

**Project Data**

**Goatbarn Lane**

**Name of Project**.....Goatbarn Lane  
**Type of Project**.....Residential  
**Project Size**.....2,468sf  
**Project Cost**.....\$456/sf, \$1.1m

**Program Summary**

- Goatbarn Lane was designed for a retired single man who wanted to live simply and be close to his daughter and grandchildren. Priorities for the design were low environmental impact, low-maintenance, and a co-existence with the landscape. This full-time residence is located in the foothills above Boulder, Colorado.

**Project Goals**

- Express an architectural language that reflects the owner’s life philosophy of simplicity
- Respond to the site’s geography, topography, views, quality of light and climate conditions
- Create a form of appropriate scale, proportion, and volume
- Reveal the structural framework and its assembly, do not conceal or mask the building tectonics
- Conserve energy with a modest footprint, tight building envelope, and renewable energy
- Create a 100% fire-resistive exterior shell

**Project completion date**.....October, 2020  
**Project Location**.....Boulder, Colorado

## Project Narrative

## Goatbarn Lane

### PLENTY

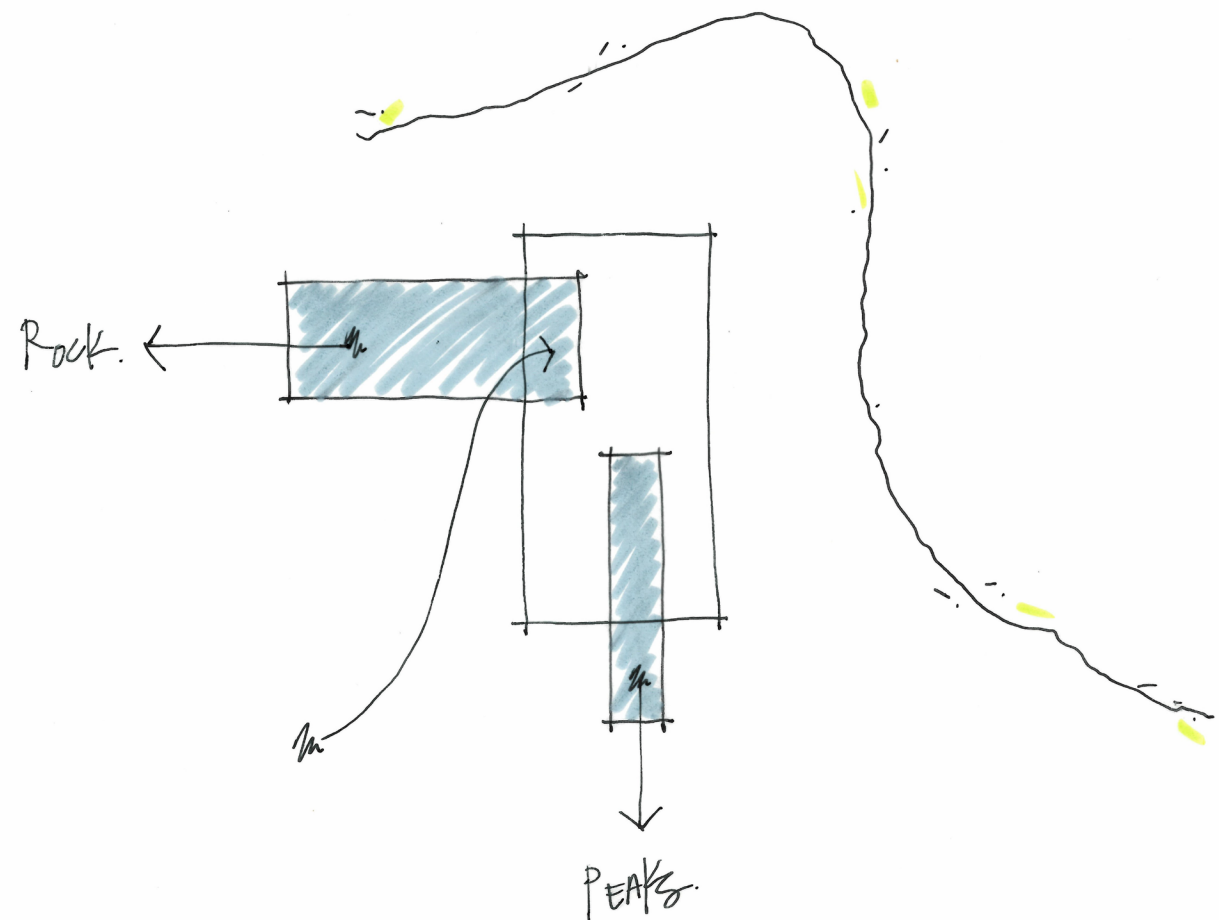
Goatbarn Lane explores the power of simple living. When a form is reduced to its bare elements, every element of the form grows in impact. The form, footprint, and interior design of Goatbarn Lane reflect the idea of living with what we need – and no more.

