



DISTRICT OF
SUMMERLAND



Welcome to the Summerland
Solar Energy & Energy Efficiency
Workshop



Citizens Supporting Climate Action

- Community Climate Action Advisory Committee
 - Foster Community Engagement & Support.
 - Provide Local Perspective to Council.
 - Help homeowners realize savings while improving their wellbeing at home.
 - Formed the Residential Structures Energy Efficiency Task Group.





Being Energy Efficient Starts at Home

- Summerland's Climate Action Plan targets the reduction of greenhouse gas emissions.
- The District has initiated a number of energy-saving projects.
- We want to help homeowners do their part by improving the energy efficiency of residential structures.
- This will yield numerous benefits for both homeowners and tenants.



Why is Home Energy Efficiency Important?

- Inefficiency is expensive
 - A typical home uses about 1,000 kW-hr/month or about \$130-150 in electricity.
 - Some 180 Summerland properties use twice and up to six times as much.
- Inefficiency is unhealthy
 - Cold and damp leads to mould.
 - Leaky structures let in smoke, dust, pollen, and vermin.



Building Age and Energy Use

- Over 30% of Summerland homes are of pre-1980 construction.
- Natural Resources Canada reports:
 - Homes built before 1970 use about 50% more energy per m² than those built since the year 2000.
 - Homes built between 1970 – 1999 may use over 25% more energy.
- Likely over 300 Summerland homes with very high energy use per m² .





Candidate Residential Structures in Summerland

- Focus on older Summerland homes with poor heating/cooling efficiency.
- Provide user-friendly information.
- Communicate using District resources and community organizations & networks.

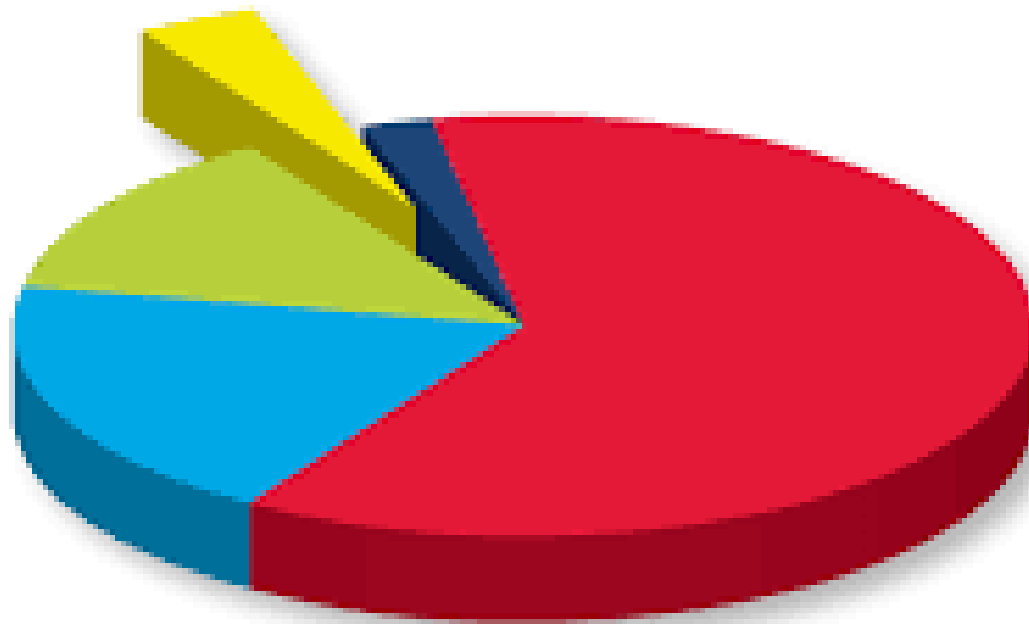




Providing Residents with Information

- Prime contact is the District of Summerland's Sustainability / Alternative Energy Coordinator
- In addition we want to train Summerland Energy Ambassadors from service organizations & community groups; and
- Connect residents with energy advisors and energy efficiency financial support programs.





-  Space heating 62%
-  Water heating 19%
-  Appliances 13%
-  Lighting 4%
-  Space cooling 2%

