







## **Materials Design Research / C2C Entry**

A collaboration between Keith Evan Green (Architecture) and Michael Ellison (Materials Science & Engineering)

## LIST OF C2C ENERGY FEATURES + MATERIALS:

Web-link building envelope, a laminated film panel of genetically engineered silk and bio-plastic, serves as both "sensor" and "mechanism" for controlling climate inside the house, eliminating the need for a cumbersome "advanced," "state of the art" system of mechanical louvers controlled by switches or computer sensors ready to fail. This silk/bioplastic envelope makes the building its own sensor and ventilating system. The building envelope respires naturally, controlling ventilation and the intake/outtake of moisture. A change in barometric pressure changes the bio-composite's permeability (as humidity causes changes in the spider's web). A capillary surface material wicks away water [Copyright, Author, 2004].

Web-link roof is an array of two different panels. One panel is translucent hollow fiber, not unlike a paint brush bristle, filled with liquid crystals that change color with a change in temperature, providing an ever-changing atmosphere underneath the continuous, elevated courtyard [Copyright, Author, 2004]. The other panel is a photosynthetic solar cell that, by employing spinach, replenishes itself as plants do....