



University of Minnesota Team OptiMN Bassett Creek ReGen Homes



Project Summary

An urban infill site in the Harrison Neighborhood of Minneapolis was regenerated into highly efficient and affordable attached housing. Overlooking Bassett Creek, a 12-mile stream flowing directly from high-density areas to the Mississippi River, special attention to preserve the natural value and health of the local environment inspired our design. The goal of this development was to bring together people of diverse backgrounds, incomes, and family structures to a space that encourages healthy, social, and sustainable living at a low cost of ownership.



Relevance of Project to Competition Goals

A diverse and cross-dimensional team of thirteen students from eight different programs of the University of Minnesota have come together to solve the real-world challenge of providing sustainable, affordable, and attractive housing for those who need it most. The attached housing design follows the DOE Zero Energy Ready Home criteria. Other programs utilized include EPA's WaterSense, and incorporation of Energy Star appliances. Utilization of local industry partners, such as Habitat for Humanity and the Harrison Neighborhood Association, guides a market-ready design suitable for construction in Minneapolis. A high performance enclosure was developed through research and hygrothermal analysis. Effective HVAC systems work in tune with the surrounding environment and climate. Providing high indoor air quality and minimizing water usage were key goals for multi-family housing in this formerly industrial area.

Design Strategy and Key Points

- Connections to natural recreational assets guide site development and landscaping decisions
- Balance of privacy and visibility for each unit
- Orient each unit south for maximum solar energy
- Units oriented parallel to Bassett Creek's flow
- Optimize usable space within robust enclosure
- Integrated with Harrison Neighborhood desires

Project Data

- Location: Minneapolis, MN (IECC Climate Zone 6)
- Lot Size/Unit: 2980 sq. ft.
- Unit A: 1844 sq. ft. (+448), 2.5 stories; 5 units with 3 (+1) bedrooms, 1.5 bathrooms (+1); ADA visitable
- Unit B: 2182 sq. ft. (+408), 2.5 stories; 1 unit with 4 bedrooms, 2 bathrooms; ADA accessible
- HERS Score: 32 w/o PV; -1 w/ PV
- Est. Monthly Energy Cost: \$66 w/o PV; \$6.83 w/PV

Technical Specifications

- Hybrid "Perfect Wall" Approach: R-35
- Hybrid Compact Vented Roof: R-57
- Frost Protected Shallow Foundation: R-15 under slab/perimeter w/ R-25 wing
- Windows: South = U-factor 0.24 & SHGC 0.36 North = U-factor 0.20 & SHGC 0.21
- Heating/DHW Specifications: 96% CAE Cooling: 17 SEER
- Energy Recovery Ventilation: 80 cfm w/ 65% SRE