Image: Natural Resources Canada

Energy Planning Hierarchy

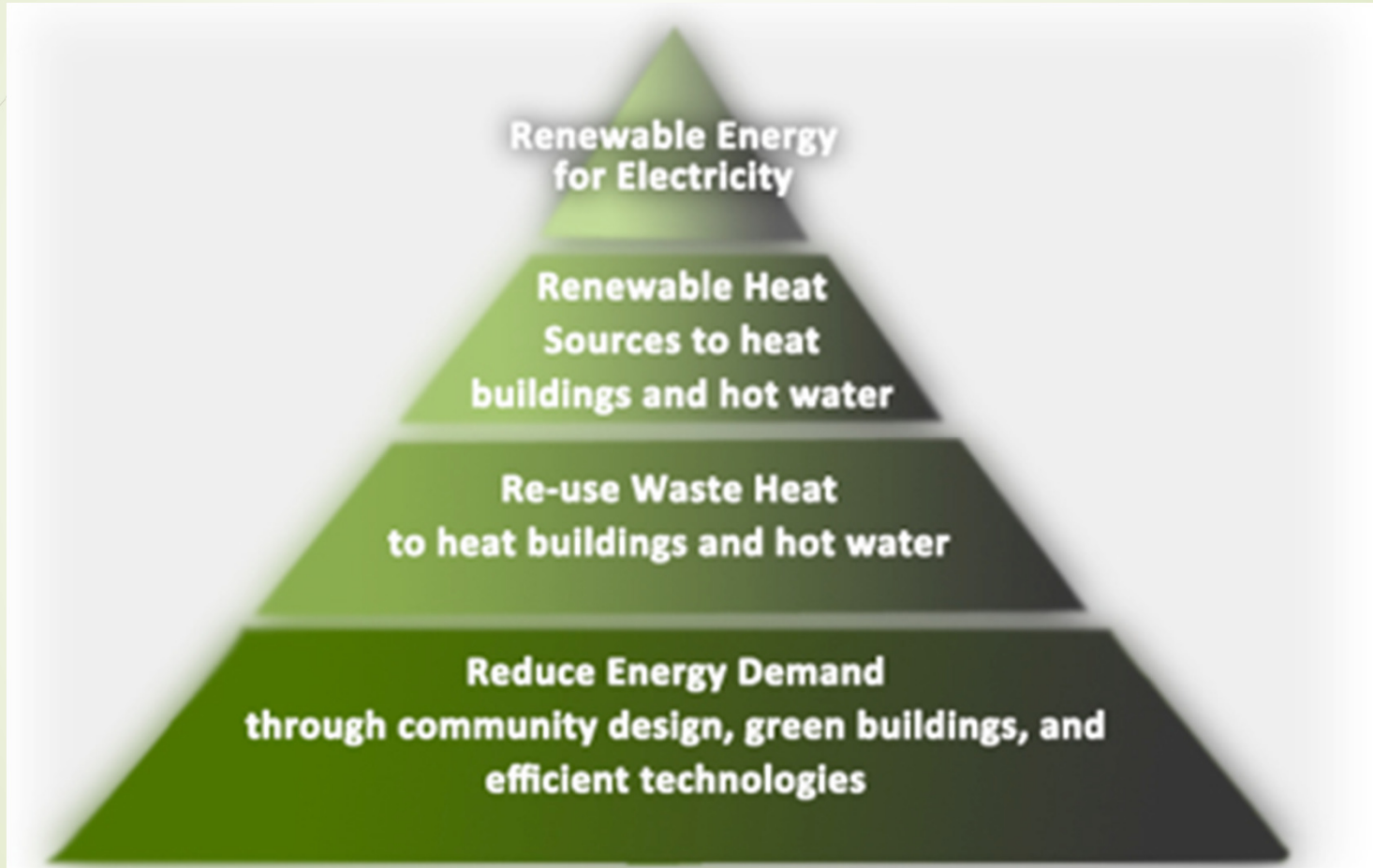


Image: BC Hydro

Energy Efficiency Hierarchy

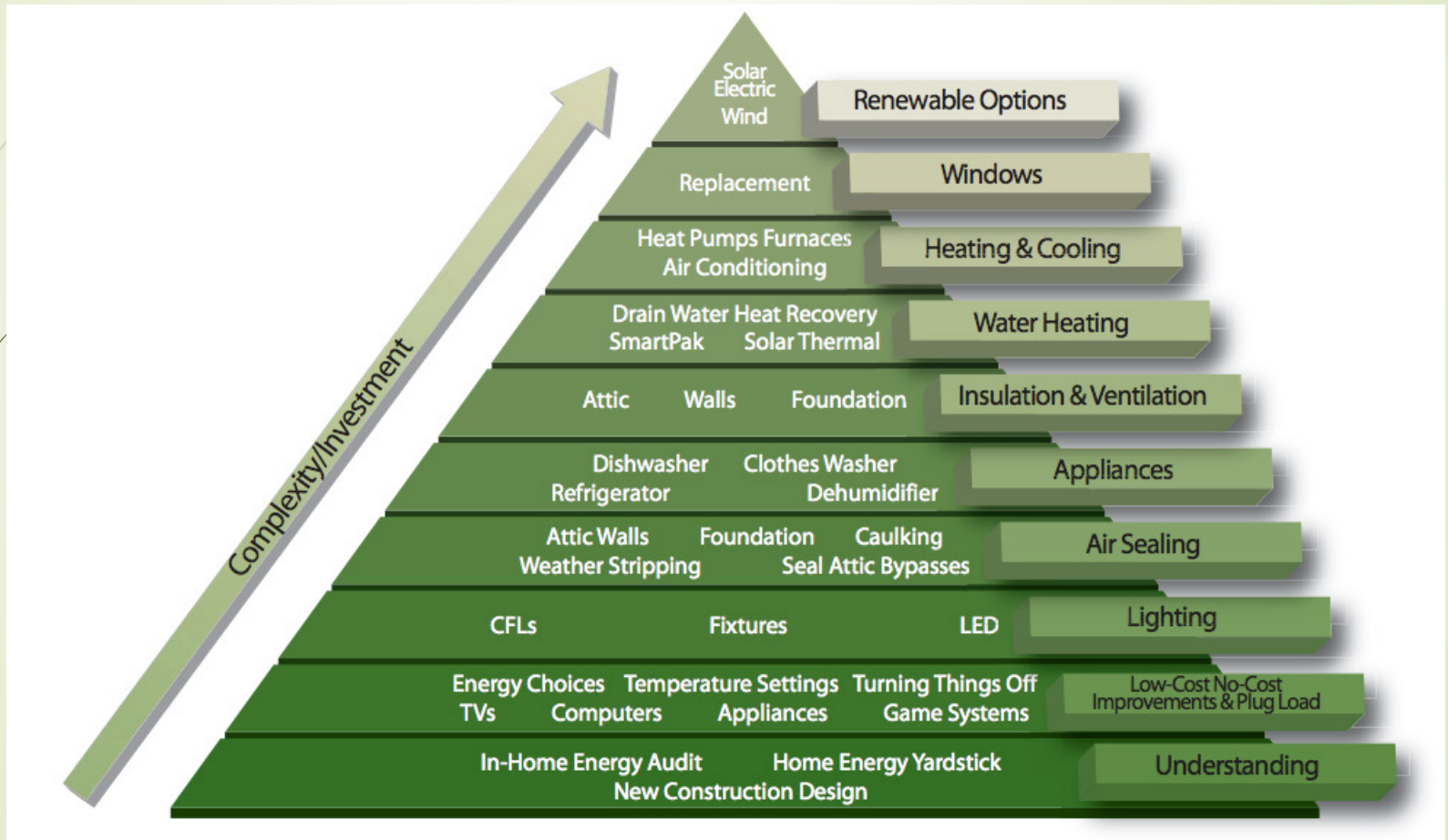



Image: Minnesota Power

 **SOLAR LIGHT TUBES
FOR DAYLIGHTING**

Bring natural daylight into deeper interior spaces with solar light tubes.

AVERAGE PAYBACK: 5–7 years⁴

 **SKYLIGHTS**

Bring natural daylight into rooms with skylights

AVERAGE PAYBACK: Highly variable, depending on design, performance, and other variables, including home resale value

 **INSTALL AWNINGS &
BLINDS ON WINDOWS**

Keep the summer sun from heating your house by installing awnings and/or blinds on windows that face east, south, and/or west.

AVERAGE PAYBACK: 1–4 years⁵

 **APPLY
LOW-E WINDOW FILM**

Let light, but not much else, into your home with low-e window films that reflect up to 90% or more of heat.

AVERAGE PAYBACK: 2–5 years⁶

 **SOLAR POOL
HEATING**


Heat your pool with solar hot water panels.

AVERAGE PAYBACK: 1.5–4 years³

 **POOL COVER / BLANKET**

Let the sun heat your pool and keep that heat in at night with a black solar cover / blanket.

AVERAGE PAYBACK: < 1 year⁸

PHOTOVOLTAICS 


Generate some or all of your electricity with a solar PV system.

AVERAGE PAYBACK: 0–23 years, depending on factors including financing, ownership, utility retail electricity rates, and incentives.¹

**PLANT
DECIDUOUS TREES** 

Planting deciduous trees on the east, south, and/or west sides of your home keeps the hot sun out during summer but lets the light and its warmth in during winter.

AVERAGE PAYBACK: variable⁷

CLOTHESLINE 

Use the sun to dry your clothes—possibly the simplest and most affordable use of solar power.

