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REST in Urban Agriculture & S.E.E.C. Home

Oakland, CA, USA

5 May 2015

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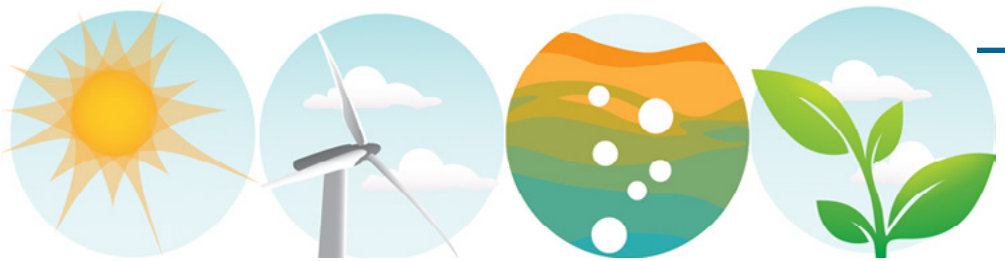

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introduction

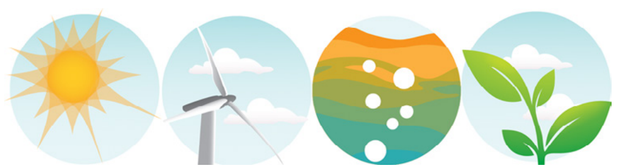
The problems:

- Resource scarcity e.g. energy, potable & drinkable water
- Access to jobs
- Access to affordable housing
- Access to nutritious, fresh produce

the solution

A holistic solution incorporating renewable energy systems technology [REST] engineering and sustainable development that addresses:

- Resource scarcity
- Jobs access
- Affordable housing access
- Nutritious, fresh produce access



the solution

Area: ~0.583 acre
Owner: City of Oakland
Current Tenants: Western Service Workers Association (WSWA)

the solution

Tumbleweed House - Mica
Length: 20'
Square Feet: 172

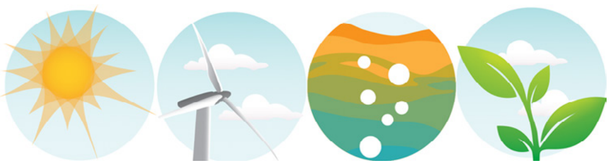
the solution

An agile, adaptable mobile home/shelter that is S.E.E.C.:

NB: S.E.E.C. pronounced 'seek'

- (S)ustainable
- (E)nergy (E)fficient
- (C)omfortable

...because space is the final frontier—
at least it is in the SF Bay Area.



the solution (net zero)

Energy Efficient (E.E.) & Conservation (C.)

- Thin film rooftop (PV) + awning + façade + ...
- Two-person capacity
- 20' (length) x 8'6" (deep) x 13'6" (high)
- Sustainable (S.) building envelope [E.E. building materials, lighting (LED, daylighting), passive heating/ cooling, solar thermal]
- Manage waste stream (compostable toilet, food compost -> repurpose CH_4 gas for stove)
- Energy storage (Mobi Battery)
- Comfort & Conservation on wheels

the solution

benefits

- ↑ Economic viability & empowerment
- ↑ Job opportunities
- ↑ Healthy communities
- ↑ Healthy, nutritious, fresh food access
- ↑ Resilience
- ↓ Homelessnesses
- ↓ Dependency on social services agencies
- ↓ GHG emissions e.g. locally grown produce

the proposition

- Pilot project
- ~0.25 acre for garden produce w/raised beds if soil toxicology unfavorable
- ~0.1 acre for compost, chickens, goats
- ~0.25 acre for Tumbleweed Houses w/compostable toilets
- Atmospheric water generation for drip irrigation

the proposition

Pilot project REST offerings:

- Produce compost for biowaste management
- Biofuel/gas generation from waste stream using anaerobic digestion (AD)
- PV and solar thermal for electricity and hot water
- Condensing H_2O vapor in the air for water management (IP)
  - No ground water drilling
  - No surface water pumping

outcomes

Issues addressed

- Resource (water) scarcity, energy access, waste & resource management
  - Use REST to extract water vapor from the air for drip irrigation
  - Use REST for solar (PV, thermal), anaerobic digestion (AD)
  - Compostable toilets
- Improve skills set to obtain more job access
  - Transferrable skills gained by raising food locally
- Affordable housing access
  - Tumbleweed Houses for shelter to manage urban farm plots
- Nutritious, fresh food access
  - Urban Adamah repurposed materials, raised garden, moveable beds model to grow food in W. Oakland

parting thoughts

Out think the box.
Prepare. Respond. Adapt.

We need to put waste to work to better manage scarcity.

We need to S.E.E.C. out everyday brilliance for disaster resilience.