

## GABRIOLA ISLAND | PROJECT SUMMARY

**CLIENT:** Ewout van Dishoeck  
Lot 42, Bonnie View Road  
Gabriola Island, BC V0R 1X0

**PROJECT:** Gabriola Island  
**BUILDING TYPE:** Custom Single-Family Home  
**BUILDING SIZE:** 2,646 sq. ft.

### SERVICE HIGHLIGHTS:

- ✓ Full project consultation
- ✓ Load Calculations
- ✓ 2-Line AutoCAD design with mechanical room layout
- ✓ Full equipment schedule and quotation review
- ✓ Passive House certification
- ✓ Heat recovery ventilation (HRV) integrated controls
- ✓ Rain Water Harvest and integrated Well Water
- ✓ Water Treatment

“From our initial meeting through to completion, the professionalism displayed by the Ecolighten team made the experience enjoyable throughout. As an integral part of the design team, Ecolighten’s experience and expertise helped us achieve our Passive House certification objectives within budget.

Thank you for making our home on Gabriola Island everything we expected it to be and more.”

**Mr. Ewout van Dishoeck – Owner**

### BACKGROUND:

- A custom home built to Passive House green building standards. There are strict requirements for Passive House certification that conflicted with budget, design and amenities desired by the Client.
- Challenges included Gabriola Island being off the natural gas grid with a low yield well.
- Range of original considerations included geothermal, solar thermal, earth tube, well water, rain catchment, generator back up, limited propane, and extremely restrictive product approval from Passive House certification.
- Ecolighten engaged to consult on a range of considerations, providing clarity and recommendations regarding viable options to achieve Passive House certification.

### SOLUTIONS & OUTCOMES:



### DISCOVERY

- Comprehensive consultative services throughout each phase of project. Established clear hierarchy of values with the Client. Explored and advised on viability of all previously considered options.
- Provided creative and original mechanical options to balance conflicts between Passive House principles and Client’s expectations.
- Researched all contributing factors to integrate Rainwater Harvest with low yield well and anticipate water treatment requirements.
- Investigated alternative equipment options for compatibility, availability, and cost through direct communication with product representatives and thorough review of engineering literature.
- Investigated emergency essential power requirements to determine most appropriate back-up generator.

### CALCULATIONS

- Initial report included results from all cost/benefit calculations, upside/downside comparison reviews, and recommendations of only options that fit the Client’s value hierarchy.
- Calculated all variables to determine optimum size of cistern and functional components of integrated Rainwater Harvest & Well, including primary and secondary water treatment.

### SOLUTIONS

- Primary energy source for space heating up to modulating 6KW.
- Domestic Hot Water with hybrid heater (heat pump).
- North American HRV with extreme efficiencies.
- Make-up air for high capacity exhaust fan combination of passive with interlocked damper and active with modulating space heater with interlocked damper and closed loop by-pass.
- Rainwater storage of 10,000 gallons, prefiltration and first flush, float activated Well auxiliary source, cistern by-pass.
- Secondary potable water treatment including sediment, carbon, and ultra-violet.

### DESIGN

- Articulated ducting and ventilation design complete with 2-Line AutoCAD drawing (see illustration table below).
- Provided AutoCAD drawings of Rain Harvest System (see illustration table below).
- Provide bid specifications documentation for “apples to apples” estimates from mechanical contractors.

### QUALITY

- Bid review to ensure mechanical estimates meet specifications and design criteria.
- Available Quality Assurance (QA) services on this project include site visits to report on percentage of completion and inspections to ensure the installation meets all design targets.

#### ALL SERVICES ABOVE PROVIDED BY:

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