

Step 3, Hassle-Free:

How homebuilders are cost-effectively delivering on the energy-efficiency requirements of the BC Energy Step Code

Case Study: Kamloops

ENERGY
STEPCODE
BUILDING BEYOND THE STANDARD



CASE STUDY: Quail's Roost Residence, Kamloops

A Kamloops-area builder tapped into his network and used a few clever moves to smartly bring this modern hilltop home up to Step 4 performance.



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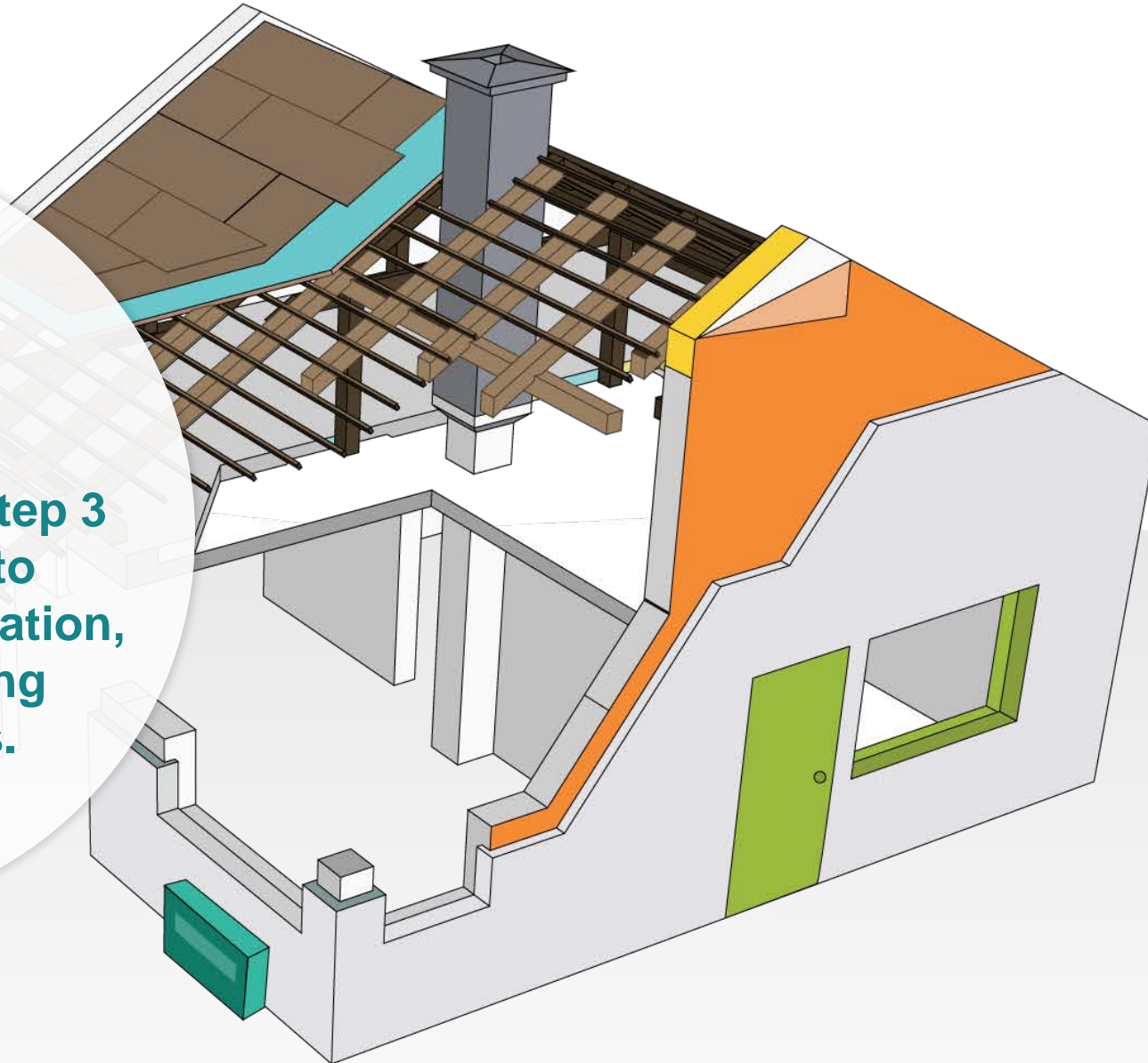
BUILDER:
Upcountry Design Consulting
Allan Askew, owner
Years of Experience: 24