AVERAGE PAYBACK: Immediate

**SOLAR LANDSCAPE
& PATIO LIGHTING** 

Light walkways, patios, and landscaping with inexpensive, solar-powered lights

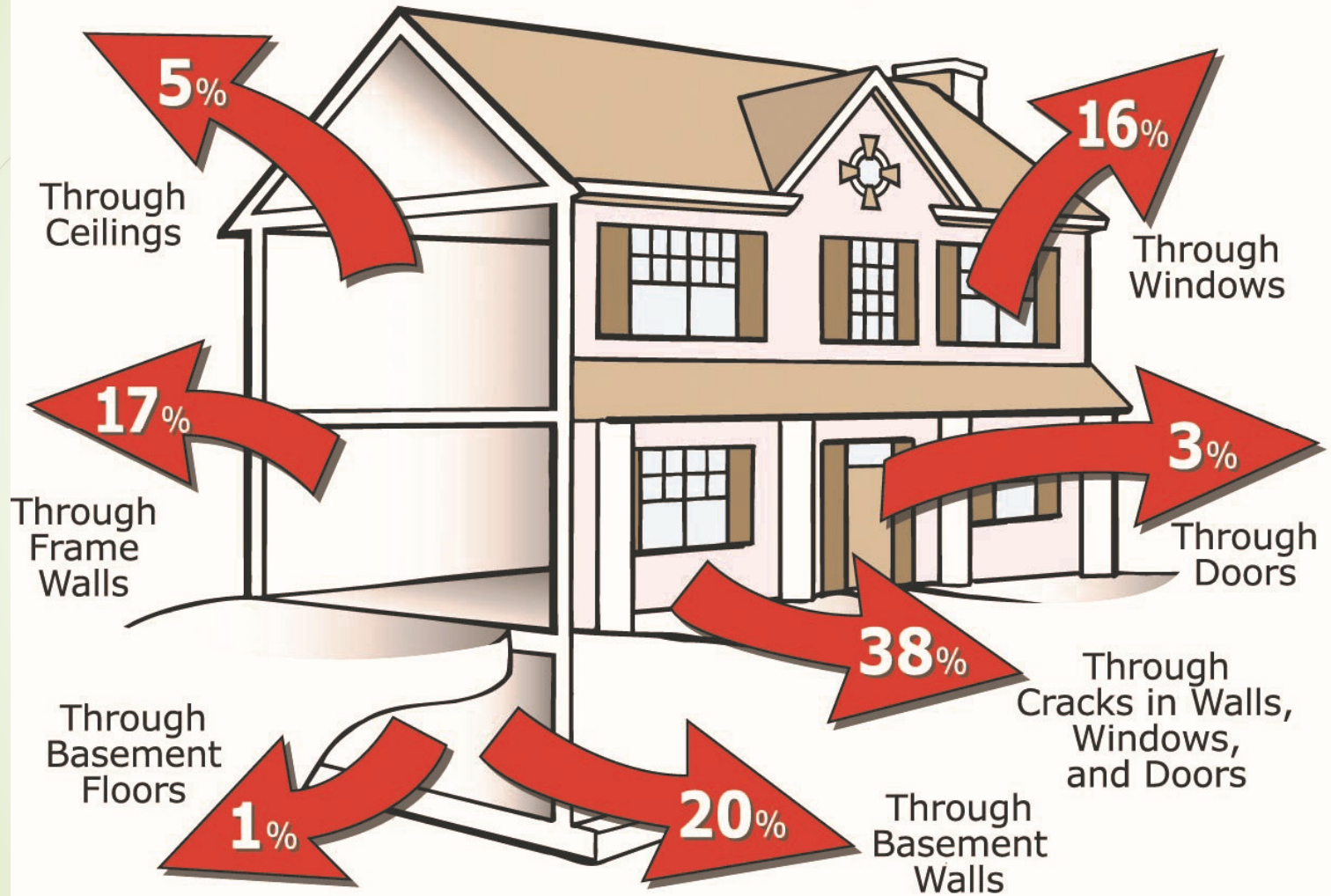
AVERAGE PAYBACK: 2 years⁹

SOLAR HOT WATER 

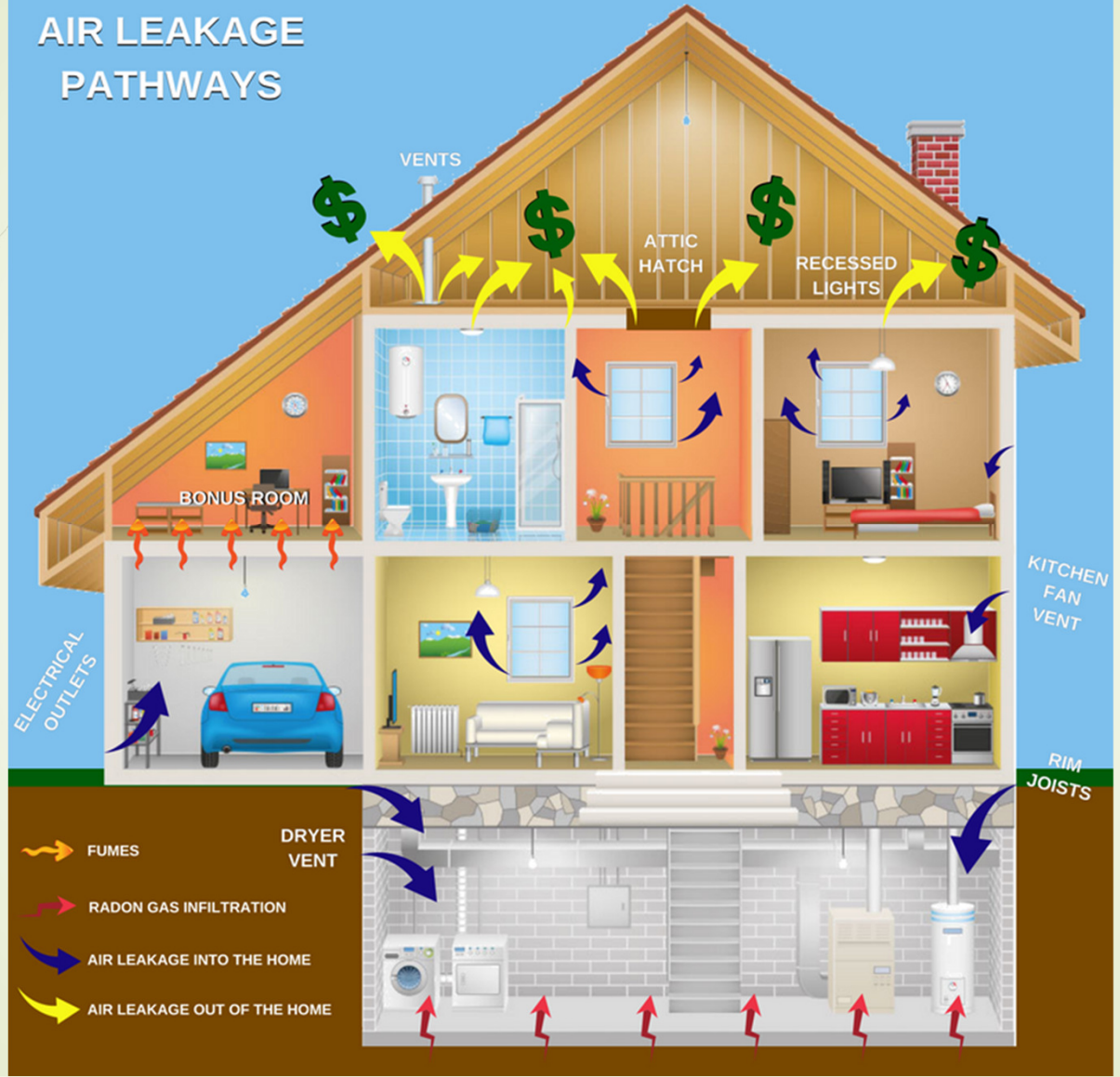
