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FIELD ACTION JOURNAL

DESIGNING
SUSTAINABLE
NOMADIC
STRUCTURES

AARON NORMAN

SUSTAINABLE SYSTEMS

PARSONS THE NEW SCHOOL FOR DESIGN , SPRING 19
INSTRUCTOR: CAROLIN MEES

GLUE STRIP



SOCIAL & SYSTEMS



GLUE STRIP

PARK

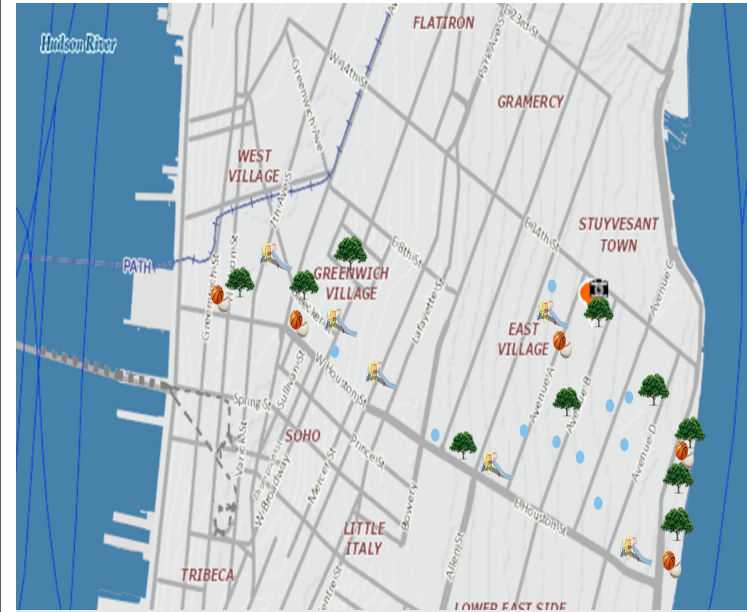


PUBLIC FIELD/ COURTS

PUBLIC GARDEN



PLAYGROUND



GLUE STRIP

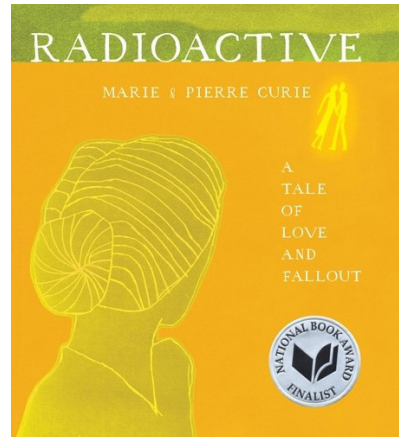


Hi my name is Earl don't worry about the last name the governments still searching for ya boy. I'm a 49 year old living homeless in new york, my main concern isn't my health or living situation im far past thinking about the self. My main focus is on the planet and how to improve our ecosystem, about four years ago I was squatting in an abandoned building in the east village along with a few others. I came across a man talking about creating a "community garden" amongst the other squatters, he talked about compost and how we could grow our own food in abandoned lots around new york. I thought this to be a great idea especially after I felt my stomach rumble in starvation. I was on board with him and many others and a few weeks later we had found

a empty lot with dirt and created some compost (Human compost *wink wink*). It was up to me and a few others to line the garden with loss or just fallen bricks we found around the city. I know some of my buddies went around gathering all kinds of veggie seeds for planting, getting some from other community gardeners. Even some garden shop owners donated some used tools. The hardest part was generating water but he taught us some great german technique to collect rainwater, within a month we could start seeing our hard work pay off as the plants started to pop through the soil.

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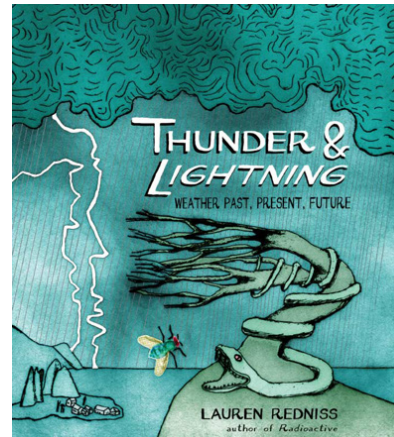
United Nations Response



laurenredniss.com

Design choices relate to one's relevant vulnerability and safety, she picks up on this by talking about the story of the three little pigs. She then goes on to say what we build, what materials we use have a direct effect on rates of survival and economic impact of weather events. Geo engineering is a humans interference with earth's processes on a vast scale. My field of study is Archi-

ecture s it's interesting she brings these two points together as one. If you think about it buildings help to protect us from weather and keep us comfortable, we control the heat, air conditioning and light within. The theory of geothermal practices mirrors the purpose of architecture, we want to control the heat, air conditioning and lighting in on a larger scale.



