**Wind Energy**

- **Goal:** Provide 1/3 of lighting energy for first floor
- **Required Energy:** 42,840 kWh
- **Type:** Vertical Wind Turbines

**Urban Green Energy 4kW 2nd Generation**

- **Cost:** $21,920 each
- **Annual Production:** 4000 kWh
- **Size:** 9' x 11', 700 lbs
- **11 Units Required**
- **Break-even point: 18 years**

**Rainwater Harvesting**

- **Chicago Average Precipitation:** 38.01 in/year
- **Roof Area:** 37,000 SF
- **Rainwater Harvesting Area:** 18,700 SF
- **Total Amount of Collected Rainwater:** 35,900 gal/month
- **Saving:** 430,800 gallons of rainwater per yr
- **11 - 3000 Gallon Tanks Required**
- **Total Construction Cost:** $12,122

**Structural Information**

- **TrIBUTARY WIDTH: 40FT**
- **For Typical Beams Floors 2-5, Total Superimposed Load: 50 + 112.1 = 160 PSF**
- **Total Loading: 160 PSF**
- **40' Span, Max Loading: 8.0 KLF**
- **For Typical Slab on Floors 2-5, Total Superimposed Load: 52.1-50 = 102.1 PSF**
- **From Spancrete Site, Use 12' Standard Floor Slab, 1.5 Strand Cover, No Structural Topping, Series: 1.5D 12712**
- **Allowable Superimposed Load: 106PSF**
- **Dead Load Weight of Slab: 36 PSF**
- **For First Floor, Use Slab on Grade, Poured on Site**
- **Use 24' x 24' Columns for All Columns, Varying Reinforcement**

**Solar Power**

- **Goal:** Utilize the buildings south facade to offset electrical consumption
- **Type:** Photovoltaic Panels
- **SolarWorld SW 230, 230 Watt Monocrystalline Solar Panel**
- **Uses as Rainscreen Cladding on South Facade**
- **20,265 Square Feet of Solar Panel Area**
- **230 Watts Peak per Panel**
- **1,125 Panels Required**
- **424,996 kWh of Power**
- **Total Cost: $692,125**

**Geothermal Energy**

- **Goal:** Utilize Earth’s energy to provide heating and cooling
- **Type:** Closed Loop Vertical System
- **Florida Heat Pump - ES Series R-410 A**
- **Approximately 430 ton capacity**
- **Central Pumping System**
- **Decentralized Heat Pumps**
- **75 units required**
- **288 Vertical Boreholes @ 290’ Deep**
- **1.25” Polyethylene Pipes**

**Energy Model**

- **Typical Building Electrical Use:** 3,525,743 kWh
- **IPRO 335 Building Electrical Use:** 2,355,839 kWh
- **Typical Building Fuel Consumption:** 7,200.1 MBtu
- **IPRO 335 Building Fuel Consumption:** 1,347.8 MBtu

**LEED**

- **Required Points Total for LEED Platinum: 80+**
- **IPRO 335 Building Point Total: 110**
- **IPRO 335 Building LEED Rating: Platinum**
**Project Information**

**Building Information**
- 5 Story Mixed Use Building
- 120’ x 500’ Building Footprint
- LEED Gold Certification
- Sluicecrete Structural Members
- Site: Corner of W. North Ave. & N. Kostner Chicago, IL 60639

**Team Members & Assignments**

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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</thead>
<tbody>
<tr>
<td>John Smith</td>
<td>Senior Architect</td>
</tr>
<tr>
<td>Jane Doe</td>
<td>Lead Designer</td>
</tr>
<tr>
<td>Bob Brown</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Mary Jackson</td>
<td>Contract Administrator</td>
</tr>
</tbody>
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**Architectural Details**

**Exterior Views**

**Interior Views**

**Architectural Drawings**