Heat your water with a solar water heating system, saving 50–80% off water heating bills.

AVERAGE PAYBACK: 6–10 years, depending on cost of gas or electricity and how much solar offsets the total hot water bill.²

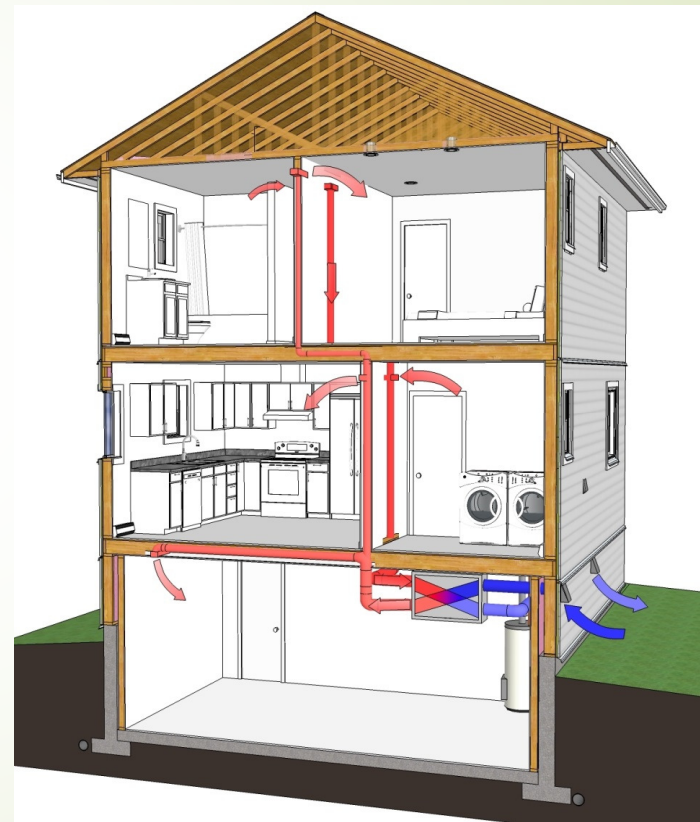
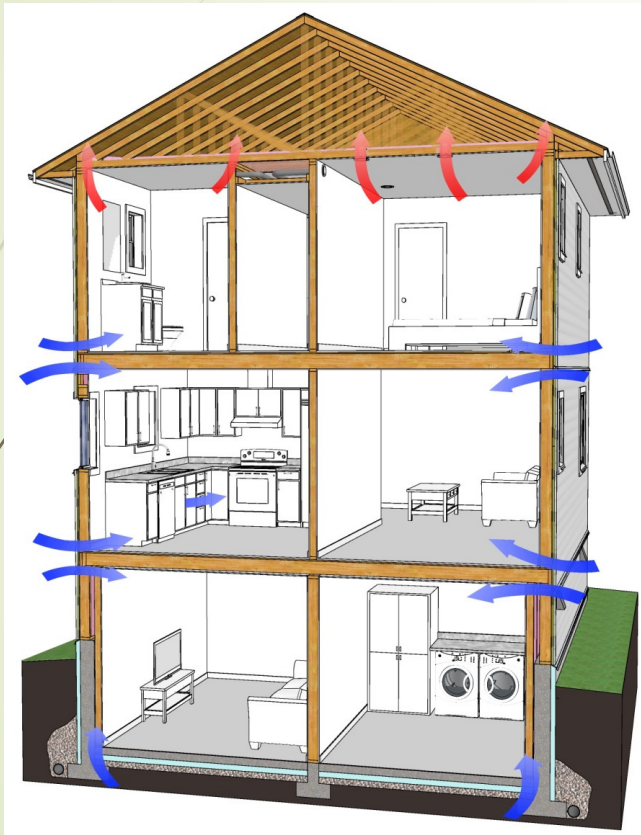
Air Leakage