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Lower East Side Ecology

During the trip to the Lower East Side Ecology Center I learned that when people flush their medication down the toilet it goes into New York's combined sewer system and the medication can find itself in the water where it can be consumed by parasites that build immunities to certain things used to help clean our water. Catching and eating fish in New York is also a risk for women and children. If someone eats a fish caught in our harbor while pregnant it could cause birth defects.



We also learned about composting, I noticed the piles were steaming so I asked why that was occurring, she said that the micro-biotics in the compost are eating and while they do that the piles of compost can get up to 130 degrees. I then asked if one could use compost for the heating of buildings and she said yes. Biomeiler are extracting heat from a special compost heap and are therefore also known as „Compost Heating“.

GLUE STRIP

living system and self-organization

(A) How does this animal organize itself with others of its kind in a group settlement or movement and what is the underlying spatial pattern?

The female thorny devil lays one clutch per year between September and December, up to 10 eggs in an orange-sized chamber at the end of the tunnel the female digs. It is 12 to 24 inches long. Taking three or four days to dig it she uses both legs on one side of her body to dig, switching sides periodically. Female thorny devils lose up to 40 percent of their body weight during this labor. Incubation takes three to four months.



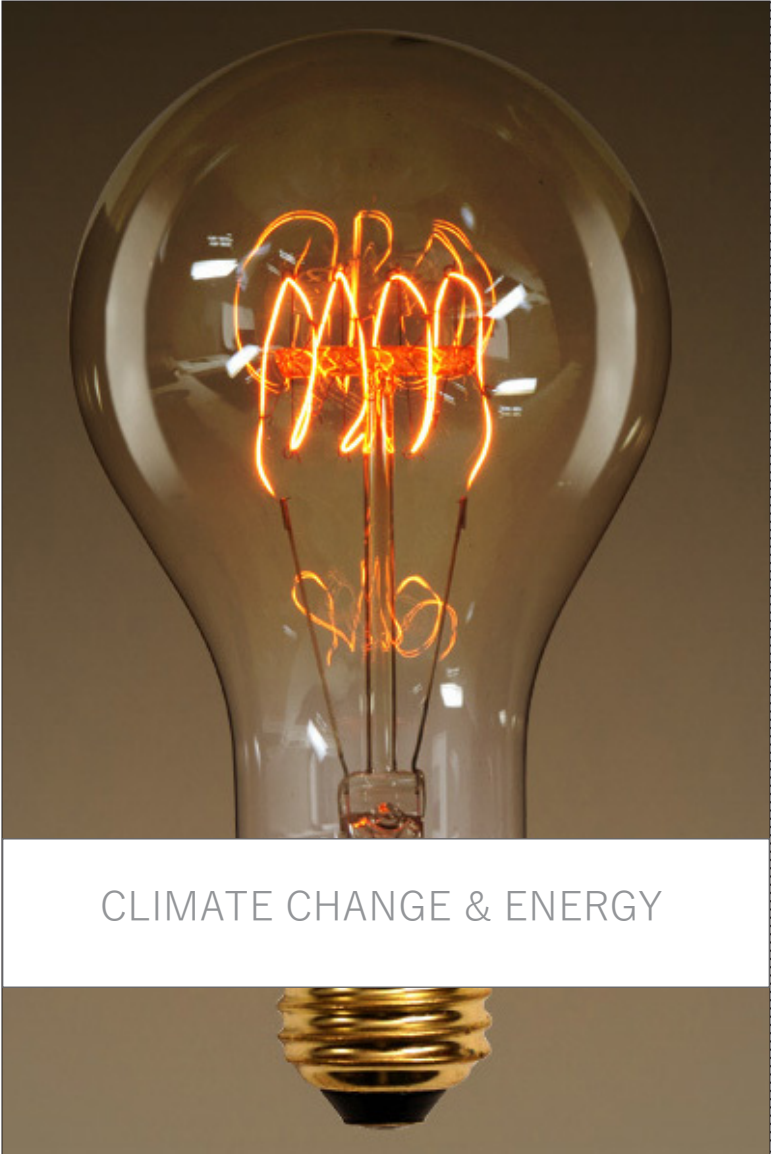
Hatchlings dig a different tunnel to exit the egg chamber, all emerging from the same hole. They are less than 3 inches long. They live independently after emerging from the chamber. Thorny devils live in the scorching deserts and arid scrub of Australia. The Great Victorian Desert, Great Sandy Desert, Little Sandy Desert, Tanami Desert, Simpson Desert, Gibson Desert and Tirari Desert are all habitats of the thorny devil. Australia's desert temperatures climb up to 122 degrees Fahrenheit and can fall into the 30s at night. Thorny devils tunnel under scrub shade to stay cool on hot days and cover themselves with dirt on cool nights.

