

## Autonomous House

[Project title]

## HA14-VSOIA

[Project ID]

### HOLCIM AWARDS (MAIN CATEGORY)

#### GENERAL PROJECT DATA

<b>Project Group 1</b>	Architecture, building and civil engineering
<b>Competition region</b>	Europe
<b>City</b>	Sankt Peterburg
<b>Country</b>	Russia
<b>Client</b>	Domesworld
<b>Intervention</b>	New construction
<b>Status of planning</b>	Final design stage
<b>Status of permission</b>	Approval/license not required
<b>Planned start</b>	Feb '15
<b>Project background</b>	Research project
<b>Latitude</b>	N 59.86113°
<b>Longitude</b>	E 30.13764°
<b>Elevation</b>	1
<b>Other competition</b>	no

#### MAIN AUTHOR AND CONTACT DETAILS

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<b>Profession</b>	Engineer
<b>Position</b>	
<b>Organization</b>	
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Shevnin Yuri

# Autonomous House

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## PROJECT SUMMARY

Project autonomous apartment house on the shore of the Gulf of Finland.  
 Consists of six bulbous domes connected torus.  
 In the center of the torus tree.  
 Three residential domes greenhouse and aviary.  
 House structure formed as a multilayer gridshell.  
 Tent in the form of stitched fabric and the film.  
 Foundation of the house is made in the form of sealed containers from ferro cement.  
 Insulation - air and fleece fabric.

## PROJECT DETAILS

<b>GFA</b>	200 cu m
<b>GV</b>	800 cu m
<b>Construction costs</b>	20.000 USD
<b>Site area</b>	600 sq m
<b>Footprint area</b>	460 sq m
<b>Building height</b>	5.54 m
<b>Building depth</b>	1.59 m

## FURTHER RELEVANT KEY FIGURES

For a family of four.  
 Three residential domes.  
 Two greenhouses.  
 One aviary.  
 Six bioreactors.

## MATERIALS

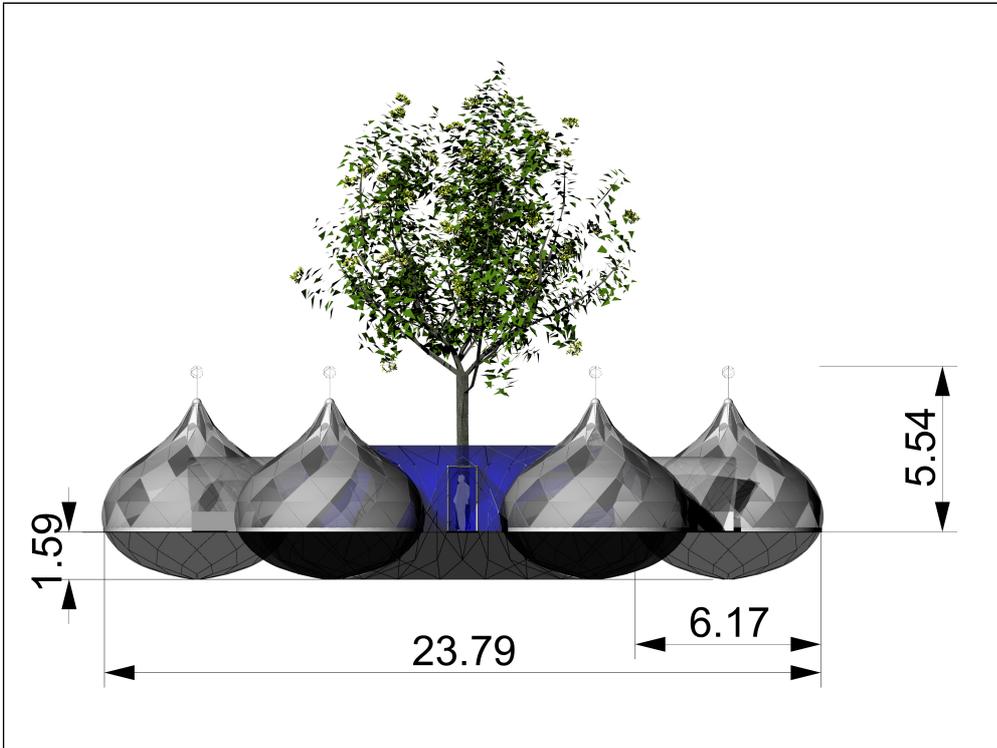
Galvanized steel wire, fiberglass pipes, PVC fabric, film and mesh, insulation air and fleece fabric, wood plank flooring, base ferro cement, lighting LEDs, wind turbines, bolts, nuts, clamps tent

