

ALTON CLIFF HOUSE

Lake Country, BC | Completed 2022

Role of the firm: Structural Engineer of Record

Area: 2,760 sq. ft. (256 sq. m.)

Budget: CAD \$2 million

Architect: f2a architecture

Client: Jason Alton

Nestled on a rugged cliff in Lake Country, BC, the Alton Cliff House is a stunning 2760 sq. ft. mid-century-inspired home that appears to be floating. A striking wall of corten steel panels dominates the exterior but as one gets closer, the steel wall gives way, revealing a bright, welcoming interior.

The building structure consists of a structural steel platform floating over the ground with only few contact points to the ground: two isolated piers dowelled into the clifftop at the front of the house, and a strip footing, also dowelled into the rock in the disturbed area beside the roadside at the back. The front portion of the house cantilevers over the cliff slope, being supported, both for gravity and for lateral load, by V-shaped steel columns.

Insulated panels (SIPs) make up the upper portion of structure, which is then finished by aluminum-framed glazing and corten panels. The structural solutions for the house were developed in response to the constrained construction conditions of the sharply sloped site. An optimized foundation system along with prefabrication using steel elements and wood panels minimized construction time and simplified construction procedures.

The Alton Cliff House is not only an architectural marvel but also an environmentally friendly home. The house is integrated with an all-electric HVAC system that exchanges heat with the tempered space below the house. The system combines radiant floors and mechanical ventilation through the cabinet blocks, pumping in heat during the winter and extracting it in the summer via a digitally-modulated system.