living system and self-organization



(B) How could this investigation of a living system and self-organization inform the colony that you create, when the structure that you designed is added to another of its kind? Thorny devils seem to live independently from birth until they feel the need to mate and after would also seem to be a lonely life of eating ants and walking around the desert. The colony built from these structures would be closer to each other and assist one another with food growing and water collecting, opposite the thorny devil. The people in the colony could also grow and share particular food items make the choices more abundant.

GLUE STRIP



CLIMATE CHANGE & ENERGY

GLUE STRIP

Microgrids

An electric grid is a network of synchronized power providers and consumers that are connected by transmission and distribution lines and operated by one or more control centers. Solar power - which includes photovoltaic solar panels, an inverter and batteries, can provide lots of electric power (especially if you get a lot of solar exposure where you live) for a long time, without any moving parts and little maintenance. The downside, is the cost: it is rarely cost-effective to power an entire home entirely with solar power. Wind power - one should know the wind speed in their area. They should also know the size rotor that fits for them, ranging from 400 watts to 10000 the size goes up and the amount of appliances that can benefit from it do to. A constant, stiff breeze is needed. Microhydro electricity - Uses a sources of running stream water that can produce electricity. Produces from water running from a high to a low level that spins a turbine at the end.



Photo via Brooklyn Solarworks

GLUE STRIP

Less batteries can be used to store the energy because the source is constantly harvesting power. You can use wind turbines, solar panels and depending on location microhydro is a possibility to incorporate into a microgrid of renewable energy sources, you can connect these off the grid energy sources to things like schools, hospitals, police stations and shelters. I think the first step in creating a microgrid is people need to be up for the task and the understanding of the different lifestyle that could come with getting energy from a renewable source. The second thing is setting up the microgrid in whatever location and dealing with the ups and downs of the space and the people within. If I were to make a settlement it would be like a small village so the power sources would be able to do more for less, the look would be amazing because I'm a architect and that's my field and I like to design, the buildings would also be energy efficient.



Photo via Mayor's Press Office



CurioCity

GLUE STRIP

This Changes Everything

The Atlantic



Pay attention to the discussion the conflict of human activity, increasing urban density, the finite resources of the planet and the current push for economic growth. What is this conflict about? The problem is, the current money hungry "I should do it if I can" capitalist mindset in today's economy is eating away at earth's resources and causes all kinds of pollution on a global scale. Populations keep growing and raw materials keep being harvested for large groups due to population growth and these items are disposed of poorly which hurts us and our planet. Pay attention to the discussion the global economy's current dependence on fossil fuels and the threats this poses for people and the environment. How are we as global citizen

part of the extreme climate conditions? How can we take action against climate change? We as humans are apart of the extreme climate conditions because we have lives to live that people profit from, I have to wake up shower to smell good and be presentable before driving my gas using car to my job where I get paid to turn around and go buy something with that money that either I or my family need to survive or want so their lives won't feel completely empty. We as humans can stand up against this by stopping the consumer mentality and face the hard truth that those in power shouldn't be, and that we and the majority all they have is green paper we would bend over backwards for.

GLUE STRIP

Energy production and consumption

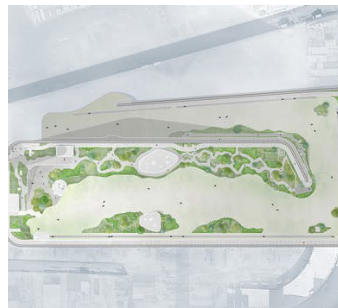
a- How does the specific energy production, energy storage, energy transmission, energy mitigation aspect work? Energy production- Electricity is the force of moving electrons. Electrons are the tiny charged negative particles of an atom that move around the nucleus of an atom. Energy storage- Thermal: capturing heat and cold to create energy on demand, Solid State Batteries: a range of electrochemical storage solutions, including advanced chemistry batteries and capacitors. Energy transmission- are where the electrons from the transformer flow at a higher voltage for more efficiency. Energy mitigation- the spontaneous transfer of energy from one particle (the donor—an atom or molecule) to another (the acceptor). b- What are the benefits and/or complications? What is positive about this energy aspect and what needs to be improved in context with it? Smog negatively affects people's breathing and has been a problem in China, In recent years, poor air quality in Beijing has closed schools and caused farmers in the region to panic over the lack of sunlight.

