**Energy Follicles**

Man and Nature. Two competing beings.

The threshold at which two entities coexist can create an obscure and deceiving interaction. Man has become a dominant force in the shaping of our environment and communities across the world. Nature throughout history has provided the necessities and inspirations for much of man’s adaptations and success. Despite man’s dominant presence in the environment, nature continues to push back and reclaim its precious land. What if there was a way to blue the line between man and nature and create an entity that not only provides the functions and inspiration for man, but also provided a continuous source of energy for man’s needs?

Imagine being surrounded in a field of grasses during the day and as the sun sets, the field of grasses transforms into a light show of energy. A duality of experiences from day to night, interior spaces to exterior spaces. The St. Kilda Triangle Energy Follicles provide this innovative and interactive approach to creating a series of spaces that blur the boundaries of man and nature. These energy follicles utilize piezoelectric technology to convert vibrations into a positive and negative charges to generate energy. This original application of piezoelectricity is applied to two specific typologies of energy generation: Ground and Wall. As a ground condition, the energy follicles consist of modular mats that can be connected depending on the number of follicles desired in a given area. The energy follicles are encased in an optical fiber that provides an interactive lighting effect. During the day, the follicles are integrated within the landscape of grasses. During the night, the follicles show their true colors when illuminated from within. As a wall condition, the energy follicles are casted into the concrete building envelope with the interior side being flush while the exterior side extrudes approximately 0.3 meters from the concrete surface. With the wall condition being subject to exterior and interior lighting, the follicles act as a type of communication for the opposite side. Imagine having a small music performance with the backdrop comprising of hundreds of thousands of follicles that show the setting of the sun across each individual follicle of light. On the other hand, imagine the moon is full and you are walking along the esplanade and below you see a wall of swaying follicles emitting a variety of colors as a digital art show is being projected on the interior walls and at the same time providing a dynamic for the common passerby. In fact, each square meter of wall consists of approximately 11,000 energy follicles. Furthermore, every square meter of follicles should generate approximately 26,297 kW annually based off the equation:

$1m^{2}=3\frac{kW}{hr}$ $\frac{3kW}{hr}x 8765.82\frac{hr}{yr}= 26,297 kW per 1m^{2} annually$

**Environmental Impact:**

The design strategy for the St. Kilda Triangle minimizes the negative environmental impact of typical building methods by utilizing large green roofs that create a layer of insulation. The constructed buildings are meant to offer new spaces that are integrated into the landscape and create a new terrain for the St. Kilda Triangle. The implementation of energy follicles provides an innovative approach to renewable energy that has zero impact on the immediate environment as well as providing wind energy that serves zero harm to wildlife and people. Compared to larger wind turbines that contain blades and only function at higher wind speeds, energy follicles can generate energy at low wind speeds as well as from human touch. On top of that, the green roofs and variety of vegetation create new micro-ecosystems for wildlife to thrive on what was once a flat asphalt site.

The potentials are endless, day or night, interior or exterior, man or nature, The St. Kilda Energy Follicles provide an interactive and innovative approach to reinventing the St. Kilda Triangle while generating a consistent energy source for the site and community.