



**Off-site Construction
Research Centre**

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PRESENTS:

THE 2023 OFF-SITE CONSTRUCTION STUDENT DESIGN COMPETITION

REGISTER BY
MAY 31, 2023

SUBMIT BY
AUGUST 14 (INTERIM) / NOVEMBER 3 (FINAL)



Off-site Construction
Research Centre

THE 2023 OFF-SITE CONSTRUCTION STUDENT DESIGN COMPETITION

An OCRC Modular Home Design Competition

The third annual Off-site Construction Student Design Competition will showcase student design innovation in modular home construction. The competition is presented by the University of New Brunswick Off-site Construction Research Centre (OCRC), a research group dedicated to optimizing alternate solutions to on-site construction.

The competition will challenge project teams composed of students and industry professionals with real housing challenges faced across the country and will look for teams to innovate with off-site construction solutions.

The objective: to develop a modular design for a housing unit that will become 'open source' and be used by manufacturers to meet the demand for affordable housing in New Brunswick. The design will focus on a repeatable volumetric module that can be used to combat the "missing middle housing" problem.



Figure 1: Missing Middle Housing Categories

25% of all proceeds collected for this event will be donated to the Fredericton Homeless Shelters.

COMPETITION TIMELINE

REGISTRATION OPENS: MONDAY, APRIL 3, 2023 (12:00PM AST)

FREE REGISTRATION DEADLINE: WEDNESDAY, MAY 31, 2023 (11:59PM AST)

Register at: <https://www.eventbrite.ca/e/off-site-construction-student-design-competition-tickets-607407039807>

May register as:

- A team
- An individual (to be assigned to a team)

*Late registrants will not be considered

TEAMS ANNOUNCED / MENTORS ASSIGNED: MONDAY, JUNE 5, 2023 (12:00PM AST)

*you may register as a complete team, OR register as an individual and a team will be assigned to you



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INTERM DELIVERABLE: TUESDAY, SEPTEMBER 5th, 2023 (11:59PM AST)

A 50% design submission will be due to demonstrate team progress.

PROJECT DEADLINE: FRIDAY, NOVEMBER 3, 2023 (11:59PM AST)

ONLINE PRESENTATIONS & JUDGING: NOVEMBER 9 & 10, 2023. Times TBA.

WINNERS ANNOUNCED: MONDAY, NOVEMBER 13, 2023

Note: all dates may be subject to change.

COMPETITION BRIEF

The purpose of this design competition is to produce open-source designs that can be used by the off-site construction sector to produce repeatable, affordable housing solutions. The design competition is being organized by the OCRC with the judging panel being created by our Supporting Partner organizations.

The outcome will be open-source designs intended to offer flexibility to the housing sector, with designs capable of existing as standalone, single-family units OR stackable modular units that can be constructed into multi-residential units that fit under the "Missing Middle Housing" as shown in Figure 1.

DESIGN BRIEF

The objective is to create a well-designed prefabricated unit that can exist in single or multi-unit dwellings.

- A modular residential unit
 - New Brunswick transportation limits to be considered.
 - Minimum building square footage of 430 square-feet
 - Module should be able to exist as a finished single unit dwelling OR have the capability to stack and create one of the buildings under the "Missing Middle Housing" category in Figure 1.
- Off-site construction / Design for Manufacture and Assembly (DfMA)
- Consideration of living, sleeping, kitchen, bathroom, laundry, utility, and storage spaces
- Consideration of single complete units with alternative to stack modules for multi-unit dwellings
- Concept design for marketing and judging purposes, towards a "design solutions book" of affordable housing design alternatives
- Detailed design for manufacture with construction drawings and details
- Cost estimate

PRIZES

FIRST PRIZE \$3,000/TEAM

Project featured on OCRC websites & social media and the opportunity to present the design project at the Canadian Home Builders Association conference in Saint John, NB in May 2024, including free conference registration for the team. Transportation and accommodations costs may be compensated as well. To be determined after the competition.

SECOND PRIZE \$1,500/TEAM

Project featured on OCRC websites & social media and the opportunity to present the design project at the Canadian Home Builders Association conference in Saint John, NB in May 2024, including free



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conference registration for the team. Transportation and accommodations costs may be compensated as well. To be determined after the competition.