Caused by pollution from industries and traffic, but it tends to happen more often in the winter, when plummeting temperatures cause electricity demand to soar. c- Who is involved with this or affected by it? Mention specific organization involved or, if applicable, impacts on humans, plants and animals. Today, most of the smog we see is photochemical smog. Photochemical smog is produced when sunlight reacts with nitrogen oxides and at least one volatile organic compound (VOC) in the atmosphere. Nitrogen oxides come from car exhaust, coal power plants, and factory emissions. VOCs are released from gasoline, paints, and many cleaning solvents. When sunlight hits these chemicals, they form airborne particles and ground-level ozone—or smog. This causes breathing to become harder for anything that breathes air like people, plants and animals.

GLUE STRIP



What is crucial for its design or in a design context? Explain and find one innovative, fun design examples for each aspect that could inform parts/features of your own structure! I think if smog is being produced from our cars or factories we need to implement some form of a filter system, at the UN meeting many people learned what BIG architecture firm is doing with their energy production facility that filters out the bad chemicals prior to the release into the air.



GLUE STRIP

Drought

When it comes to Drought it should be that there is three main types that affect earth and its inhabitants. One is drought in relation to precipitation, assessing the degree of dryness in comparison to a local or regional average and the duration of the dry period. This is known as a meteorological drought, which is highly specific to a region as average precipitation may vary considerably spatially. The second is hydrological drought, or how decreased precipitation affects streamflow, soil moisture, reservoir and lake levels, and groundwater recharge. The third Agricultural droughts can occur for a variety of reasons, including low precipitation, the timing of water availability, or decreased access to water supplies. These droughts occur due to rising levels of transportation which cause the atmosphere to become thinner from exposure to toxic chemicals, which I assume allow more sun rays to come through to earth and cause things to heat up.



GLUE STRIP

Biomimicry structure materials

structural = straight, rigid material/waterproofing and water collection or water drainage UNIQBAG- Inflatable protective packaging composed of polymer film. Headquartered in Germany Distributed in North America, Europe. Lightweight, Single or mono-materials.



Thermic insulation and cooling. Neptune™ The material incorporates a patented shaped, hollow fiber which results in a close to 33% increase in surface area compared with a similar diameter round fiber. This offers increased air friction in the fleece, resulting in improved sound absorption, fiber stiffness, and resilience while reducing the overall fiber weight. It is suitable for use in environments between -40°C and 120°C (-40°F and 248°F) and has long-term heat resistance up to 120°C (248°F) in environments with humidity.



GLUE STRIP

Biomimicry structure materials

PowerFilm Solar- Flexible, lightweight, portable solar panels for custom solar power solutions used in both indoor and outdoor settings. The panel is made of 36% amorphous silicon, 36% polyolefin, 18% polyester, and 10% tinned copper. Headquartered in United States. Lightweight



Organoid- thin, natural coatings on a translucent, lightweight, flexible, self-adhesive foil for interior design projects. The product '6500' is made from 100% residual moss. Headquartered in Austria. Lightweight, Renewable Content, Waste Material Content.



GLUE STRIP



GLUE STRIP

WATER & MATERIALS



WheatGrass



I spotted a cup on broadway while walking home. I picked it up, took it home and washed it out to use as a pot.



Placement of dirt and seed within the cup.

GLUE STRIP



First growth in about a week with only a few waterings and limited sunlight.



I poked holes in the base of the cup so extra water would flow into the clear container below.

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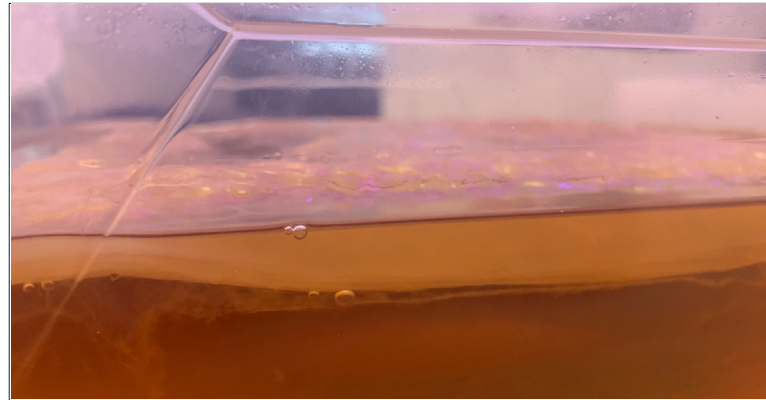


Two weeks growth with more added sunlight and warm waterings every other day.