## SUSTAINABILITY CONCEPT

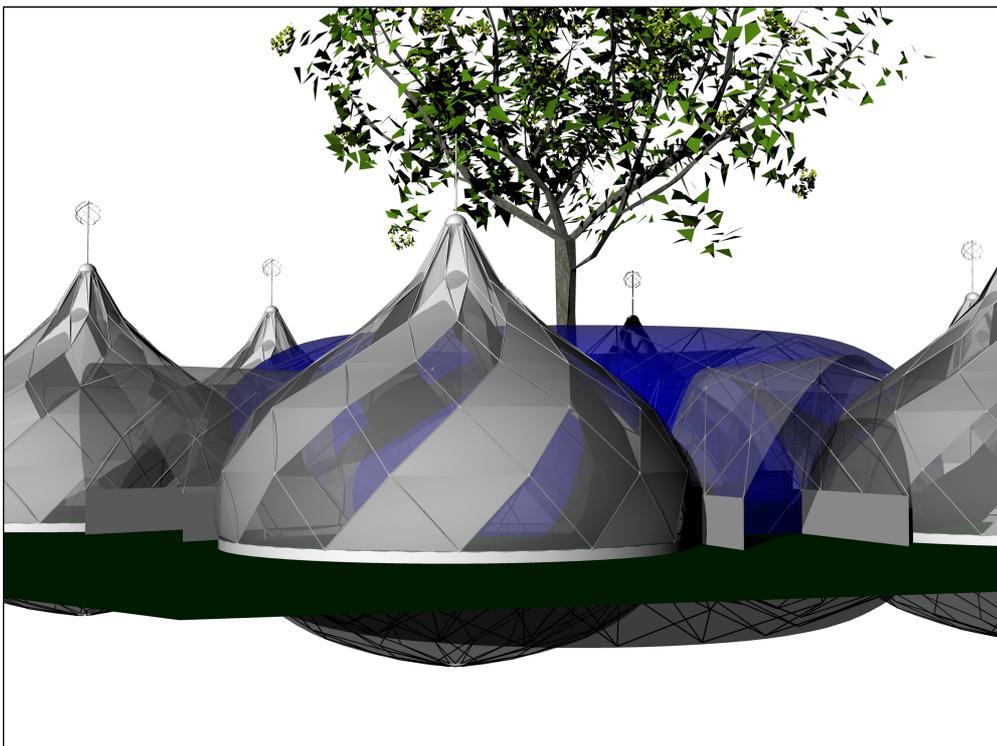
Traditional technologies and construction of residential buildings require infrastructure and the high cost of energy.  
 The draft of the Autonomous home is able to provide for their inhabitants energy needs and food.  
 Home construction is performed by two person without special tools and knowledge.  
 Production house in a small workshop and compactly transported to the site.  
 Manufacture not require expensive equipment and materials.  
 Making the frame and tent provides the minimum number of quality materials and minimal waste.  
 Home weight 1400 kg.  
 Month construction period.  
 Underfloor heating with a base bioreactor.  
 Bacteria produce gas and warm from organic waste (grass, leaves).  
 Reservoirs bases-domes uncoated cement transformed into cages for fish farming.  
 Toilet and shower are in the dome - greenhouse.  
 Wind turbines and solar panels produce electricity.  
 Lighting LEDs.  
 Adjustable ventilation by means of valves and vents.  
 Project can copy for construction of residential buildings and small environmental hotels throughout Russia.  
 Analogs, Buckminster Fuller, 4D House, System Vladimir Shukhov.

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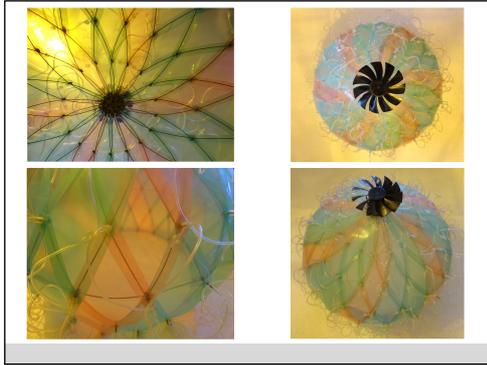
## PROJECT VISUALIZATION



