Greening the Infrastructure at Benny Farm, Montreal, Canada

Comment of the Holcim Awards 2005 jury for North America

Conceived as a hybrid of urban, architectural, and landscape design, this collaborative effort successfully foregrounds socio-economic issues and provides an example to a community-driven housing project. A convincing scheme for utilizing integrated design to produce low-cost sustainable buildings is presented, demonstrating a skilful integration of energy saving measures, waste treatment procedures, as well as provisions for waste management. The work puts forward a strong ethical position by offering to people an ecologically sensitive environment that could not normally afford the choice to do so. Also to be commended is a keen awareness of the potential/reduction of health care and utility costs associated with such an endeavor. The work expresses an integrative vision that exceeds the scale of individual interventions, aiming to effectively integrate stakeholders in the decision-making processes that decide the fate of the built environment. Among other noteworthy aspects, the geothermal, radiant heating and cooling system in particular should provide significant energy savings for the residents. Serving as example for responsible communal investment, this work offers a financially viable as well aesthetically sensitive contribution to sustainable neighborhood planning.

Project description by author

This urban landscape and architectural project (Greening the Infrastructure of Benny Farm) proposes an unprecedented integration of buildings, infrastructure and community-driven housing development. This project guides the sustainable construction and renovation of 187 units on four properties, and links each with a shared green infrastructure. A non-profit, community-run utility company will oversee the ownership, management and continual re-investment in sustainable construction for this common energy water and waste infrastructure. Design expanded in phases, the project provides a protocol for construction that reduces greenhouse gas emissions, potable water use, the production of waste water, and the production of solid waste through retrofitting, reuse and diversion.

This new model for collectively driven sustainable construction was developed by the many stakeholders who have made the Benny Farm redevelopment possible - from the private and public, from grass-roots groups to the City of Montreal. These non-profit housing organizations will benefit from the first phase (TOOP CHEZ SOI, Project 2005, and HENDGO). The Benny Farm property was developed in 1927 to provide housing for WWII veterans and their families. The redevelopment plan is designed to support the socio-cultural heritage of the Benny Farm site and the legacy of appropriation of buildings and common spaces by the original tenants. This infrastructure project will be directed by the new tenants of Benny Farm.

The project integrates a series of systems, existing and new, both between and within all buildings involved. Building and facility protocols focus on reuse, heightened air quality, durable construction, and energy efficient envelopes. Energy systems include geothermal heat exchange, hybrid glycol/electric solar power, radiant heating, and both air- and water-based heat recovery. Water systems involve grey-water and water-stress reuse, wetland treatment and percolation, and sub-grade water-table recharge. These systems are interconnected and mutually dependent. All systems contribute to the sustainable and continued development of Benny Farm, and all systems increase the quality life for the users.

Although developed for affordable housing projects on Benny Farm, this model is designed to be copied. Most energy comes from renewable sources, so partners are significantly protected from increases in energy costs. Water use is reduced by more than half, so partners are shielded from increases to water taxes or meter rates. The economic, social and environmental dividends created by reduced energy and water use are balanced between the partners, system maintenance and monitoring, and future re-investment into new technologies and collective amenities.