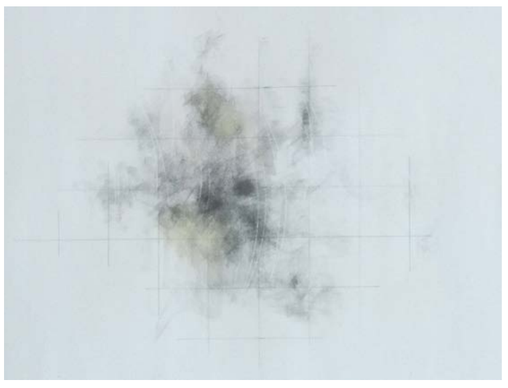
Pneumatic Systems: How Air Affects Space

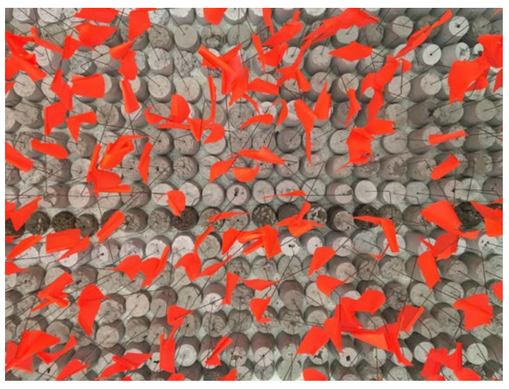
Making air visible through a series of interventions

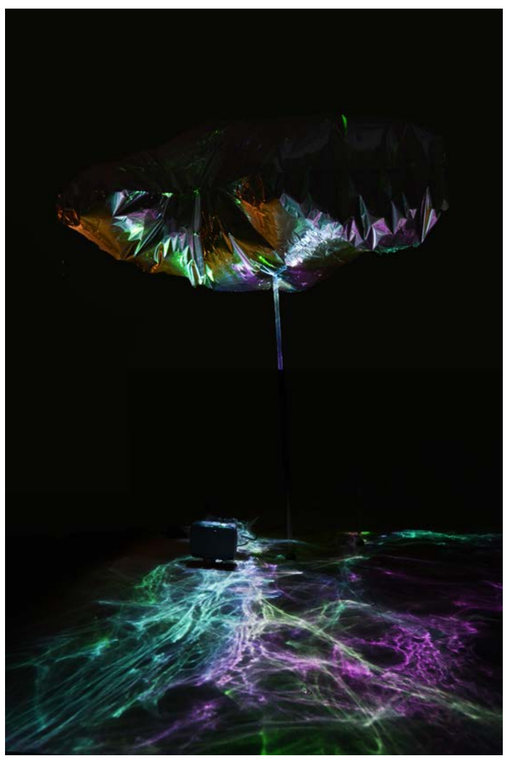
"The sky starts under our feet"

Air is one of the most fundamental, yet forgotten, elements within the architectural discourse. It is something not seen, but felt; smelled, but not experienced. Air, in practical discourse, is something that is always referenced. Formulating an air-tight facade is something of high importance to architects. In large cities, air rights become valuable property. In Chicago, the Boeing tower spans atop rail lines that terminate at Ogilvie station a few blocks away. However important this air space may be, one does not purchase the air, but rather a volumetric area that matter is constantly moving through, blurring boundaries.

Challenging air as matter, medium, site, and collaborator, this series of projects seeks to explore how air can be made physically manifest, through data-set representation, air-fed mega-structures, and wind. Beginning with drawing, I move onto a collaborative visual data-set, a large air-fed reflective pavilion, and return to the idea of drawing with a kite-directed mechanism for drawing.







Objectives:
1. Utilize air as the primary medium or inspiration
2. Understand how the ephemeral qualities of air impact built space
3. Represent air as a medium through a variety of physical and non-physical means

Stages of Exploration:

I. Individual Drawing

The utilization of a grid becomes the proposal for an installation within the Communications Building Studio at Iowa State University. The gridded terrazzo flooring became a graph for a set of calculated data points which represent barometric pressure, wind speed, and wind direction for given months. Wood slabs (squares) would be placed within the grid, and arranged on an X/Y axis to correlate with the data given, moving left to right, front to back accordingly. Like the work of Nathalie Miebach, this proposal is conspired of a series of data points, making the artist only reactionary to what the data provides.

II. Collaborative Installation

Next, a studio-wide effort went into designing and creating a 16-year air-map of the weather conditions in Ames, Iowa. Barometric pressure, wind speed, and direction are all considered with this installation.

III. Cloud Pavilion

Constructed out of Mylar, this 'cloud' is suspended from a series of clear vertical poles that supply a continual stream of air. Beneath the 'cloud' is a projector shining light upward onto the bottom surface, which in return reflects the light throughout the space. During the day, sunlight is reflected off the piece onto adjacent structures, leaving the space below free from glare and heat. It is activated at night by allowing light to reflect and create beautiful surfaces on adjacent walls. As the piece naturally sways within the wind, the lightweight form undulates, allowing the light to 'dance' across the space.

IV. Drawing with Kites

This project explores a kite as an instrument of empathy with the atmosphere, as well as a tool for drawing the wind. It creates a language between the air and the earth as a manifest being, removing the human interaction of kite flying, and providing a spectacle.

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