Q Lofts

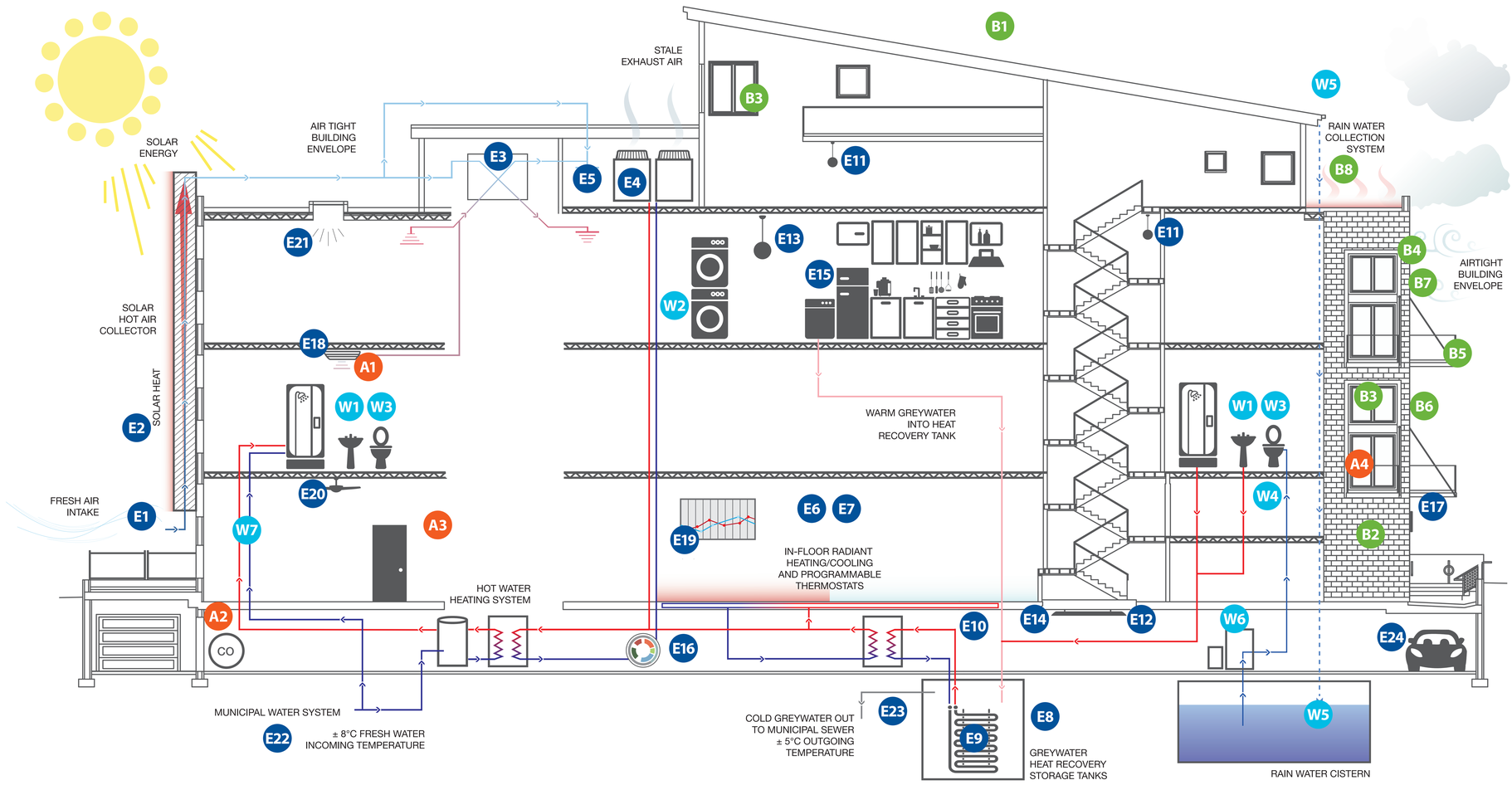
Energy Management Philosophy

Q Lofts treats energy as a valuable resource that needs to be managed and optimized through smart design choices.

The building is viewed as an integrated energy system and not as a group of unrelated equipment and elements.

Reduce, Reuse, Recycle. Waste energy normally discharged from a building through hot air exhaust and warm greywater is captured, stored, extracted and reused.

Q Lofts uses less than 50% of the energy consumed by a building constructed to the requirements of the "Model National Energy Code."



