Leo Filser: Weaving Stone

WEAVING STONE

The project aims at developing a technique to weave slate stone into a spacial fabric.

The geological metamorphosis in its the slates formation leads to its characteristic layered structure that results in a highly foliated material and a high flexural strength of up to 80 N/mm².

Locally varying mineral deposits change the color of the stone from purpleto green to almost black as in the Wales slate that I worked with.
Welsh Penrhyn Slate consits of 41% quartz, 30% mica, 10% albite, 7% chlorite, 7% hematite and smaller quantities of other mineral components characterizing the stone in its perception.
Wales, a traditional slate mining region has over the centuries developed vernacular building techniques that evolved over centuries from the abundance of material.

Most built structures are monolithic slate dwellings but on a close look the traditional Welsh method to use vertical slate slabs as fences and barriers provokes the re-translation into build space.
Translating the linear one-dimensional fence into a three-dimensional vertical structure challenges the perception of the material.

The project is incorporating the inherent properties, the site and the local technique translated into a spacial enclosure into the chosen site as a material gesture.

The contradiction between the eternal and the ephemeral qualities, weight and lightness, bending a stiff stone material and having it lightly rest on the site creates a liminal experience.

A space enclosed in a slate stone fabric.

Fencing, Wales/Snowdonia

Weaving Typologies

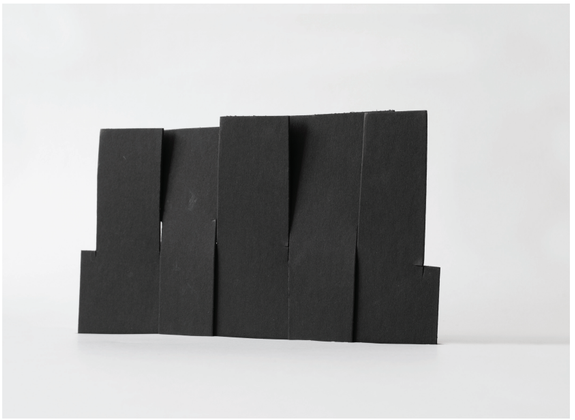
A large variety of weaving patterns were developed leading from traditions fencing systems to vertical structures.
Different forms, formations and connections were tested regarding their structural and tectonic properties.

