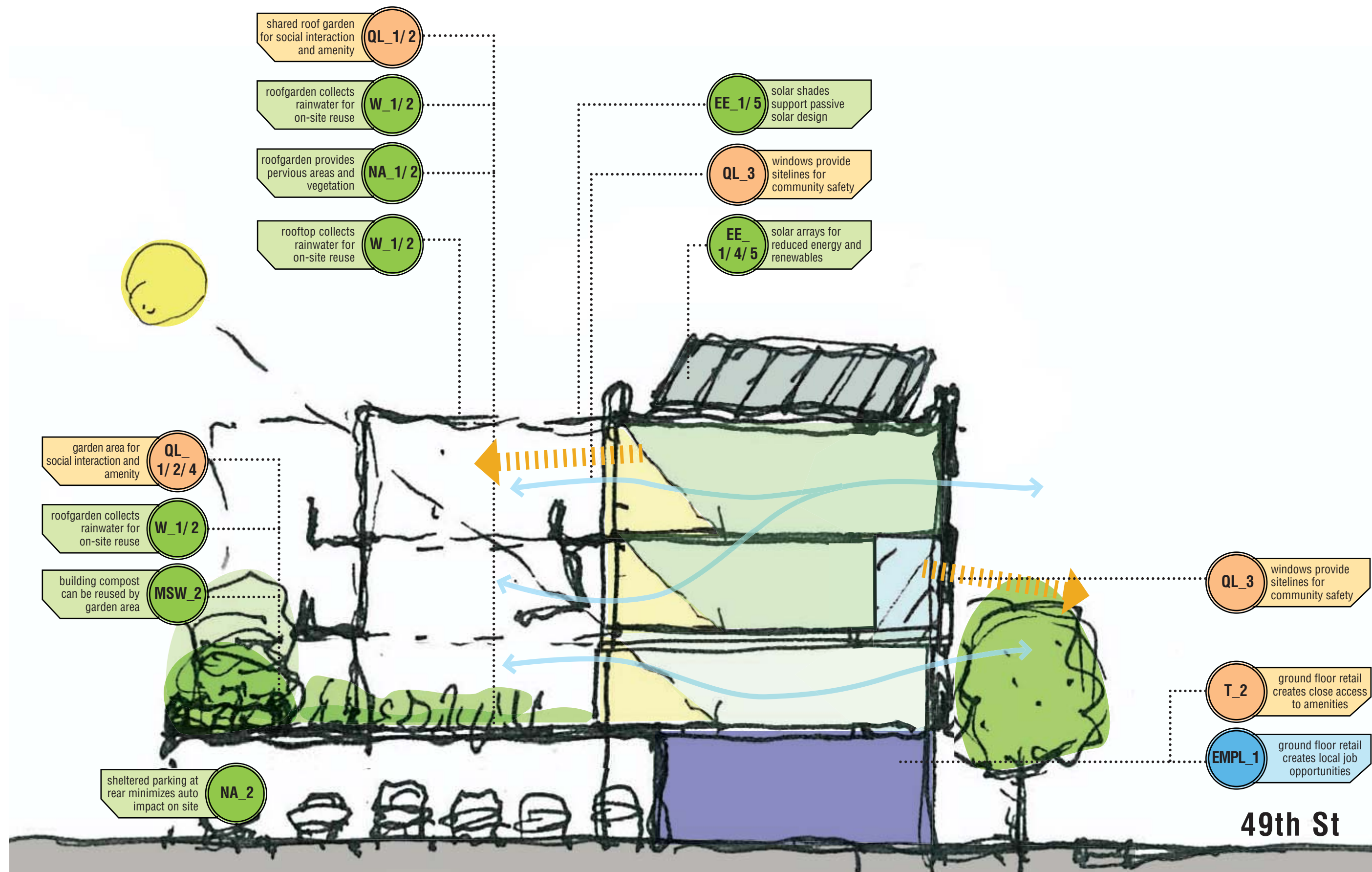


ENERGY & ENVIRONMENT

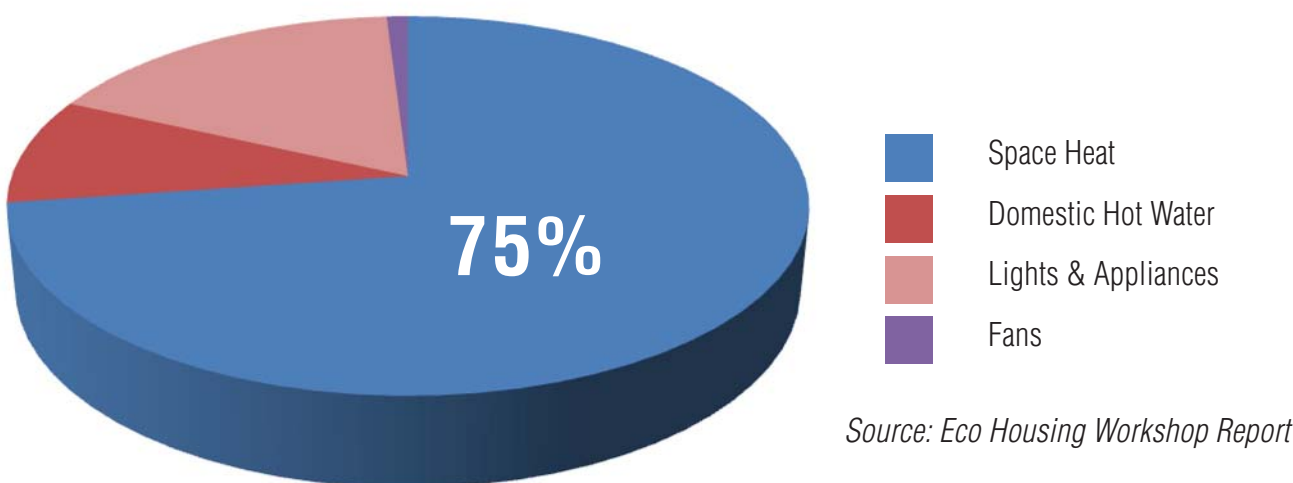


PRELIMINARY FEATURES AND MASSING CONCEPT SKETCH

REDUCED ENERGY USE: BIG SAVINGS

High efficiency and performance are key objectives of the Eco Housing project. Maximizing energy efficiency through highly insulated and airtight building envelope, efficient appliances, passive strategies and more will reduce demand and environmental impacts. Best of all, the highly efficient building will mean big savings on utilities.