“ *With a bit of engineering and networking, and by plugging into a growing community of energy-efficiency experts, you can come up with strategies that add a lot of value and result in a really responsible home*
- Allan Askew

A look inside a typical Step 3 Home

Six Proven Strategies

Builders can meet Step 3 by paying attention to details, adding insulation, and carefully planning mechanical systems.



The Six Strategies that cost-effectively boost performance

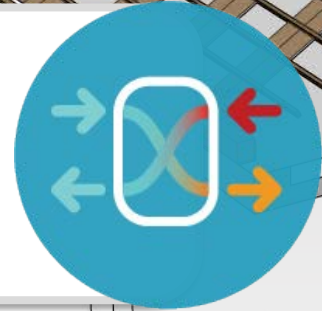
1. BOOST INSULATION

To reduce heat loss, increase insulation in walls, floors, roof, and foundation.



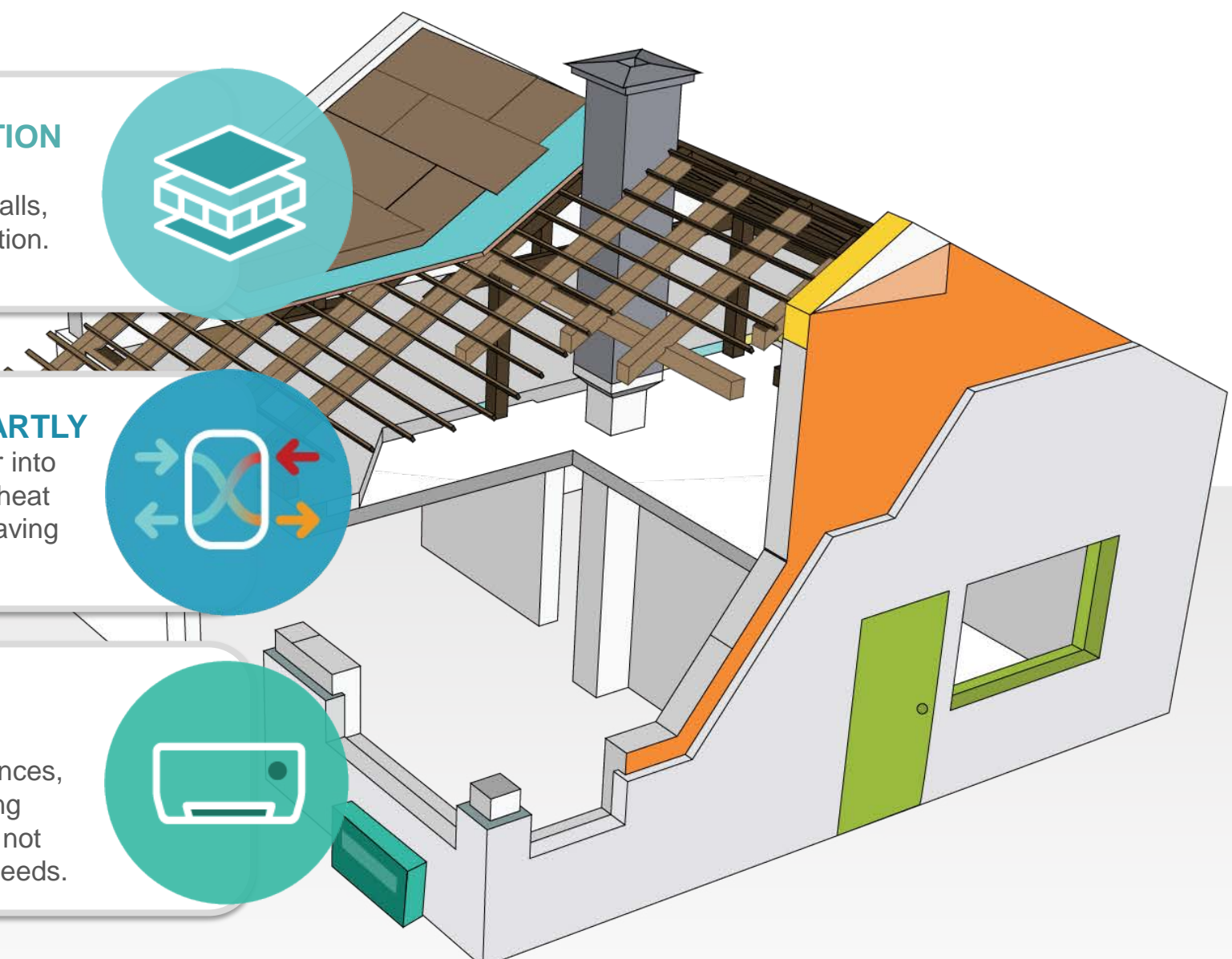
2. VENTILATE SMARTLY

Bring plenty of fresh air into the home and recover heat from the exhaust air leaving the building.

