

Handcrafted Log Homes

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Log homes have provided sustainable, locally-built housing in many parts of the world. In Russia, Europe, Scandinavia, and North America, log homes have been the traditional construction for millions of people for thousands of years.

Log homes work well, are affordable, and sustainable because they use local building materials, and provide employment to local craftsmen.

Handcrafted log homes, unlike manufactured log kits, are produced by craftsmen one-at-a-time. In New Zealand, it requires less than 40 years to grow excellent Douglas fir building logs. In the traditional localities of log construction, the same trees require 100 to 300 years to get to the same size.

Log homes do not “waste” trees. An average stick-built home uses about the same volume of tree to produce the same size house. A house that is 170 square metres in size would require about 57 cubic metres of logs to produce the framing timber and sheathing to build it; and as a log house would require less than 55 cubic metres of logs.



This difference can be attributed to the inefficiency of even modern sawmilling. In terms of volume produced, there is more “waste” produced at a sawmill than “timber” produced at a sawmill.

ENERGY EFFICIENCY

Log homes have very low embodied energy. The logs are minimally processed (the bark removed, and some wood for joinery) and the trees come from local plantations. On average, processing each log requires about 2 litres of petrol in the chainsaw and the yard equipment (loader and crane). There are often less than 60 logs in each home.

Log homes are air-dried. Conventional timber-framed homes have significantly higher embodied energy in part because of kiln drying and machine surfacing and sizing—approximately 4700 Mj per cubic metre.

Because of their tightly fitting joinery, and large diameters, log homes are energy-efficient to live in and operate. The high thermal mass of log walls is an additional benefit on top of the better U-value of the walls.

Life-cycle cost of log homes is also extremely low. Log homes in their traditional localities last for more than 100 years. I have seen log buildings in Russia and Scandinavia that are nearly 1000 years old. Stone might be the only building material that can surpass log and heavy timber frame in longevity.

When designed by someone who knows the strengths and weaknesses of log homes, durability in all New Zealand climates is unquestionable. For example, and as with all timber homes, wide roof overhangs and sheltering verandahs provide protection from sun and rain, and mitigate a need for preservative pressure-treated logs.

NATURAL MATERIALS

The walls of log homes are composed of natural materials. Logs do not off-gas formaldehyde or the other volatile organics that are found in processed timber sheeting and in wall coverings like gib board.

In the South Island, approximately 100% of the trees bought by Natural Log Homes come from FSC-certified plantations.

SUSTAINABLE

Judged by embodied energy, life-cycle cost, and operating energy (annual costs), handcrafted log homes provide significant and meaningful alternative housing for New Zealand.



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