

Repurpose Everything at Every Scale

The programmable environment

Metrics

- Energy Consumption
 - Building system efficiency
 - Kinematic efficiency
 - Energy production
- Space Consumption
 - Horizontal and/or vertical expansion
- Scalability
 - Ease of expansion and reconfiguration
 - Block to neighborhood to city level
- Social acceptance

Example problems

- *In-Situ*: Dynamic environment
 - Office environments
 - Homes, etc.
- Local: Empty/unused buildings
 - Florida vacation homes
 - Detroit Seaside
- Global: Migration
 - Humanitarian Aid
 - Rapid Urbanization

Role of the Architect

Develop patterns of space addition/subtraction
and system interactions

Design habitable units at individual and urban
scale

To be developed

- High level design software
 - Computer Language of function and form
 - Integrated simulation of systems
- Systems for redesign and re-configurability
 - Modular units vs. fold out vs. fabrication on demand
- Materials development
 - Flexible materials
 - Programmable matter
 - Power generation
- Local resource utilization