AIR LEAKAGE PATHWAYS

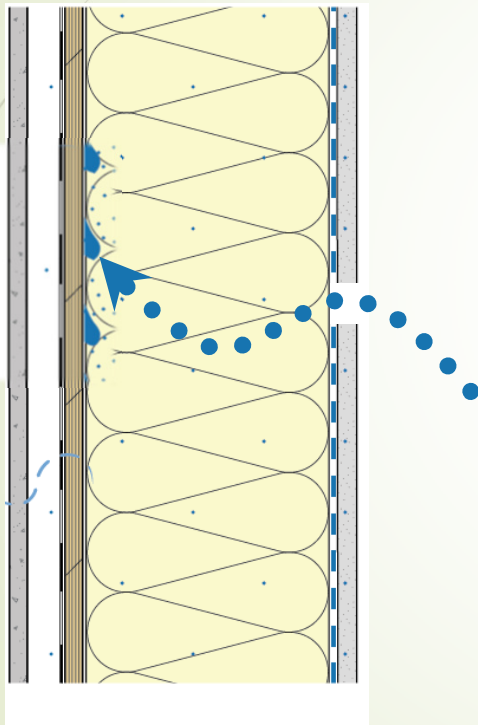


Airtightness & Controlled Ventilation



Source: Small Planet Supply

Condensation in Assemblies



How much water could flow in air through a hole the size of a Loonie over the course of one winter?

Condensation in Assemblies



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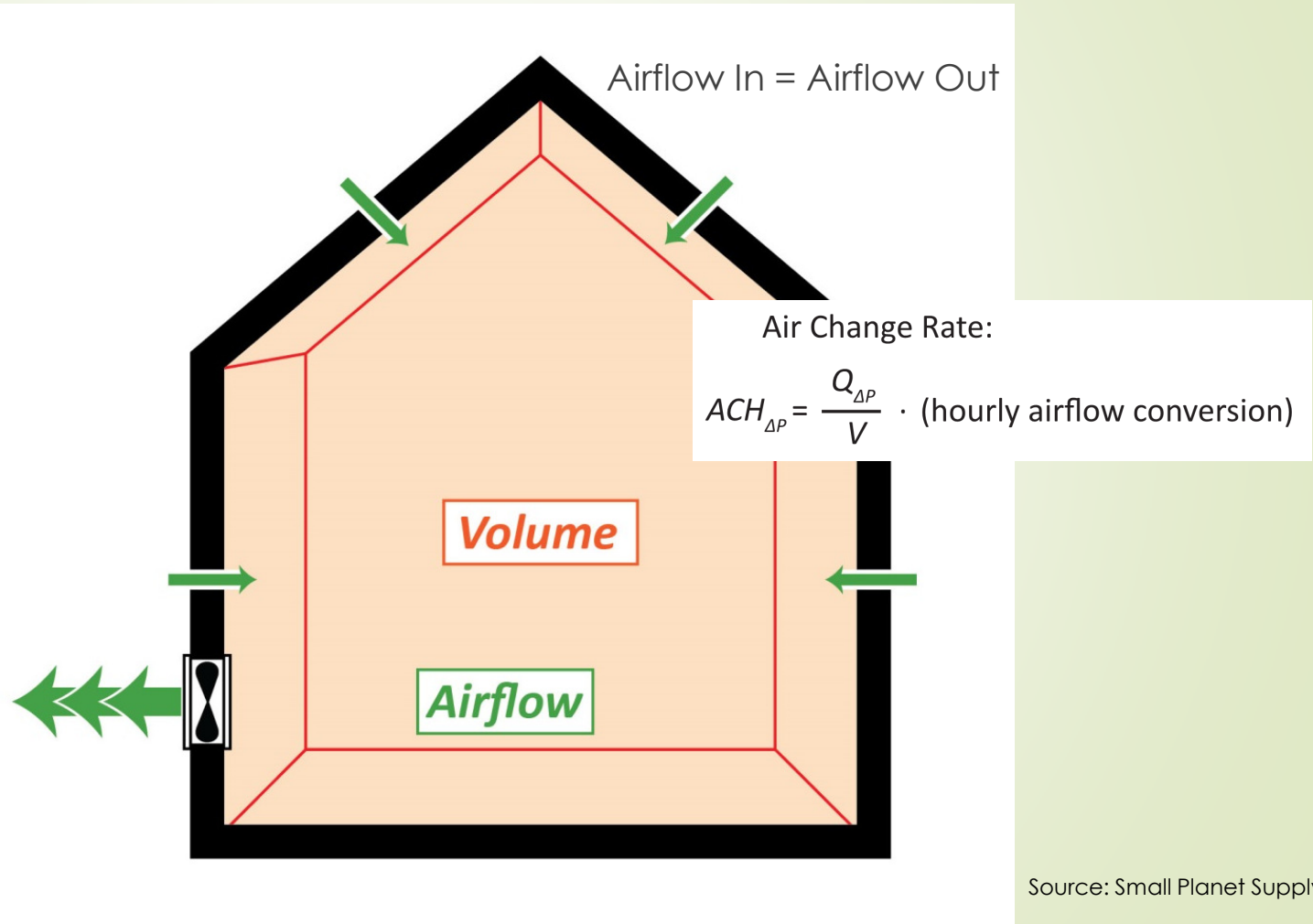