TYPICAL YELLOWKNIFE M.U.R.B., ENERGY CONSUMPTION



WHAT IS THE GOAL?

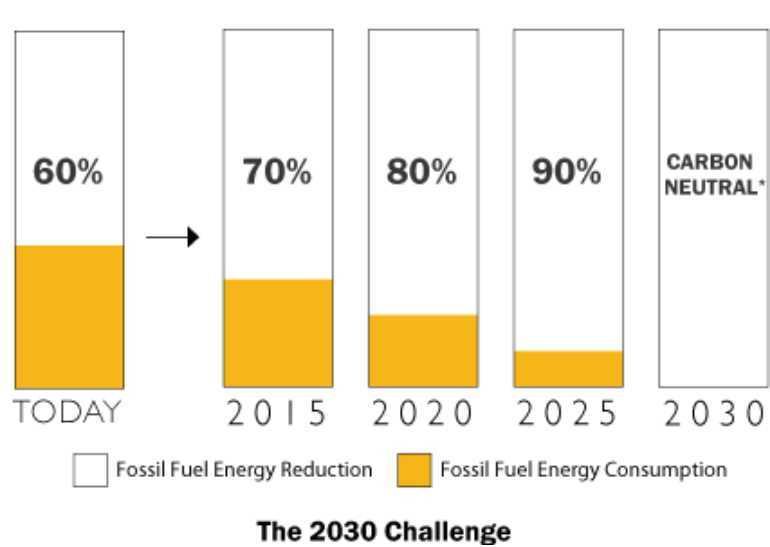
Currently, the project is aiming to achieve 50% reduction in energy consumption from the Model National Energy Code for Buildings. To accomplish this, the building will strive for super insulated envelope (R60 wall & R80 roof), quadruple pane windows, super tight envelope (0.5air changes) and inclusion of various features such as ventilation and drain water heat recovery units.

