Construction Guide: Wall Shape Implementation
Fractal Wind Energy System

Martin Doina
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Construction Guide: Implementing Wall Shapes in the Prototype

Materials Needed:

1. 3D Printing Filaments:
- PLA or PETG for prototyping.
- ABS or Nylon for advanced durability.

2. Energy Components:
- Piezoelectric strips or discs for energy harvesting.
- Sensors (anemometer, accelerometer) for testing.

3. Assembly Tools:
- Adhesive for joining printed components.
- Tools for sensor integration (e.g., soldering kit).

Steps for Each Wall Shape:

1. Smooth Walls:
- Print and assemble the baseline design.
- Place piezoelectric strips at focal zones.

2. Honeycomb Walls:
- Print hexagonal patterns for tube walls.
- Reinforce key areas with denser honeycomb layers.

3. Spiral Walls:
- Use spiral grooves to guide airflow and enhance resonance.
- Integrate sensors along the grooves to capture resonance behavior.

4. Vessel-Inspired Curves:
- Print tapered or curved wall structures.
- Optimize for energy density gradients by testing curvature variations.

Assembly Tips:

1. Ensure airtight assembly for accurate energy flow tests.
2. Test each wall shape independently before combining elements.
3. Document all test results for comparison and refinement.