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