WHY IT MATTERS?

We use energy in residential buildings primarily for space heating, domestic hot water heating, and to power lighting and appliances. Space heating accounts for a major amount of energy consumption. In Yellowknife oil and propane significant sources for this and intensive greenhouse gas emitting sources. Reducing energy means less demand on these sources, greater reliance on renewables and big savings.

CARBON NEUTRAL: MEETING THE CHALLENGE

The Eco Housing project is setting the bar high and aims to achieve carbon neutrality and meet the Architecture 2030 Challenge. The challenge seeks to address the fossil fuel energy consumption of buildings and its impact on the environment and our health and well being.



WHY IT MATTERS?

Greenhouse gas emissions (GHG) are the primary cause of global climate change. Climate change is expected to have detrimental impacts on our ecological support systems and to cause extreme weather events which could have serious consequences for our community. The combustion of fossil fuels to heat our buildings is one of the primary sources of GHG emissions.

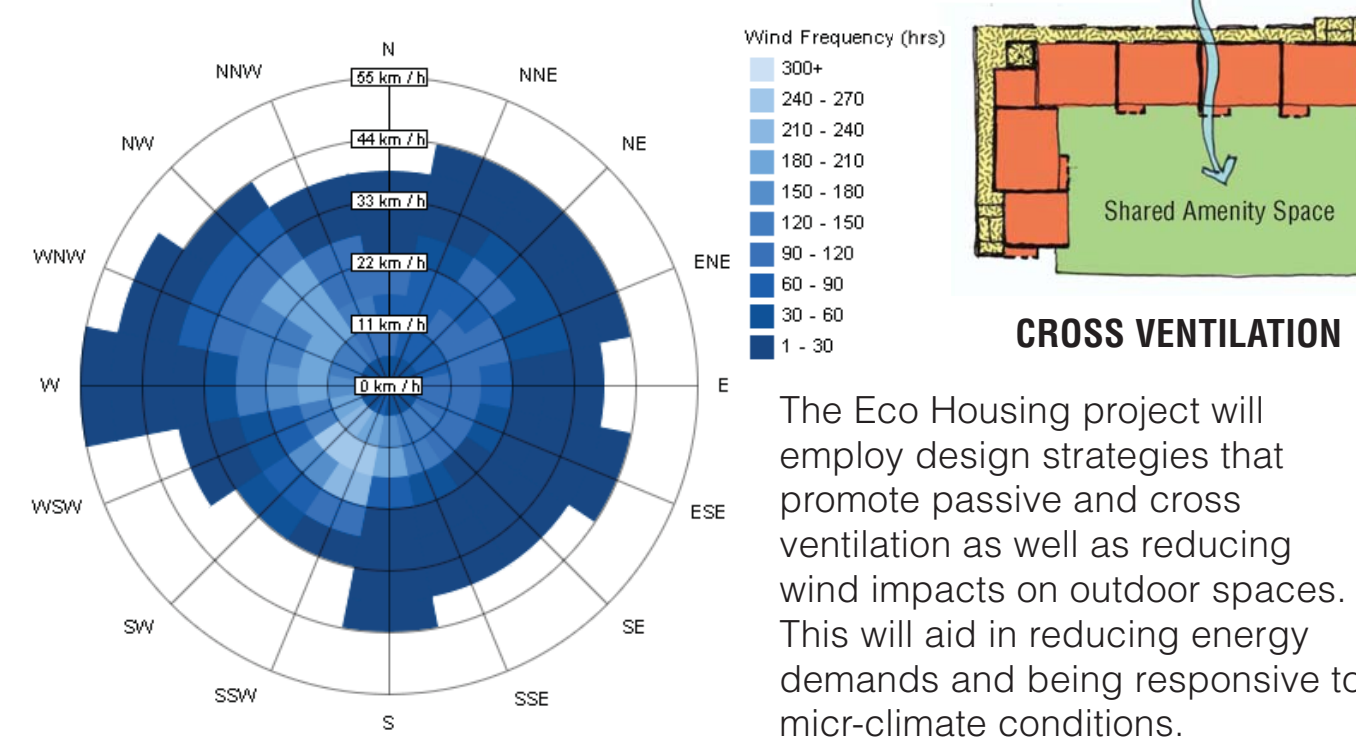
LOCAL RENEWABLE ENERGY SOURCES



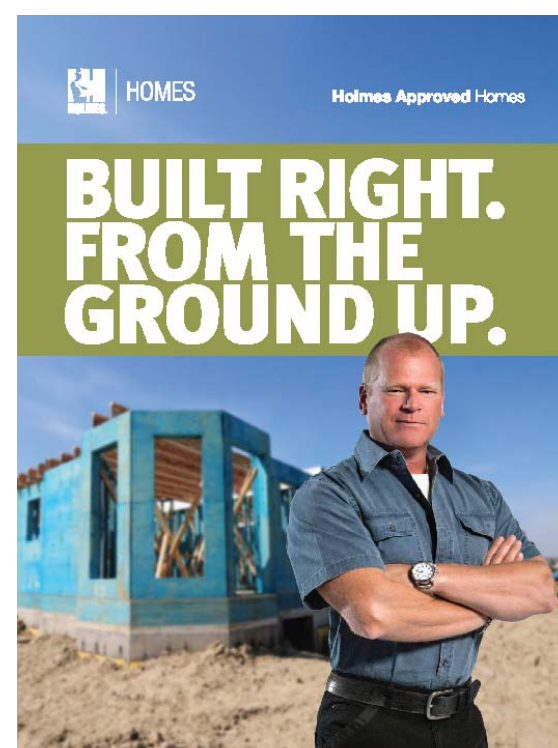
The Eco Housing project is striving to employ high proportions of renewable energy. The current target is sourcing at least 20% local renewable energy and being district energy 'ready.' This includes local hydro-electric or wood pellets as well as considering feasibility of all forms of solar such as air, photovoltaics and hot water. The aim is to reduce reliance on fossil fuel and GHG emitting sources.

RESPONSIVE TO MICRO-CLIMATE

APPROXIMATE WIND DIRECTION AND FREQUENCY



QUALITY CONSTRUCTION, BUILT RIGHT



Leveraging local building expertise and with the help of the Mike Holmes Group, the Eco Housing project will be built right.

Certifying the Eco Housing building as a Holmes Approved Home will be instant peace of mind for buyers, the City of Yellowknife and stakeholders. This designation will reflect its durability, efficiency and meeting Mike Holmes' tough standards for quality and sustainability in residential construction. It is an assurance to homeowners of a healthy home, built to last that will be a great place to live that provides confidence in your investment.

BUILDING RECYCLING & COMPOSTING

The Eco Housing building will provide opportunities for recycling and composting. The goal is to achieve 60% diversion of building waste. This will include using building compost where possible in rooftop gardens.



WHY IT MATTERS?

Reducing the amount of solid waste going to landfills by recycling materials prolongs the life of the landfill, reduces transportation costs and impacts associated with hauling waste. In Yellowknife, recycleables and compostables make up more than 70% of the residential solid waste stream.