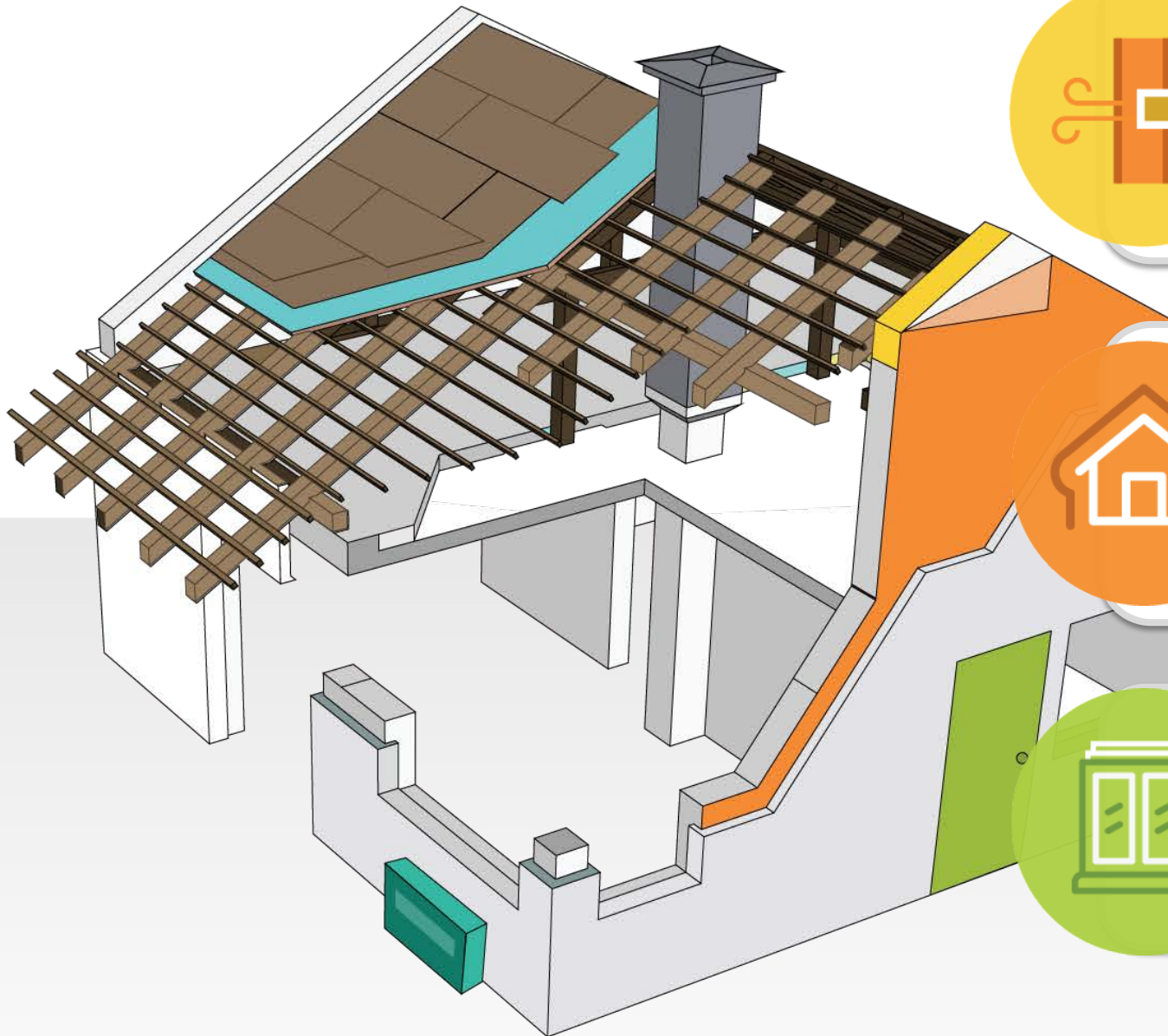


3. MIND YOUR MACHINES

Specify efficient appliances, and ensure your heating system will meet – but not exceed – the home's needs.



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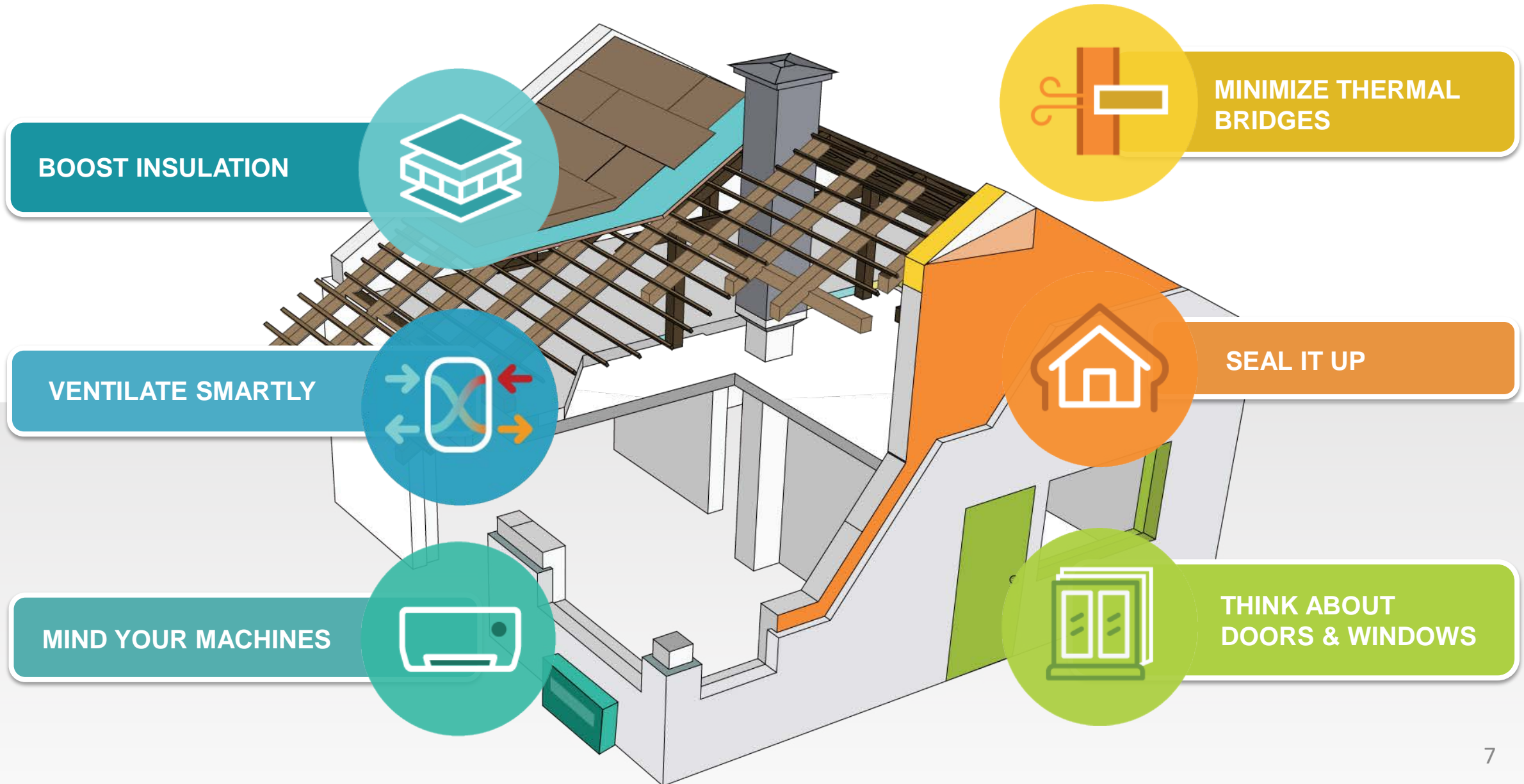