The steel-clad structure sits alongside a rock outcropping that provides shelter from the north. A viewing platform cantilevers out over the forest and offers views of snow-capped Rocky Mountain peaks. Steel legs under the bedroom anchor into rock and marry the building to the landscape. These gestures create a feeling of plenty in only 1,860 square feet of living space.

A 4kW rooftop photo-voltaic array makes the home net-zero electric. Continuous insulation around the exterior of the framed walls and roof creates an airtight building envelope. A radiant gypcrete slab and high-efficiency wood burning stove provide heating. Floor-to-ceiling casement windows and an open floor plan create an airy interior space with natural cross ventilation. Steel, concrete, and sustainably harvested ironwood create a fire-resistant shell in a forest environment prone to wildfires.

“I love how the house is nestled up against the rock outcropping, how it captures light and frames the views, how it sits quietly amongst the giant ponderosas. This house allows me to live simply, yet deeply. It makes me acutely aware of the beauty and fragility of the environment.”

**-Owner testimonial**



**Designing for Integration**

The design concept for Goatbarn Lane is PLENTY: living with what we need – and no more. The concept, grounded in sustainability, informs the form, footprint, and interior design of the home.

The form is reduced to its bare elements – a bedroom, a living space, and a viewing platform. By limiting the form to these three primary elements, every element of the form grows in impact.

The house's simple form stands in direct relationship with its habitat. The minimal footprint sits alongside a dramatic rock outcropping which provides shelter from the north. Steel legs under the bedroom anchor directly into the rock outcropping and create a sense of belonging. A viewing platform cantilevers out over the forest and creates an unexpected mountain view. These gestures call our attention to the site's unique geographical features and strengthen our connection to place.

The exposed structural framework gives clarity to the architectural statement. The materials are robust, unpretentious, and will weather naturally with time. Superfluous materials are eliminated.

The house affirms the power of PLENTY. Size becomes insignificant when architecture engages the senses and connects us to place. This reductive approach to architecture allows space for the abundance of the moment.

**Designing for Energy**

The design reflects key decisions at every stage to minimize energy usage beginning with massing, orientation, and roof design. The house is sited to receive passive heating through south-facing glass, and is protected from northern winds by a tall rock feature. The high roof extends along the east/west axis providing for a south facing photo-voltaic array.

Floor-to-ceiling casement windows provide natural ventilation and eliminate a need for mechanical cooling. A light grey TPO roof membrane reflects the sun.

In-slab radiant floor tubing and a 97% efficiency boiler result in highly efficient heating. A 2" thick gypcrete slab creates a thermal mass that stores and radiates heat. Radiant heating divides into multiple zones with programmable thermostats. With the upper level open to below, the wood stove is often all that is needed to heat the entire home.

Continuous exterior insulation wraps the wall and roof framing with a built-in rigid air barrier, in addition to closed cell foam insulation in the walls (R-23) and roof (R-54).

High efficiency electric appliances, 100% LED lighting, and abundant natural light reduce electric consumption. The carport includes an electric vehicle charging outlet. The house is net-zero electric thanks to a 4kW photo-voltaic array located on the roof.

