View from harbour

ECHO OF WIND
VISUALIZING THE BEAUTY OF WIND PATTERNS

Few things are more present in Denmark than wind. It is not only the driving force behind the country's many windmills but also a force which has shaped its landscape. Wind is by itself invisible but through interaction with its surroundings its patterns and behavior can be captured – and its natural force harvested for electrical gain. The movement of leaves, branches, waves and textile are all heavenly affected by and visualizing wind.

One of the most practical visualizations of wind movement is in sails – and it has helped shaping Denmark as a great seanation throughout the course of history.

The location at Refshaleøen, next to the old shipbuilding docks, and with windmills in the background is as such a perfect location to create awareness but also to implement an installation that celebrates the beauty of wind. It is not only a very important location in the context of Copenhagen, but also as the water gateway into Denmark.

Textile has an ability to capture and visualize movement. It has a memory in its behavior, that both reflects its surroundings but also the constraints by which it is composed. This duality in the behavior of fabric has been an aesthetic fascination for artists and architects throughout centuries.

An architectural proposal based on this aesthetics has a supple sensibility and therefore a possibility to integrate and capture literal and phenomenal motion in relation to its surroundings, its program and visitors. Creating an installation that embodies the transition from static to dynamic – an installation that visualizes the forces within and around us – and utilizes its energy.
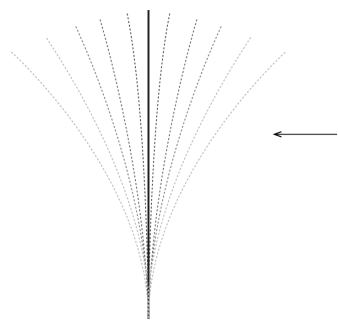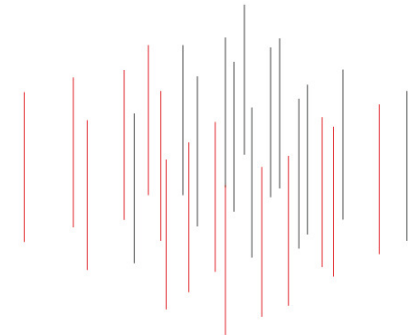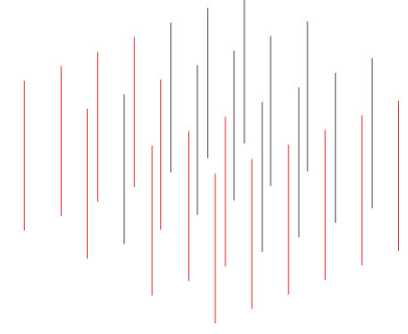
Grass

Movement tracing

Ecotect wind analysis

Spring. High yield strength. Actuated by the wind force.