THIRD PRIZE **\$500/TEAM**

Project featured on OCRC websites & social media and the opportunity to present the design project at the Canadian Home Builders Association conference in Saint John, NB in May 2024, including free conference registration for the team. Transportation and accommodations costs may be compensated as well. To be determined after the competition.

FOURTH TO TENTH PRIZE **HONOURABLE MENTIONS**

Project featured on OCRC websites & social media.

THINGS TO CONSIDER:

- Transportation and installation. The design solution may need to be carried, lifted, stacked and maneuvered around existing buildings.
- Services. Consider how the units will connect to utility services (between units and on-site).
- Multiple uses. Consider how the unit will look as a single-unit dwelling, and how the design would change to stack the units for a multi-unit dwelling. Consider re-use or repurposing units in the future (e.g., circular economy).
- Design for manufacture and assembly (DfMA). Essential to make the open-source design useful for New Brunswick manufacturers.

ELIGIBILITY and TEAMS

Competitor teams are suggested to be made up of combinations of students of architecture, engineering, construction management, project management, architecture/ engineering technology, skill trades, graphic design, fine art, etc., and industry partners such as architects, architectural designers, product designers, engineers and manufacturers.

Each team should include at least one of each of the following:

- Architect or architectural designer (recommended)
- Prefabrication / offsite manufacturer mentor (required – the OCRC will assign one to your team)
- Student

All students must currently be enrolled in a **FULL-TIME COLLEGE OR UNIVERSITY PROGRAM** at some point during the January 2023 – November 2023 academic year.

Your prefabrication / offsite manufacturer mentor will be assigned to your team on Monday, June 5th.

JUDGING CRITERIA

1. Construction / Buildability
1. Regulatory Standard Conformance / Compliance
2. Cost / Affordability
3. Flexibility / Adaptability
4. Functionality / Fit for purpose
5. Design / Aesthetics
6. Sustainability / Efficiency



7. Construction / Assembly Drawings
8. Innovation / Point of difference
9. Other / Judge Area of expertise

SUBMISSION

SUBMISSION REQUIREMENTS

The competition submission should include the following:

1. Design an affordable modular home solution that can exist as a single-unit, or be stacked into a multi-unit dwelling. The design package deliverable should include:
 - a. 3D rendering
 - b. Floor plans
 - c. Detailed drawings
2. Cost estimate that shows affordability of the modular home
3. A 10-minute presentation / slide deck that will be used to present your design to the judging panel.
4. Winning teams will be required to create a 40"x27" poster for presentation at the Canadian Home Builders Association (CHBA) conference in Saint John, NB in May 2024

Students are encouraged to research, modular construction, prefab construction, principles of DfMA, and leverage the knowledge of your modular manufacturing mentor in the production of your design.

Submissions must be uploaded to a shared cloud drive (link to be shared at a later date). Deliverable schedule:

- 50% design submission: MONDAY, AUGUST 14, 2023 (11:59PM AST)
- 100% completed competition submission: FRIDAY, NOVEMBER 3, 2023 (11:59PM AST)

Submissions must be anonymous. Teams will be assigned a number (following team announcements on June 5) to identify all submitted material. Any additional materials received which exceed the submission requirements will not be considered by the judging panel.

DISQUALIFICATION

Submissions that fail to meet a significant number of the competition procedures may be disqualified where:

- The submission is received after the lodgement time and date.
- The submission is not submitted in accordance with the submission requirements, as stated in the brief.
- A competitor attempts to influence the decision of the judging panel.
- The judging panel will determine any disqualifications.

INTELLECTUAL PROPERTY

All final concept design submissions for the Competition will be assigned a Creative Common 4.0 License. The concept designs will be published and made publicly available as open-source documents at the University of New Brunswick Libraries according to UNB's policies and processes. To facilitate the open-source publication, Students who participate in the Competition will be required to sign a Research Participation Agreement ("RPA").



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QUESTIONS

Questions should be directed to the UNB Off-site Construction Research Centre
offsiteconstruction@unb.ca.

PARTNERS

We would like to thank the OCRC industry partners who help make this possible. Specific sponsorship and partnership opportunities will be made available. If interested, please contact the UNB Off-site Construction Research Centre at offsiteconstruction@unb.ca.