a

b

c

d



e

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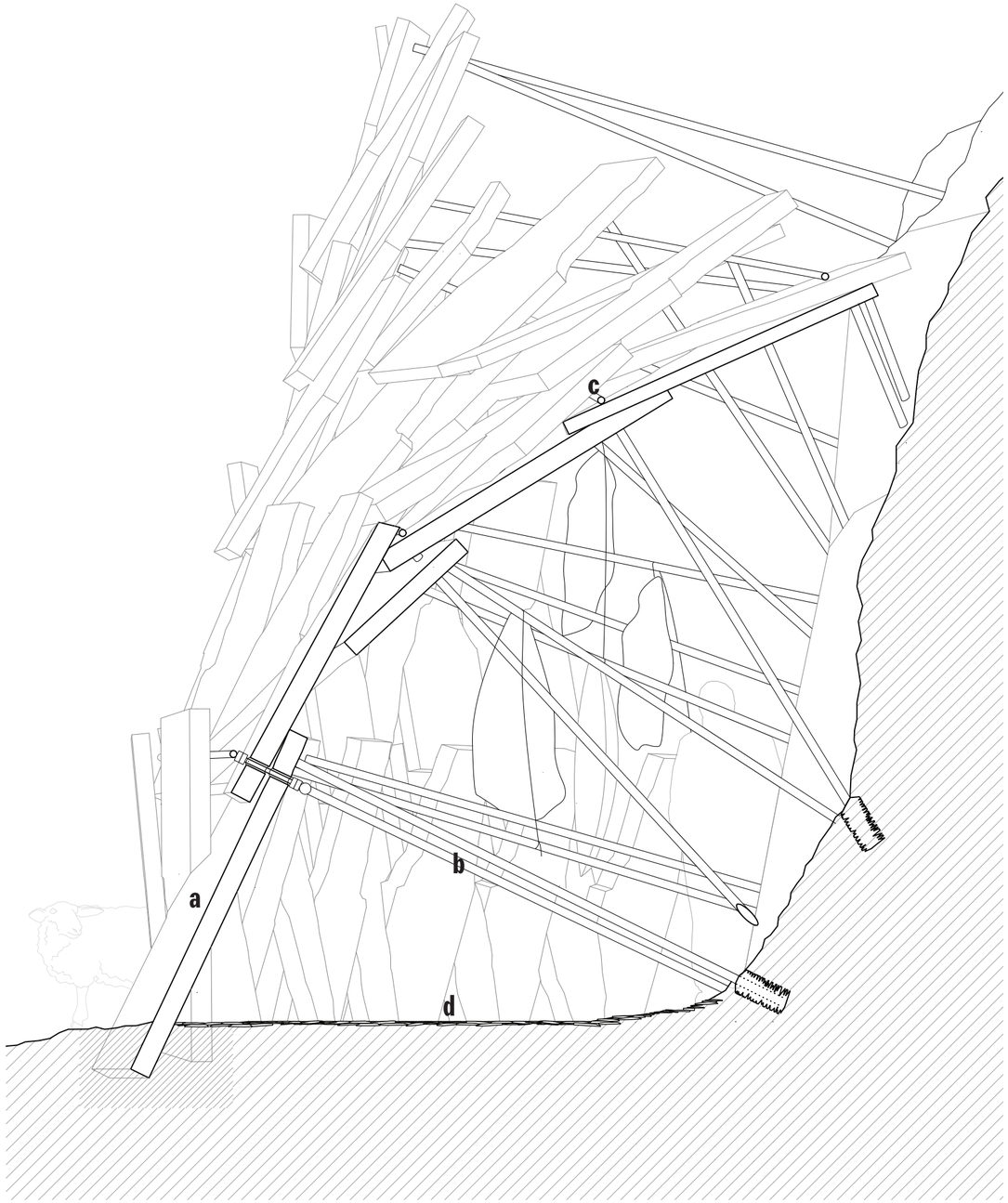
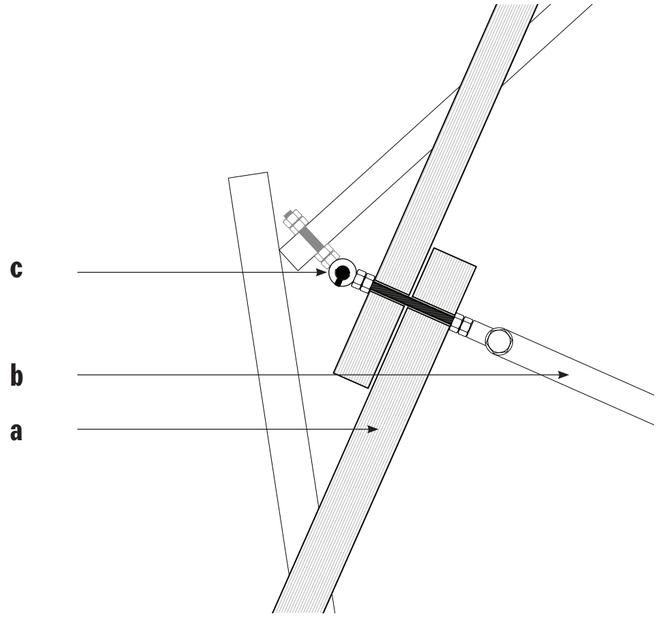
g

a S-shaped slab, Horizontal band
b Wire-connected slabs
c Drilled connection
d Oval cut-out, Self-interlocking
e L-shaped, self-interlocking
f Oval cut-out, Vertical Fabric
g T-shaped, Vertical Fabric



Detail Section, 1:25



Detail, 1:15

a	Slate Slab	Blaenau Ffestiniog slate 1500x1000x100mm, 360-420 kg Declining thickness > top up to 75 2.4-2.8 tons/m³ T-shaped self-interlocking Threaded steel connection Foundation condensed earth 90-50°
b	Pressure Rod	Stainless steel, 18% chromium 49mm roundstock 248KN max load Threaded ends Black Oxidation 90° to slab orientation Stabilizing overhanging slabs Concrete foundation drilled
c	Tension Cable	Stainless Steel, 18% Chromium 23mm 182KN max Tension Force Black Oxidation Connecting slabs horizontally
d	Floor	Blaenau Ffestiniog slate Offcuts from shaping wall slabs Compressed

View, Model, 1:15