Source: Small Planet Supply

Where is the source of Air Leakage?

Source: Small Planet Supply

Airtightness Testing & Metrics



HOMEOWNER INFORMATION SHEET

ENERGUIDE

Your EnerGuide® rating and this report are based on data collected and, where necessary, presumed, from your home evaluation. Rating calculations are made using standard operating conditions.



Rating: 0 gigajoules per year (GJ/year)

Heated floor area: 210.2 m² (2262.2 ft²)

Rated energy intensity: 0.24 GJ/m²/year

Evaluated by: Capital Home Energy

File number: 5130P00045

Data collected: February 24, 2017

Year built: 2017

NRCan.gc.ca/myenerguide

HOW YOUR RATING IS CALCULATED:

I. Rated annual energy consumption 51 GJ/year
 II. Minus renewable energy contribution - 51 GJ/year
 Equals your EnerGuide rating = 0 GJ/year

I. Your rated annual energy consumption is the total amount of energy your house would use in a year based on the EnerGuide Rating System standard operating conditions. For your house, this includes 21.35 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	51	14182.6 kWh	0.0
Natural gas	0	7.2 m ³	0.0
Total	51		0.0

II. On-site renewable power generation systems can offset some or even all of your home's energy consumption. Renewable energy contributions are factored differently for your rating and your greenhouse gas emissions calculations.

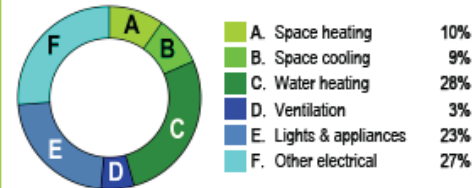
On-Site Renewable Energy	Estimated Contribution (GJ/year)	Equivalent Units (per year)	Offset Greenhouse Gas Emissions (tonnes/year)
Electricity	52	14482.4 kWh	0.3
Solar water heating	0	0	0.0
Total	52		0.0

YOUR RATED GREENHOUSE GAS EMISSIONS CALCULATION:

Total greenhouse gas emissions 0.0 tonnes/year
 Minus emissions offset by on-site renewables - 0.0 tonnes/year
 Equals your rated greenhouse gas emissions = 0.0 tonnes/year

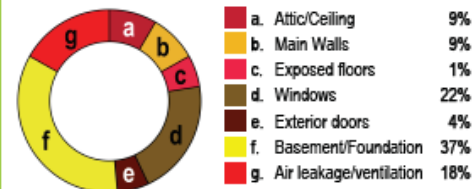
HOW YOUR RATED ENERGY IS USED:

The chart below represents the breakdown of rated annual energy consumption in your home under standard operating conditions. You can use these figures as a guide to help identify where you can lower home energy costs through proper home maintenance, efficient home operation, energy efficiency renovations or equipment replacement.



WHERE YOUR HOME LOSES HEAT:

Houses lose heat through their exterior shell, or building envelope. The chart below shows where and how your home loses heat. The quality and upkeep of your home can have a major impact on the amount of energy your heating and cooling systems use annually.



*EnerGuide is an official mark of Natural Resources Canada. Refer to the glossary section for an explanation of relevant terms.