MINIMAL CONSTRUCTION WASTE



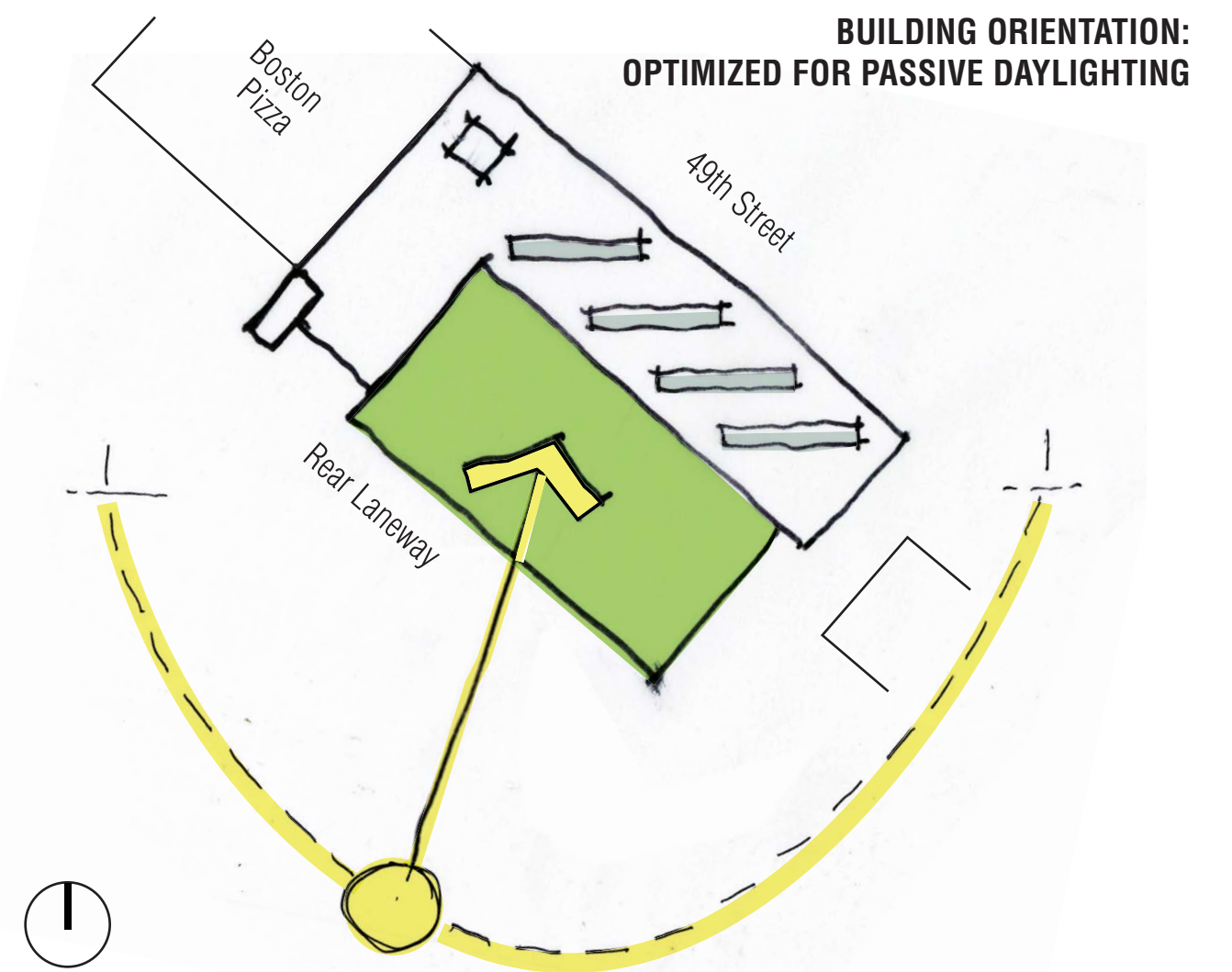
In addition to important goals about diverting building waste, the Eco Housing building will strive to reduce construction waste impacts as well. The aim is to divert at least 75% of construction waste from the landfill.

WHY IT MATTERS?

