

# PROJECT PROFILE

## SEA CAN HOMES



The Engineering and Support for Sea Can Homes project, undertaken by the University of New Brunswick's Off-site Construction Research Centre (OCRC), explored innovative construction solutions for prefabricated housing. By reusing shipping containers, the project aimed to develop efficient connection designs and constructability recommendations to streamline manufacturing and on-site assembly processes.

### PROJECT BACKGROUND

Sea Can Homes present a novel solution for addressing housing challenges through the repurposing of shipping containers. Constructed from four 20-foot containers, these homes incorporate prefabricated interior walls and floors, reducing on-site construction time. This project focused on designing repeatable connections and optimizing the assembly process to enhance productivity and reduce inefficiencies.

### METHODOLOGY

- **3D Modelling and Documentation:** A detailed structural model was developed, integrating architectural and technical drawings.
- **Constructability Analysis:** Tasks were evaluated to determine which processes should be completed off-site versus on-site, ensuring efficient workflows.
- **Connection Design:** Strategies were proposed to ensure secure, durable, and repeatable connections between components.

### RESULTS AND RECOMMENDATIONS

- **3D Model:** A comprehensive model facilitated the design and documentation of construction workflows and connection details.
- **Constructability Enhancements:** Recommendations included prefabricating interior walls and floor frames off-site, reducing on-site labour and complexity.
- **Connection Designs:** Proposed durable methods for connecting sea cans, wall frames, floor frames, and roof trusses to ensure structural integrity while simplifying installation.

#### Recommendations:

- Prefabricate smaller, standardized sections of wall and floor frames for easier handling and installation.
- Implement welding for sea can connections and use screws for other component attachments to improve durability and efficiency.
- Validate all connection designs through engineering analysis before implementation.

### CONCLUSIONS

The project successfully delivered a detailed framework for streamlining the manufacturing and assembly of Sea Can Homes. These findings provide a pathway for efficient prefabrication and innovative construction techniques, supporting the scalability and sustainability of modular housing solutions.