



DAS HAUS

THE CORNER HOUSE



Project Summary

DAS HAUS' Corner House project is located in Toronto, Ontario, Canada. The building is a three storey residential structure with three units. The ground floor unit is designed to accommodate various potential occupancies: residential, retail, café, or office, with the majority of our analysis focused on a café occupancy. The other two units each occupy a half of the second and third storeys. The goal of this strategy is to provide energy efficient housing in a higher density mixed-use context.

Relevance of Project to the Goals of the Competition

The goal of reaching net-zero energy is made significantly more difficult by prioritizing mixed-use and higher density living. However, we strongly believe that addressing this urban housing condition is critical for developing sustainable communities at a larger scale, especially in Toronto where additional affordable residential housing is desperately needed in walkable mixed-use communities. Our project represents an archetypal solution for innovative residential development that also meets energy performance targets.



Design Strategy and Key Points

The project includes several important strategies for maximizing the performance of the building. These include: a high performance building envelope, a maximized south-facing sloped roof for energy generation, majority south-facing glazing for winter solar heat gain and improved daylighting quality, a centralized service core for efficient distribution and maximum occupiable space, enhanced natural ventilation, and an integrated mechanical system shared between all units.

Project Data

- Location: Toronto, ON, CAN
- Climate Zone: ASHRAE Zone 6
- Floor Area: 4067 ft²; Unit 1 - 943 ft², Unit 2 - 1562 ft², Unit 3 - 1562 ft²
- 3 storeys:
 - Unit 1: Residential - 1 bedroom, 1 bathroom, or Commercial
 - Unit 2: Residential - 2 bedrooms, 2 bathrooms
 - Unit 3: Residential - 2 bedrooms, 2 bathrooms
- HERS Index Ratings: Unit 1 - 39, Unit 2 - 38, Unit 3 - 42
- Estimated Monthly Energy Cost: REM/Rate - \$2,051.40 /yr, DesignBuilder - \$2,097.00

Technical Specifications

- Exterior Wall: 45 hr·ft²·F°/Btu
- Foundation Insulation: 12 hr·ft²·F°/Btu under slab
- Roof Insulation (without attic): 60 hr·ft²·F°/Btu
- Window Performance: Operable - 0.26 Btu/hr·ft²·F°, Fixed - 0.34 Btu/hr·ft²·F°, IGU - 0.22 Btu/hr·ft²·F°
- HVAC specifications: variable refrigerant flow system with an 80,000 Btu/hr nominal heating capacity exterior condensing unit, eight interior fan coil units, and dedicated outdoor supply air with heat recovery ventilation