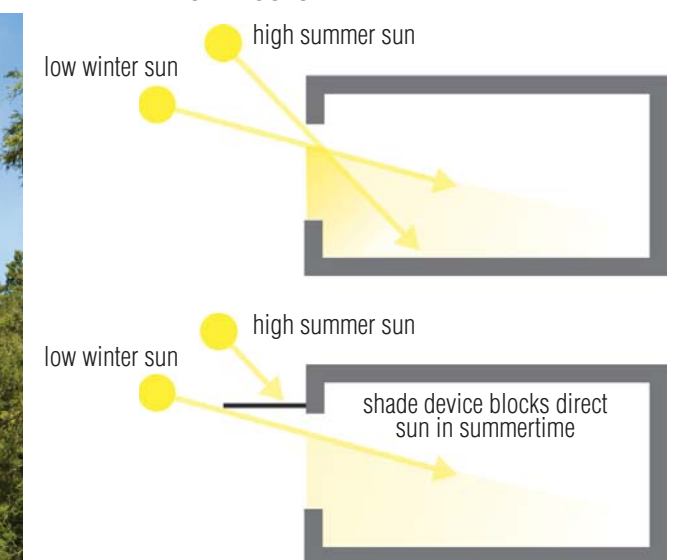
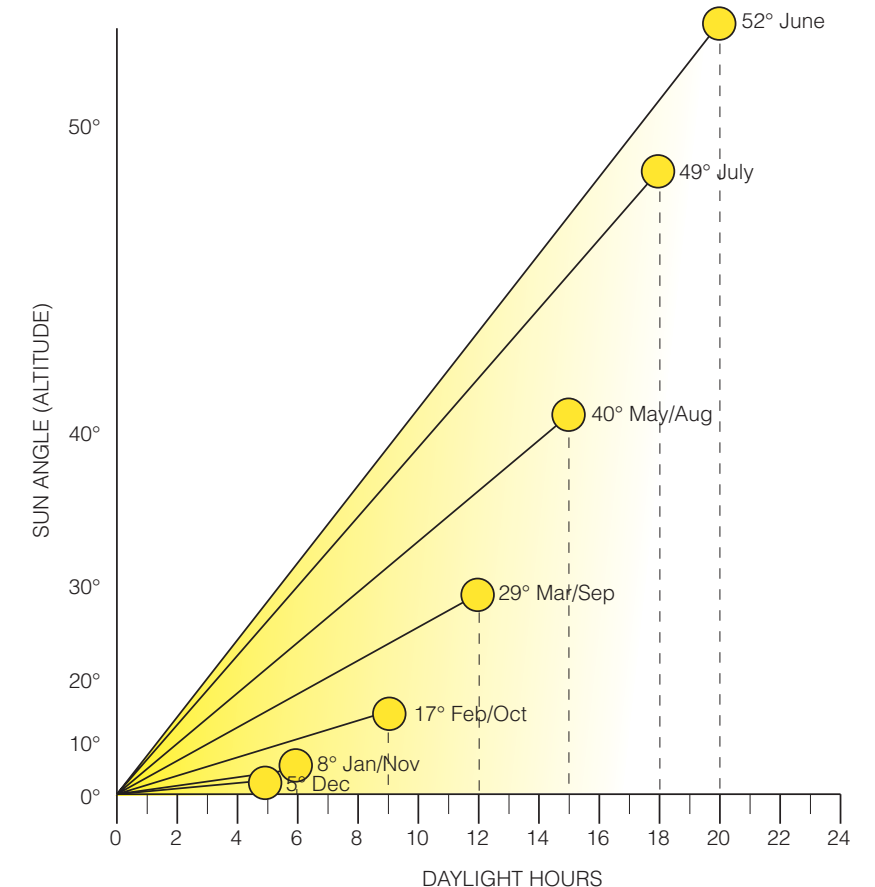
Construction waste comprises a significant portion of the waste going to landfills. Much of this is recyclable or reusable - even within the building it came from.

DESIGNED FOR DAYLIGHT

The Eco Housing building has been optimized for ample daylighting and passive solar design. This access to sunlight will be a tremendous benefit to resident comfort, minimizing impacts of seasonal affective disorder and importantly, energy efficiency.



SEASONAL DAYLIGHT & SUN ANGLE



HOW SOLAR SHADING DEVICES WORK?

Shade devices can take many forms such as hung panels, narrow slats, trees or other vegetation and others. The intention is that the device is optimized with seasonal sun angles and building orientation to enable direct sunlight during winter and cooler periods and block direct summer sunlight that causes heat gains in the building. When achieved, the need for summer cooling and winter heating can be reduced.