Green Building System

ENERGY SYSTEM

E1 Fresh outdoor air is drawn into the building through a transpired solar wall **E2** providing a 10° – 15°C increase from outdoor air temperature.

E3 Solar-heated air enters a high efficiency European designed energy recovery ventilator (ERV). The ERV recovers approximately 79% of the energy from stale exhaust air leaving the building and transfers it to the incoming fresh air stream.

E4 High performance air to water heat pumps installed in the rooftop mechanical room are used to provide heating, cooling and domestic hot water.

E5 To improve the operating efficiency of the heat pumps the air supply is pre-heated using a mixture of solar-heated air and warm exhaust air from the ERV.

E6 Heating and cooling is delivered to the building through a high mass radiant floor distribution system and provides occupant temperature control through the use of **E7** programmable thermostats. Consumption is billed back to the suite to ensure accountability for energy use through the use of water meters to measure the heating and cooling usage per suite.

E8 Used hot water from showers, kitchens and laundries is collected and stored in two 9,000-litre insulated tanks that are buried under the floor of the parking garage.

E9 An integrated heat exchanger in the greywater heat recovery storage tank extracts heat from the captured warm greywater and supplies it to the heat pump system. **E10**

E11 All lights in the corridors, common areas, **E12** parking garage and **E13** suites are high performance LEDs or CFLs.

E14 Occupancy sensors in the parkade and mechanical rooms reduce electrical consumption by ensuring energy for lighting is used only when required.

E15 The fridge, dishwasher and washing machine installed in each suite are Energy Star® Qualified to ensure no electricity or water is wasted through the use of inefficient devices.

E16 Computerized Master Energy Controller directs heating and cooling energy to mechanical equipment as needed and responds to **E17** sensors that monitor outdoor temperature.

E18 Energy Star® Qualified bathroom exhaust fans.

E19 Cloud-based energy/utility metering/monitoring dashboard allows residents and property manager to view real-time and historic utility usage. System provides information to residents about the energy consumption in their suite and to the condo corporation and property manager about energy consumption for the entire building.

E20 Energy Star® Qualified ceiling fans.

E21 Energy efficient skylights allow daylight in and reduce the need for artificial lighting.

E22 Water from municipal water system.

E23 Cold greywater to municipal sewer.

E24 Rough-in for four electric vehicle charging stations.

BUILDING ENVELOPE

B1 The roof deck is insulated with closed cell Polyurethane spray foam that provides a high performance, virtually airtight seal. Roof insulation minimum R 40.

B2 Walls are ICF (insulating concrete form) construction that provides a warm, quiet, durable and airtight shell. R 20 base ICF plus extra R 9 insulation totals R 29 walls.

B3 Kohltech windows with a 10-year warranty are high performance triple glazed with low-E glass and Argon gas providing high resistance to heat loss in the winter and heat gain during the summer.

B4 World-class air infiltration rates approaching German Passive Haus standard. Actual air infiltration rates (< 1.0 air changes/hour) to be tested during construction.

B5 Thermal break at deck structure minimizes heat loss from the unit through the deck and keeps interior floors warm.

B6 Continuous air/moisture barrier to prevent air and moisture leaks.

B7 The Q Lofts building is oriented to take advantage of passive solar gain, which reduces the need for energy in the heating season.

B8 High opacity (light coloured) roof for reduced solar heat gain.

WATER CONSERVATION

W1 All fixtures in the bathrooms and kitchens are low-flow and reduce the average daily water consumption of the entire building.

W2 Each suite is equipped with a front-loading Energy Star® Qualified washer which helps to lower the daily hot and cold water demand.

W3 Caroma 4.8/3.0 litre dual flush toilets.

W4 Collected rainwater is used in the dual flush toilets installed throughout the building, which reduces the reliance on expensive treated municipal water and preserves aquifers.

W5 Rainwater is collected from the building's roof and stored in a 35,000 plus litre rainwater cistern located under the floor of the parking garage.

W6 Rainwater filtration and chlorination system treats water prior to use in toilets.

W7 Water usage in suites is individually metered and billed to residents. Studies have shown that hot and cold water use decreases on average 15% when individually metered.

AIR QUALITY

A1 Stale air continuously exhausts from bathrooms to ERV **E3**.

A2 Carbon monoxide sensors installed in the garage control the operation of the exhaust fans, minimize both heat loss and electrical energy consumption and maintain air quality.

A3 Suite entry doors with weather stripping to reduce interior air flow and odour circulation.

A4 Operable windows allow natural air circulation.

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