitive subteams and positions within UBC Concrete Canoe.

### ***Director of External Relations***

The Director of external relations is the head of outreach and social media, they lead the team's external presence by managing social media, outreach, and community partnerships.

Responsibilities:

- Manage social media platforms and create engaging content
- Take and edit photos to showcase team activities and competitions
- Lead recruitment campaigns and promote opportunities for new members
- Collaborate with UBC communities and student groups
- Highlight team updates and achievements in newsletters
- Build and maintain strong connections with sponsors, partners, and supporters

### ***Director of Project Finance***

The Director of Project Finance is responsible for managing the team's FP&A portfolio, including external and internal finances. They are the primary handler for all capital movement.

Responsibilities:

- Knowledge transfer of intermediate MS Excel and PowerBi to Project Finance Analysts
- Executive FP&A responsibilities, including cover sheet sign-off and portfolio optimization
- Lead the FP&A portfolio while providing support to the Partnerships team.
- Establish and lead the centralization of data, including major Excel Macro and PowerBi infrastructure projects

### ***Director of Sponsorship***

The Director of Sponsorship is the main liaison between the team and external sponsors. They are responsible for planning and managing the sponsor subteam.

Responsibilities:

- Manage non-social team events
- Executive sponsor retention capabilities, collaborating with external relations.
- Establish and own the sponsorship outreach and collaboration framework

### ***External Relations Associate***

The External Relations team is responsible for managing the team's online presence.

Responsibilities:

- Manage social media (Instagram, LinkedIn, etc)
- Create promotional material to update followers on things the team is doing
- Getting LOTS of photos & video material to use
- Representative at most major events for photos
- Collaborate on the competition video
- Event Promotion, publicize upcoming events, initiatives, or campaigns to boost

### ***Project Finance Analyst***

The Project Finance subteam is responsible for planning and managing the team's financial portfolio. Members will also be responsible for sponsorship outreach and retention.

Responsibilities:

- FP&A duties, including budgeting, analysis, and forecasting of future finances (Short and Long term).
- Conduct spend analysis to explore potential FP&A portfolio optimization opportunities
- Utilize PowerBi to create dashboards and establish centralization of data
- Ad-hoc duties as required

### ***Partnerships Associate***

- Reach out to potential sponsors or partners who align with the team's needs (Milwaukee, dewalt, etc as request from construction).
- Create sponsorship proposals and communicate the value of supporting our team.
- Maintain existing sponsor relationships and provide regular updates or recognition as seen appropriate.
- Communicating with sponsors, monthly newsletter
  - Updates on canoe (what progress we are currently making, what we are changing from past years, etc.)
  - Where their money is going specifically
  - Collaboration with executive team and other design teams for sponsorship night
- Make an annual Christmas card and personalized gifts for sponsors
- Organize the sponsorship appreciation night with the social coordinators



### ***Social Coordinator***

The social coordinators are a committee formed by any interested members. Their goal is to foster a sense of community and engage members through fun, inclusive, and engaging activities.

Responsibilities:

- Coordinate socials for the whole team semi-regularly
- For money-intensive events, send out feelers and ask for contributions from each member
- Prioritize affordable or free activities to ensure accessibility for all team members.
- Communicate clearly with the team about upcoming events, logistics, and any associated costs.
- Be creative and inclusive, ensuring events cater to a wide range of interests and schedules.

### ***Graphic Designer***

Graphic designers are specialized members who assist the team in producing marketing and promotional materials, designs for merchandise and the team's artistic needs when needed. Their main goal is to enhance and support sponsorship and social media initiatives for the team.

Responsibilities:

- Produce graphics for social media posts, sponsorship packages, weekly newsletters, promotional materials, etc.
- Produce designs for team merchandise
- Support the team with any artistic or creative needs and projects

## **PADDLING**

The paddling team represents UBC Concrete Canoe in the racing portion of the competition. Their primary objective is to develop and maintain strong paddling skills through regular practice sessions. Members are expected to commit to a consistent training schedule and maintain a high level of physical preparedness.

Responsibilities:

- Attend regular paddling practice
- Maintain an inventory of paddling equipments
- Collaborate with construction for the transport of paddling equipments to and from the competition

### ***Paddling Lead***

The paddling lead is responsible for planning paddling practices. They are the liaison between UBC Concrete Canoe and the paddling practice location.

Responsibilities:

- Serve as a liaison between the paddling team and the paddling practice location
- Rent canoes and storage lockers from the practice location, as required
- Coordinate paddling practices
- Plan and lead drills referring to competition races