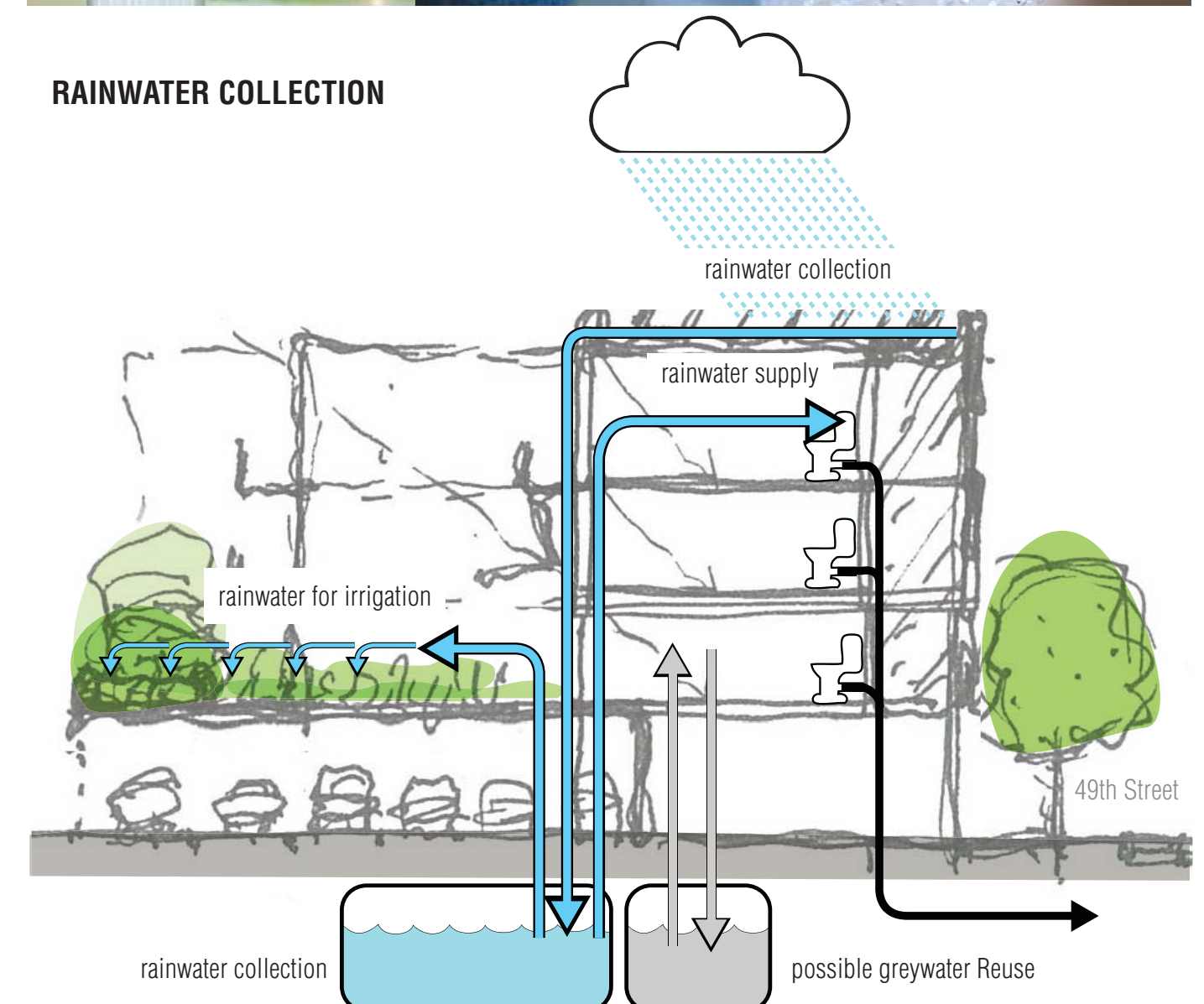
REDUCED WATER CONSUMPTION

Canadians are among the highest per capita consumers of water in the world. The Eco Housing project will strive to reduce water consumption to the target goal of 40% below average as well as achieving a 25% reduction in the rate and quantity of stormwater runoff.

LOW FLOW FIXTURES



RAINWATER COLLECTION



WHY IT MATTERS?

Water may seem abundant in Yellowknife, but as the community grows there is an increasing burden on the municipality to meet the water demands. Water consumption can be reduced by installing water efficient fixtures and by using water conservation measures by occupants. Minimizing water consumption in the building will reduce the burden on the municipal water supply and wastewater systems. Canadians are among the highest per capita consumers of water in the world.