UNB EST. 1785 UNIVERSITY OF NEW BRUNSWICK | Off-site Construction Research Centre

PROJECT PROFILE

STOCK HOME LTD.

PROJECT BACKGROUND

The UNB Off-site Construction Research Centre (OCRC) has collaborated with Stock Home ltd, to design and layout a new modular factory producing standardized modules. The primary objectives of this project included developing an efficient factory layout for modular construction, designing the factory with minimal footprint while meeting production goals, and providing equipment selection recommendations. Key activities included developing a factory workflow for modular construction, design a factory layout with identified stations, and providing equipment recommendations for the factory.

METHODOLOGY

1. Workflow Development:

- Reviewed module design and assembly specifications.
- Identified in-factory manufacturing and assembly processes and stations.
- Outlined key in-factory workflows from raw materials to delivery ready product—to accommodate design variations.
- Provided equipment type and selection recommendations.
- Specified factory operation recommendations for workflow efficiency.

2. Initial Factory Layout Design:

- Transferred the developed workflow with identified stations into a full-scale minimal footprint factory layout.
- Analyzed material, component, and module flow through full scale designed factory layout.
- Ensured the factory layout meets Stock Home ldt's production goals through collaboration and iteration.

3. Finalized Factory layout:

- Evaluated low footprint designed factory layout with developed workflow to ensure efficient and productive worker, material, and load handling movement.
- Performed a space-utilization assessment to confirm allocated area was being used efficiently and highlight opportunities for improvements.
- Analyzed designed factory layout performance to ensure production output and adaptability meets client needs.

RESULTS AND RECOMMENDATIONS

- **Factory Workflow:** Developed a workflow of the identified task and activities to occur within the factory.
- **Factory Layout Design:** Optimized spatial arrangements and workflow paths, enhancing productivity and efficiency.
- **Equipment Selection:** · Provided additional equipment recommendations to assist manufacturing and assembly processes and meet production goals.

Recommendations:

- Develop 3D model of finished factory with equipment to create simulation-ready model
- Integration of real-time factory productivity data and material/component delivery/processing times to outline operational efficiency of factory with finalized equipment
- Performing time studies of factory workflow to review factory layout for operational efficiencies.

If you are interested in getting involved in this initiative or other research and development projects, please contact the Off-site Construction Research Centre at: **offsiteconstruction@unb.ca**

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