

# ISEN 689-701 SYSTEMS THINKING AND ANALYSIS

## Project Proposal

### Self-Powered Skyscrapers

#### Problem Definition-

The world population is expected to double by the middle of the 21<sup>st</sup> century, and economic development needs to continue. To sustain the economic development, we will need a 1.5-3 fold increase in primary energy requirements by 2050 and 2-5 fold increase by 2100. So with the increase in the population, the cities are going to be overcrowded, thus there will be an ever increasing demand for land and energy. Also the rapid pace of development will require faster and safer construction techniques. Thus there is a need for safer buildings which solves the problems of space constraint and energy crisis.

#### Societal Need-

Fossil fuels are the most utilized type of fuel reserve contributing 80% of the world's total energy consumption. At this fast rate of consumption, the fuel reserves would not last much longer. So we need buildings that are energy sufficient and safer. Also the buildings need to be constructed faster and should minimize the hazards involved during constructing such big structures.

#### System Function-

The solution to all these problems is a new architecture perspective called the dynamic architecture. This skyscraper employs wind turbines which are positioned horizontally between each floor, which will produce energy to the building itself and supplies energy to other buildings. The construction time taken for this structure is reduced by 30-40% when compared to traditional construction techniques. Moreover the building design is much safer from earthquakes as compared to the traditional designs.

### Unproven Technology used-

- Dynamic architecture
- New construction technique(Central Core)
- Self production of clean energy

### Predecessor Systems-

- Sky scrapers Construction(Steel skeleton)
- Wind turbine technology

### References-

- [www.wikipedia.org](http://www.wikipedia.org)
- [www.dynamicarchitecture.net](http://www.dynamicarchitecture.net)

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