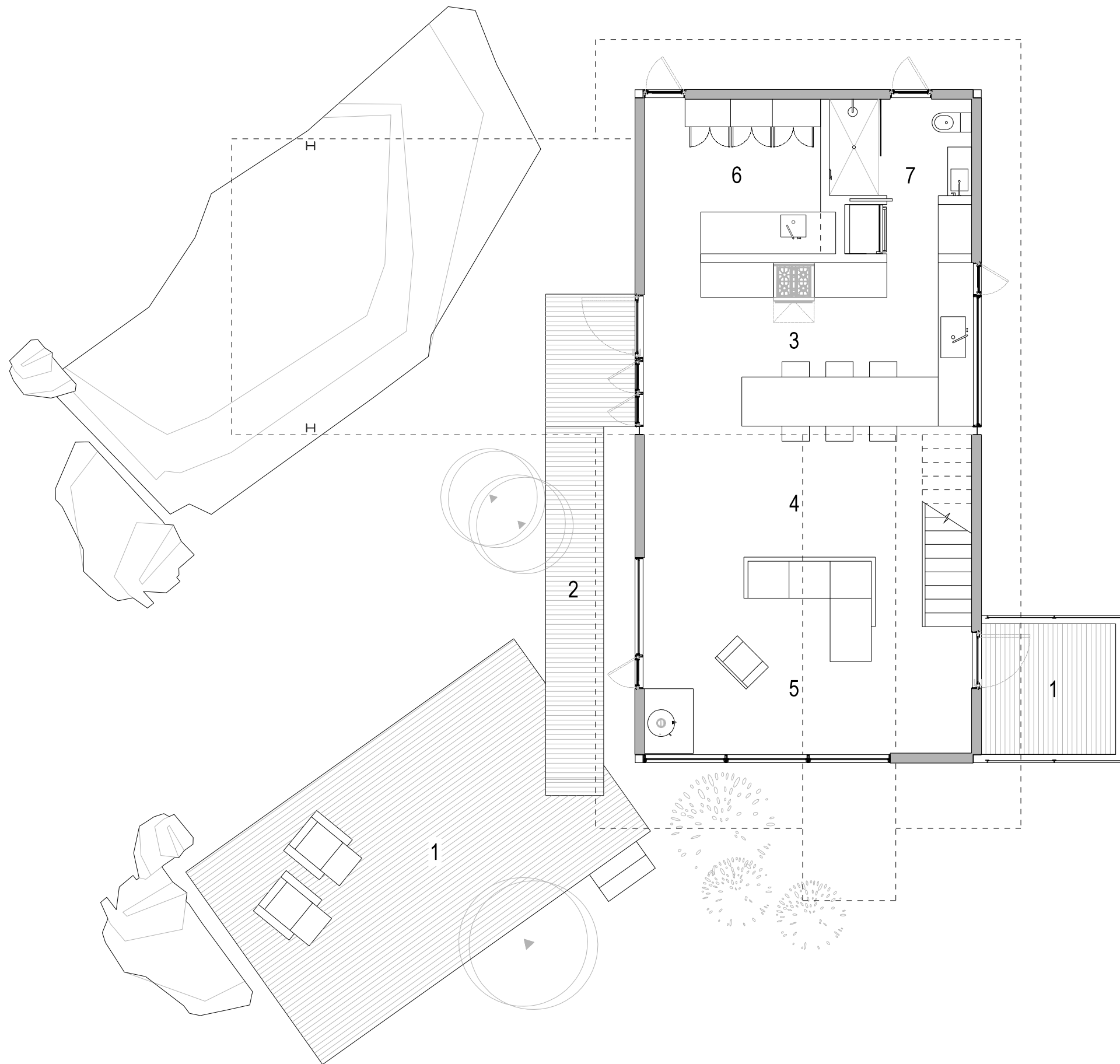
**Designing for Ecosystems**

The project site is a moderately dense forest of ponderosa pines at 6,300ft elevation, interspersed with sage brush, cactus, and mountain mahogany. Local weather brings high swings in temperature and frequent late spring snow storms. The location is a wildlife corridor for deer and mountain lion. The architecture is respectful to this unique mountain landscape with it's placement, elevated form, and minimal footprint.

Mature ponderosa pines create shade and protect glass on south and west facades. Russian sage and catmint attract pollinators. Landscape lighting quantities are kept to a minimum, and fixtures are shielded and dark sky compliant. All site lighting is on a timer, turning off each night to create a natural nighttime habitat.

Post construction, all disturbed areas were reseeded with a native foothills grass seed mix. All seeded areas are covered with weed free straw matting to prevent erosion and encourage quick growth. 100% native plants and existing mature trees create a landscape that requires no long term watering system. There is no turf grass on the property.

