

PROJECT PROFILE

SustainaBuild



PROJECT BACKGROUND

the UNB Off-site Construction Research Centre (OCRC) has collaborated with SustainaBuild, a division of Roberts Group, to design the layout of a new panelized factory in an airplane hangar located in Slemmon Park, Summerside, PEI. The hangar measures approximately 182 by 146 feet. The primary objectives of this project include identifying an optimal floor layout for panelized construction, recommending equipment purchases, and outlining the steps necessary to bring the facility online.

METHODOLOGY

The project methodology involved several key activities:

1. Site Visit to Summerside, PEI:
 - Evaluated the hangar's dimensions and existing infrastructure.
 - Identified potential challenges related to space utilization and workflow efficiency.
 - Conducted initial discussions on layout possibilities and logistical considerations.
2. Factory Tours in Edmonton:
 - Toured facilities at Northgate Industries, ACQBuilt, and 3i Precast.
 - Attended a live demo from SEMA and consulted with Dr. Al-Hussein from the University of Alberta on his prototype framing table and panelized construction software.
3. Meetings with Equipment Manufacturers:
Consulted with Randek, Soukup, Weinmann, and Akhurst to explore equipment options:
 - Randek: Emphasized automated framing and cutting solutions.
 - Soukup: Highlighted woodworking machinery and customization options.
 - Weinmann: Presented comprehensive equipment for wall, floor, and roof panel production.
 - Akhurst: Provided insights into machinery for precision cutting and assembly.

RESULTS

The first version of the floorplan was developed, featuring two U-shaped assembly lines in the middle of the floor—one for interior and exterior walls and another for floor/ceiling panels and roof panels.

Key features of this floorplan include:

- A cut shop located near the offices at the northeast corner.
- A station for non-rectangular shape panels in the southeast corner.
- Stations for stairs and bathroom pods along the south and northwest sides of the building.

Challenges Identified:

- Efficient material movement from the cut shop to the stairs and framing tables to minimize travel distance.
- Ensuring sufficient space for trailers to enter the plant for panel loading.
- Adequate storage and space for bathroom pods and stair construction.
- Potential need for additional rails running parallel for exterior walls.

RECOMMENDATIONS

To address the identified challenges and enhance workflow efficiency, the following steps are recommended:

Refine the Floorplan:

- Make adjustments to improve material flow and minimize travel distances.
- Ensure adequate space for trailers and storage areas.

Finalize Equipment List:

- Based on insights from manufacturer meetings, determine the final list of equipment to be purchased.

Develop an Implementation Plan:

- Create a detailed plan including timelines, resource allocation, and steps for bringing the facility online.