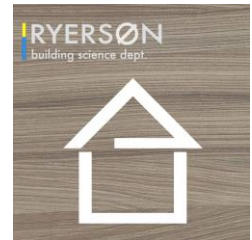




Ryerson Building Science

Ø-Zone Residence



Project Summary

Ø - ZONE is a sustainable approach to infill housing in underutilized urban settings. Constrained by buildings to the East and West, the 4 story multi-unit residential building uses the principles of passive design to improve indoor comfort and lower the ecological footprint. The design utilizes thermal mass, passively reducing energy demand and improving indoor comfort. Active strategies supplement this to offset the energy cost by selling energy back to the grid. These criteria defined the evolution of Ø - ZONE as a user-friendly energy ready home, challenging urban sprawl and high rise condos.



Relevance of Project to the Goals of the Competition

Ø - ZONE was designed in an effort to promote net-zero design into the next generation of professionals. This project enabled our team to join with an industry partners and engage in a realistic design and analysis of a current project. The project provided an opportunity to develop our skills low energy multi-building design within restricting conditions.

Design Strategy and Key Points

Ø - ZONE re-imagined construction practices, which is exercised from structure to aesthetics, using timber framing as a newly accepted construction technique in Toronto for up to 6 stories, and aesthetically informing the user of the buildings unique differences. Features include the exposed staircase to the South West acting as a passively preheated space and balconies designed to allow light penetration in the winter and block it in the summer.

Project Data

- 974 Eastern Ave. Toronto, ON
- D - Moist Continental Mid-latitude Climates
- 4520 ft²
- 10 bedrooms, 10 bathrooms, and 4 stories
- HERS rating of 25 (35 without solar panels)
- \$1,600

Technical Specifications

- Walls - R=50
- Foundation Insulation - R=32
- Roof Insulation - R=50
- Window Performance - U-0.8
- Air Source Heat Pump - Mitsubishi City Multi Unit, ducted system/ERV Ventilation