Three weeks growth, I started to place the plant under a sunlight lamp and watered it less due to a lot of extra water building up in the base

GLUE STRIP



Biolether

The biolether growth seems to be going well, after a week the container has filled out with a thin layer of what I assume is biolether. The smell is bad but I bet its due to the apple cider vinegar. Ive told all my roomates not to touch or move it and after taking a look at it they understand why, they think its gross. The biolether has been kept in good temperature on top of the fridge.



GLUE STRIP

Harvested Biolether

I placed the biolether over a bowl so that it would dry in a curved shape to make the umbrella for the final rain collector object



A photo of the biolether right when i took the lid off of the container it grew in for three weeks

GLUE STRIP

Natural Dyeing



The process of natural dyeing was fun, I used three different colors red from strawberries, orange from carrots and black from blackberries. At a point trying to work with tree materials at a time was stressful but i've cooked full meals before so the multitasking was reflected there. The red came out nice it's like a bright red-dish blonde that I find cute and will contribute to the

wearable sculptor well. The carrots produced more of a bleach blonde color and the blackberries did their job in my eyes and make the white wool far darker than what it started as.

GLUE STRIP



Wool in the strawberry solution mixed with soda Ash.



Wool in the Blackberry solution mixed with Alum

GLUE STRIP



Final wool dyed Red, bleach bloned and blackish brown were the results

New York Water Quality



CONSUMER

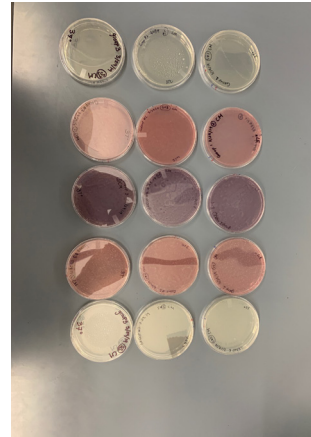
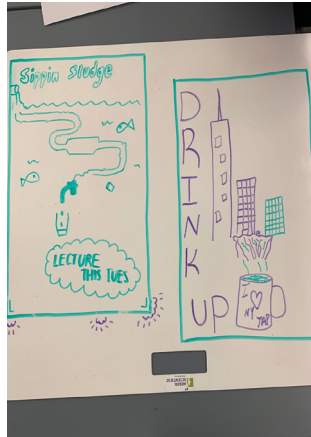


CULTURE

Why is the water testing important as a tool to make aware of environmental issues such as the contamination of New York City's waterways and the oceans? It's important for people to be informed in general especially about the contamination of the water that's around us each day. This information when spread and learned by all can promote change with in the systems we still use today. The water system we use today isn't impossible to change, we as people can push for change when we know what needs to be

changed and talked about. What could we do as designers to reduce the impact of our designs on water quality in New York City's waterways, our drinking water and the oceans? Think and create with a sustainable mind set and as the future of design we don't have to feed into the average consumer culture of today. We can make meaningful things that will have purpose and last the user a lifetime instead of buying something because it's popular then throwing it out when the new fad settles in.

GLUE STRIP



To address sewage overflow issues my group and I decided to use our combined skills to create flyers with striking imagery and slogans that would attract people's attention and ultimately get them to attend a seminar about the issues at hand and what they could do to help solve the problem of the water pollution caused by drain overflow. We had two slogans one was "Drink up" where on the poster we displayed water from the drains dripping into a I love NY tap mug and the water was coming from

a known polluted stream with new york skyline in the back. The second was "Sippin Sludge" with sewer drains running through water and dripping into a glass and promoting the lecture that will be held.

GLUE STRIP



I am Aaron, considered a human, I am on a boat on the water. I feel the breeze, smell the air, i'm cold. Hurricane sandy revealed vulnerabilities in energy infrastructure in NYC that's under subways. Henk Ovink thinks expanding wetland areas will help protect against rising sea levels in NYC. We would test water on the boat trip to see if the water is contaminated. The tests could show us Ph levels and living systems in the water. Things that affect the test are if it rained or not, how hot or cold it is outside that day, if the tide is high or low. The more test we take the better because we can be more up to date with the information and find ways to solve the problem on a wider scale. Water sample results can differ because some spots are closer to more contaminated areas than others. If you were to test near a flood site next to a garbage disposal area the water is more than likely worse than water that's near nothing like that. Poop goes to one of 14 water treatment plants in NYC. A combined sewer system is a system that prevents sewage overflow. When it rains combined sewer systems become problematic and climate change would only bring more water through different seasons and would heat the water more often which causes the bacteria to be in perfect conditions.on the trip we saw at least four sewer outfalls which can be recognized by the green signs.

GLUE STRIP