- 1 DECK
- 2 ENTRY
- 3 KITCHEN
- 4 DINING
- 5 LIVING
- 6 MUD ROOM
- 7 BATH
- 8 BEDROOM
- 9 LOFT
- 10 VIEWING PLATFORM
- 11 OPEN TO BELOW

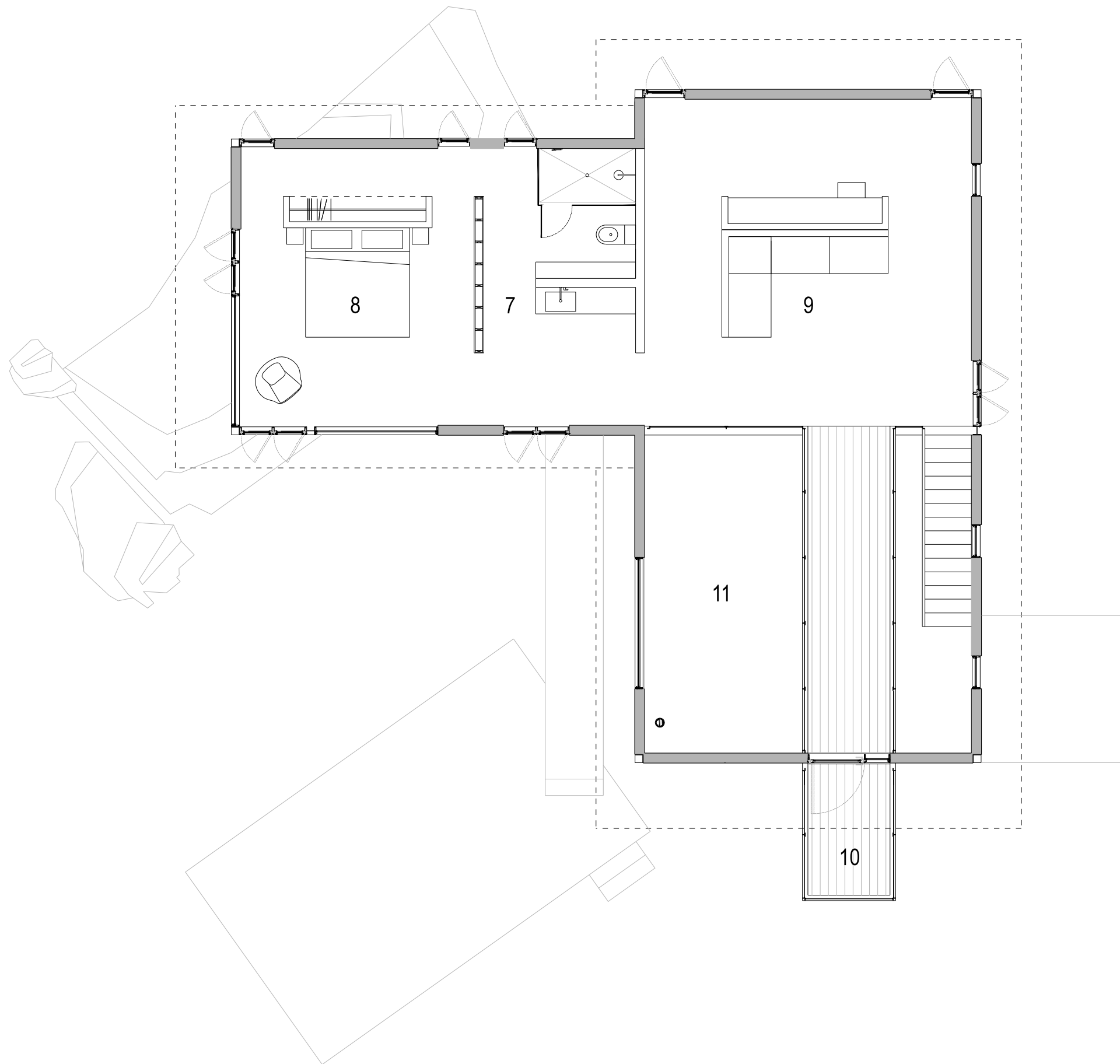


0' 5' 10'



FLOOR PLAN | LOWER

- 1 DECK
- 2 ENTRY
- 3 KITCHEN
- 4 DINING
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0' 5' 10'



FLOOR PLAN | UPPER