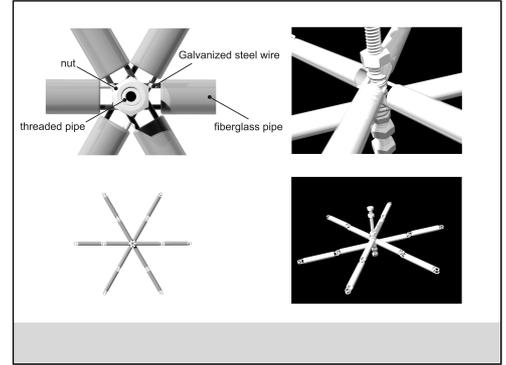
Bioreactors for organic waste collection and water, poultry houses, greenhouses, home. Materials: folding frame gridshell, cement, cloth, tape, film



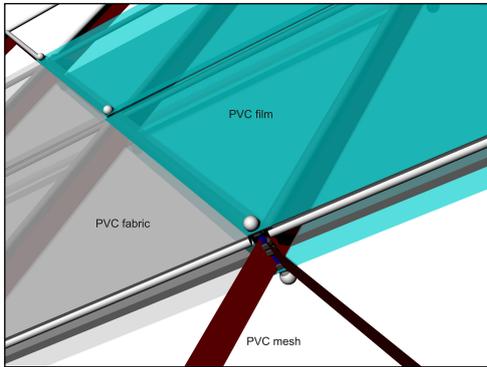
Energy, heat and gas comes from wind turbines and at the bottom of the bioreactor.



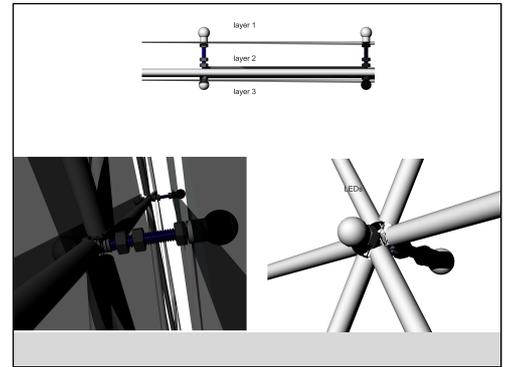
Model. Material: steel wire, bolts, nuts, plastic.



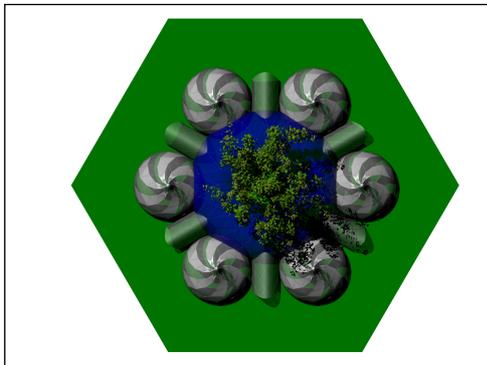
connector



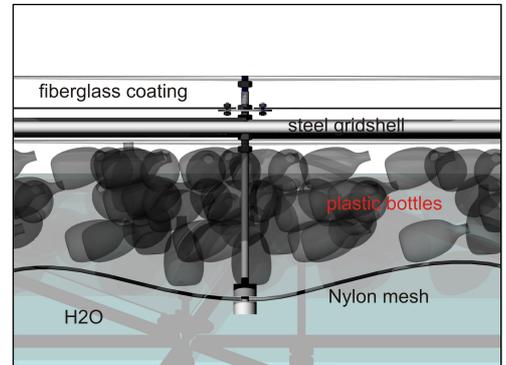
Coating layer 3, window PVC transparent film, PVC fabric, PVC mesh



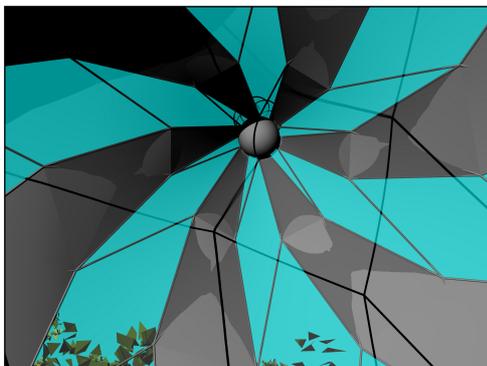
connector, coating



top view



Autonomous house capable of swimming, floating platform



interior



small hotel. Option of using technology patent RU 96883