Fabric as an echo of wind force

Tracing of springs over time

A visual interpretation of wind

A field of springs moving with the wind

Combination between static and dynamic springs

Random

Grid

Static/ Dynamic
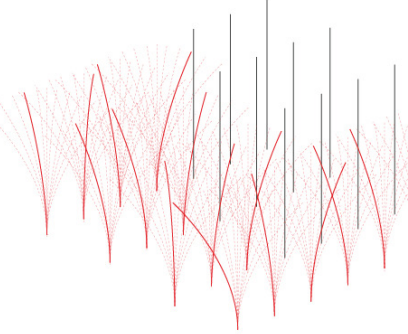
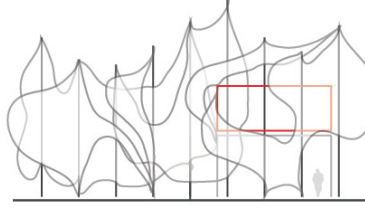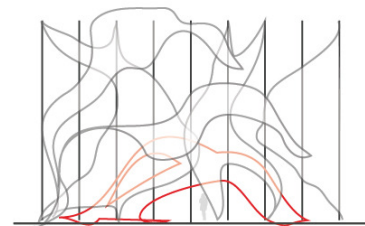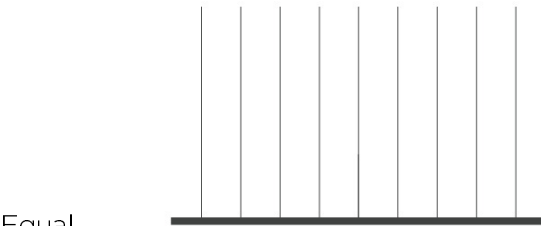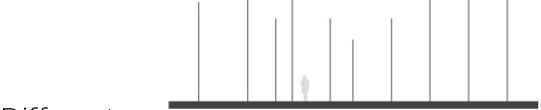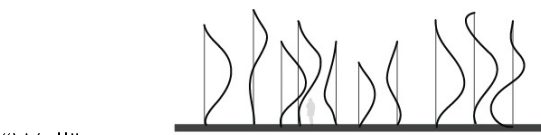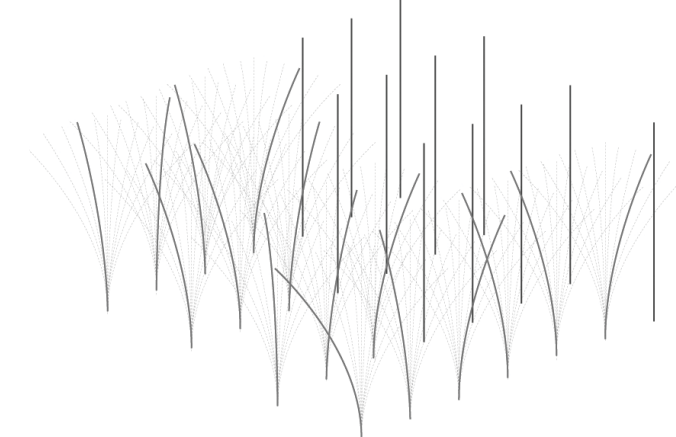Potential spaces within
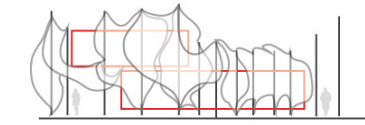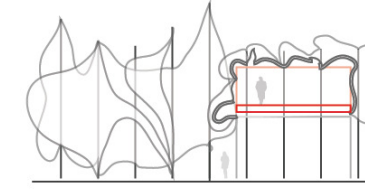
Spring variations

Equal

Different

"Wall"
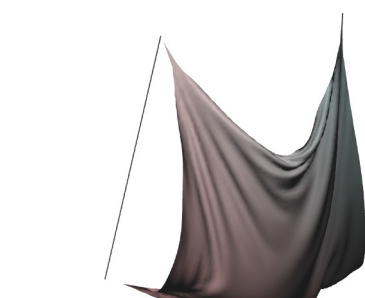
"Roof"
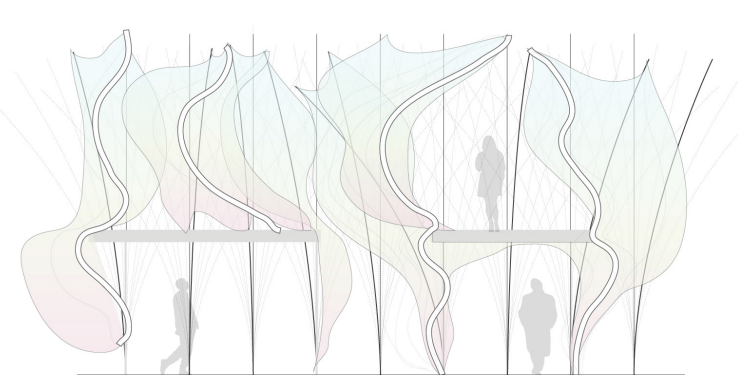
Static vs. dynamic springs
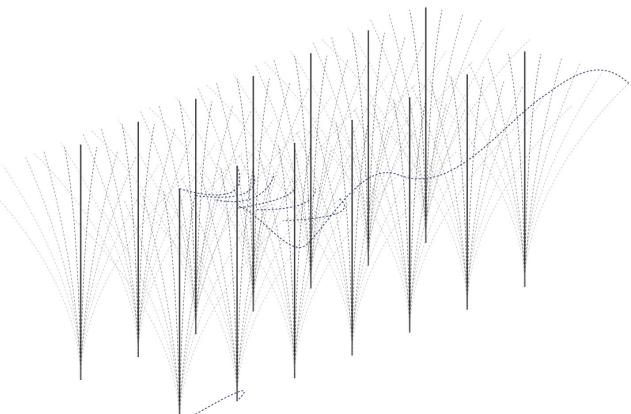
Potential platforms among static springs.

Energy concept for dynamic springs

F

H

T

C

T

C

W

C = COMPRESSION
T = TENSION
F = WIND FORCE
W = WIDTH
H = HEIGHT

$F*H = C*W$
$C = (F*H)/W$

BENDING FROM WIND

ELASTOMERIC PIEZOELECTRIC TOROIDS

FLEXIBLE SHAFT

STRETCHING

SQUEEZING

RIGID BACKUP PLATES

GENERATION OF POWER