

Ground Up

Issue 6

magazine 

EGSHPA
European Ground Source
Heat Pump Association



Thermal conductivity -
can we do better



Solar Power -
Are you eligible for a loan



Green Design:
How Green is your office

**Training
Centre
Special**

Ground Up magazine / ISSUE 6 / 5.99€



How



Following the success from our previous issue with our expert columnist, we are continuing with further articles from Ed Lohrenz, this month covering headers and how to make your GSHP installation easier and more efficient. We always welcome reader's comments and questions, so feel free to ask away and we will get back to you.

We are also featuring green build projects in this issue and looking at energy efficient buildings and investigating how to retro fit a GSHP.

Of course, we're always looking for more feedback, so please contact me direct on adrian@egshpa.com with any thoughts and suggestions. I look forward to hearing from you.

Your Editor

Adrian Bridgwater



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Configuring Headers to Make Your Installation Easier and More Efficient

page 6-8

A ground coupled heat pump (GCHP) system relies on energy transfer between fluid circulating through pipe and the soil/rock it is buried in, here we look at optimising the design for maximum efficiency.

State of the art training facility

page 10-11

GTEC Training specialise in delivery of training on renewable technologies and have just invested nearly £1,000,000 in a brand new state of the art residential training centre, this month GTEC detail the benefits of training and how training can help installers to grow your business.

Waxman Energy - Solar PV still a great investment

page 12-14

We speak to Sam Waxman, joint managing director at Waxman Energy explains why commercially, solar PV is still a great investment and why businesses should seriously consider the benefits.

Thermal conductivity - can we do better?

page 14-16

What's the Secret of Good Training? We ask the Experts – GTEC Training.

page 16-19

'GTEC Training' specialises in the delivery of training on renewable technologies and, to this end, have just invested nearly £1,000,000 in a brand new state of the art residential training centre.

450MW Scottish Offshore Wind Farm

page 20-21

Global renewable energy developer Mainstream Renewable Power announced late July the submission of plans for a 450MW offshore wind project in Scottish territorial waters. The wind power project is named Neart na Gaoithe ("NnG").

Solar Power

page 22-25

UK Businesses Now Eligible for £1million SolarLoan to Slash Rising Energy Bills and Boost Property Value.

REHAU invests in UK pipe production

page 26-27

Polymer pipework specialist REHAU has officially opened the first UK facility to produce pre-insulated pipework for the district heating and biomass sectors at its long established factory in Blaenau, North Wales.

Case Study

page 28-30

North Shore Health Academy, Stockton on Tees





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Green Design

New York Tower Museum By Labscape

page 32-37

Indianapolis to Host IGSHPA 2012 Conference and Expo

page 42-45

You still have time to sign up and attend one of the world's largest gatherings of geothermal heat pump industry experts at America's largest and longest held convention dedicated to the ground-source heat pump industry. But you will need to act soon.

News from Ice Energy

page 46-47

Air Source Heat Pumps Bringing Wind of Change the future of GSHPs.

Key retrofit considerations

page 50-51

Since the introduction of ground source heat pumps to the mainstream market for domestic heating and hot water technologies, discussion has often centred around the complexities surrounding installation procedures.



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New York Tower Museum By Labscape



By Janet F. Reeder

NAME: NEW YORK TOWER MUSEUM BY LABSCAPE

YEAR: 2007

LOCATION: USA - New York

CATEGORY: CULTURAL

SURFACE AREA: 4600 m²

PROGRAM: Museum for the Immigration after 60'S /// Permanent Exhibition //

Temporary Exhibition // Bar-restaurant // Lobby // Auditorium // Library //

Store // Bio-terraces // Offices // General Services // Storage facilities // Pier //