Have questions? Get in touch with an Energy Coach at 1 (844) 881.9790 or [email](#)



Residential Renovation



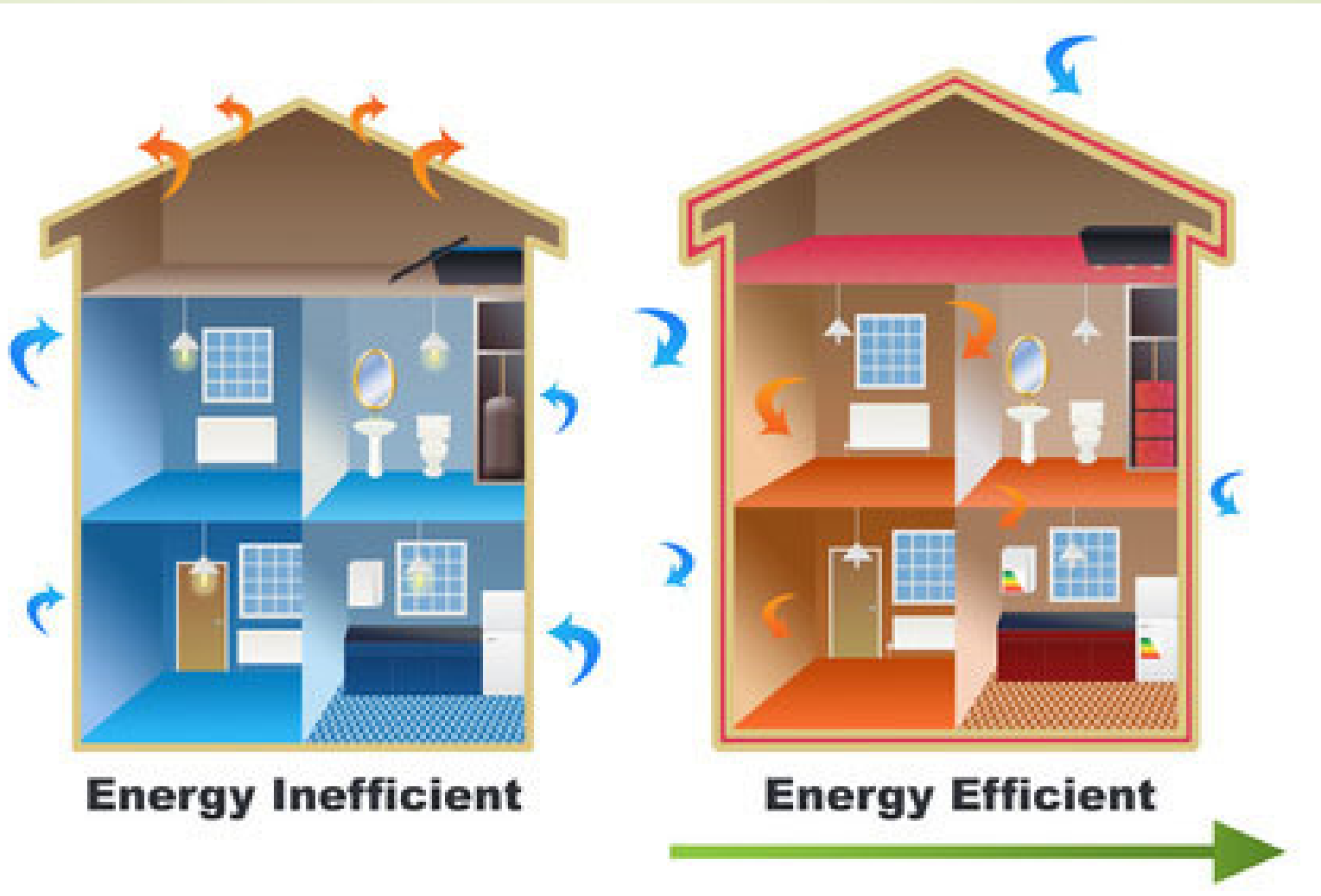
Residential New Construction



Commercial Renovation



Commercial New Construction



Source: Small Planet Supply



Energy Self-Generation in Summerland

- ▶ What Size of System Can I Install?
 - ▶ Up to 30 kW covered by program. Higher on case-by-case.
 - ▶ Limitation to net-zero for house
- ▶ What Are the Program Fees?
 - ▶ No application fee
 - ▶ No building permit required (installation is at homeowner's risk)
 - ▶ Bi-directional meter installation fee
 - ▶ An electrical permit from Technical Safety BC is required
- ▶ Will Summerland's Utility Buy Excess Energy From Me? At What Rate?
 - ▶ There is currently no policy or framework for solar credits
 - ▶ November 26 – proposal to council to create a framework



Energy Self-Generation in Summerland

- ▶ Where Am I Allowed to Install Solar Energy Systems?
 - ▶ November 26 – proposal to council to allow in all zones

- ▶ How Do I Apply?
 - ▶ Packages are available at Municipal Hall
 - ▶ New program packages will be launched in early 2019 & will be available online and in-person
 - ▶ Installer & homeowner need to sign paperwork