4. MINIMIZE THERMAL BRIDGES A break in your insulation acts like a bridge that carries heat straight out of the house. Take care with corners, junctions, gaps and studs!

5. SEAL IT UP Air leaks are heat leaks. Wrap the home tightly, taking care to seal around ducts, pipes, fixtures, and wires that pass through walls, ceilings, and roof.

6. THINK ABOUT DOORS & WINDOWS Carefully consider their energy performance, size, and location.

The Six Strategies that cost-effectively boost performance



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4% above
costs to build to the energy
efficiency requirements of
the BC Building Code

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Project size: 2,300 square feet

Build cost: \$469,000 or \$204/square foot

Step reached: 4



“ Energy-efficiency strategies and materials added about \$20,000, or about 4 percent, to the home’s build cost.

CASE STUDY: Quail's Roost Residence, Kamloops

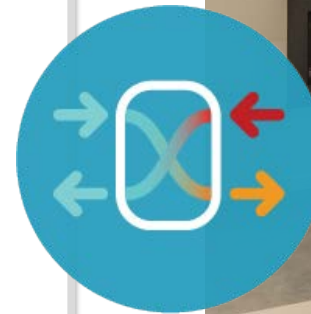


SEAL IT UP

Askew's crew used a standard plastic **building wrap**, but took extra care to seal all seams with specialized sealing tapes around electrical boxes, plumbing vents, windows, and joints between walls and ceilings. The building achieves an airtightness score of 1.24 air changes per hour; to meet Step 3, it only needs to hit 2.5 ACH. The lower the number, the better sealed up the home.

VENTILATE SMARTLY

The home uses a **heat recovery ventilator (HRV)** to extract heat from outgoing stale air and use it to warm incoming fresh air in winter. But the machine also helps cool the home in summer. Askew's crew ran its **air-intake supply pipe underground** along the home's footing to temper the warm outside air before it reaches the machine. Low and high venting windows, and transom windows above doors, also help keep things cool.



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MIND YOUR MACHINES

Since natural gas was available on site, the builder selected a 97% efficient **forced-air furnace**, but took great care to size the unit correctly for the amount of space needing heating and the climate zone.



MINIMIZE THERMAL BRIDGES

Upcountry built the exterior walls with **offset six-inch studs standing vertically atop a 12-inch sill plate** - the resulting air gap prevents heat from wicking straight through the framing to the outdoors.

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BOOST INSULATION

After consulting with an energy advisor, Upcountry added four inches of rigid foam insulation underneath the slab, **two back-to-back rows of R20 batt insulation** in the foot-thick double exterior wall, and 16 inches of fiberglass overhead- for a plush effective R53.95 in the roof.

THINK ABOUT DOORS & WINDOWS

Quail's Roost has 15 vertical feet of south-facing glass on the home's south wall to showcase an epic view. The builder specified **double-glazed, argon purged, and Low-E glass**. To avoid risk of overheating, the roof extends four feet overhead, passively shading the building in summer. In winter, a concrete slab floor absorbs the heat of the low winter sun, and radiates it into the home well into the evening.



Thank You!

Questions?

energystepcode.ca