Ecological High-rise Building

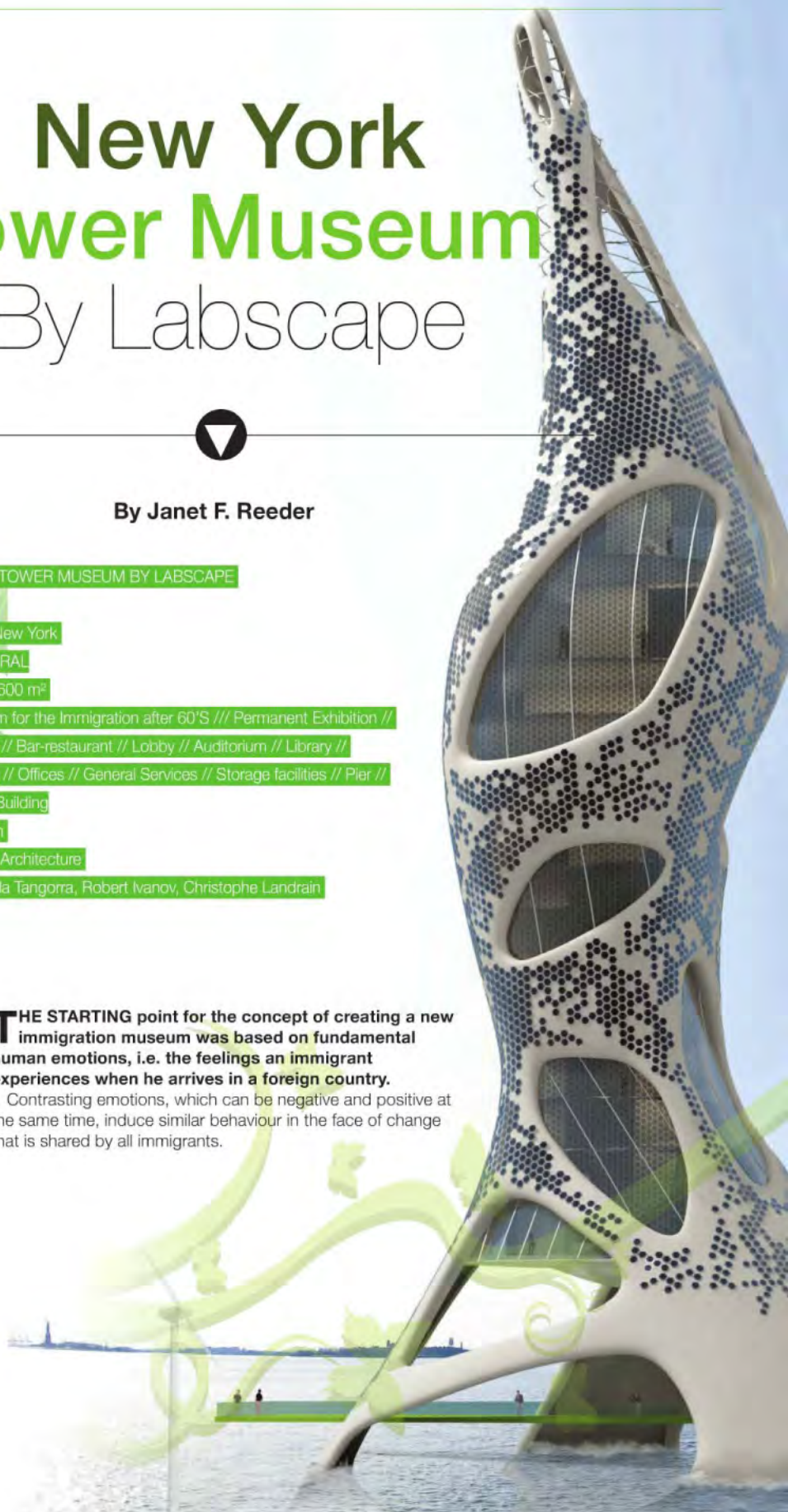
CLIENT: Arquitectum

STUDIO: LABscape Architecture

DESIGN TEAM: Tecla Tangorra, Robert Ivanov, Christophe Landrain

THE STARTING point for the concept of creating a new immigration museum was based on fundamental human emotions, i.e. the feelings an immigrant experiences when he arrives in a foreign country.

Contrasting emotions, which can be negative and positive at the same time, induce similar behaviour in the face of change that is shared by all immigrants.



The feeling of being completely lost, the change in surroundings, adaptation, isolation, integration, growing linguistic and cultural understanding, the euphoria of starting life anew and the discovery of the "New World" were the basis for the architectural development of the museum.

Based on these notions, the first aim was to banish the monotony that is very typical of towers. We therefore created for the visitor a feeling of disorientation, a change of scenery, and also a lack of guidance in finding their way from one storey (or programme) to another.

The desire to provoke an emotion, a change of state, the stimulation of interest, the slow and often complicated understanding of the space and surrounding environment were the first steps in the creation of this symbolic place in New York.

Another important element is the migratory flow, the mix of different populations and cultures leading to the one great body of people.

A variety of apertures and walls allow the visitor to have an unexpected and amazing 360° view of the urban and aquatic surroundings, to alternate between the open (terraces), half-open and enclosed spaces that form the structure and shape of the building.

AN ECOLOGICAL TOWER - AN ENERGY SELF-SUFFICIENT BUILDING

The shape of the tower is not only generated by the symbolic thoughts of every immigrant, but is also linked to a sustainable ecological system, energy efficiency and a contrasting relationship with the urban environment.

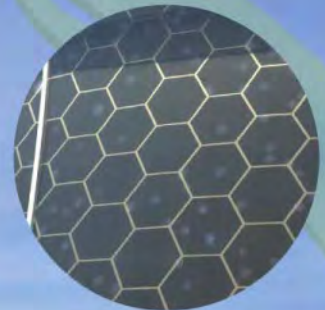
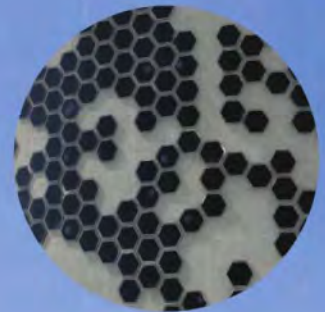
The building sits completely in the water, where the pier is the only access to the building. This symbolises the detachment of the foreigner with his country. And mark the detachment with the city grid.

The building has an aerodynamic & asymmetric body, supported by 4 huge structures rising from the water; creating an open-air public space and an axis between Battery Park and the Statue of Liberty.

After considering the sunshine, wind and climate patterns, we created a structure with apertures facing south, in order to maximize ventilation and the amount of sunlight entering the building.

MATERIALS & RECYCLED MATERIALS

The towers manufactured out of concrete ultra-high performance Ductal®, durability, and strong resistance to the external aggressions like abrasion, the bad weather and pollution. The White concrete helps to mitigate the urban heat island effect. The shell components are pre-assembled in factory and bring on site for final assembling. This will reduce significantly the waste due to the construction on the site.





WIND TURBINES

57 small wind turbines positioned at the top of the building.

GREEN TERRACES & MODERATE GREENHOUSE

The vegetation ensures a solar protection of the exposed frontages and refreshes the terrace & greenhouse. In the meantime, it provides terraces for the restaurant and the bar.

THE PHOTOVOLTAIC CELLS

More than 2000 m² Photovoltaic cells (Thin Film Solar Cell mono-crystalline) are integrated into the fabric of the façade generating a significant amount of free energy. These cells are positioned on the façade of the building and act as a double skin. This allows creating an interesting pattern covering the building.

THE TRANSPARENT PHOTOVOLTAIC CELLS

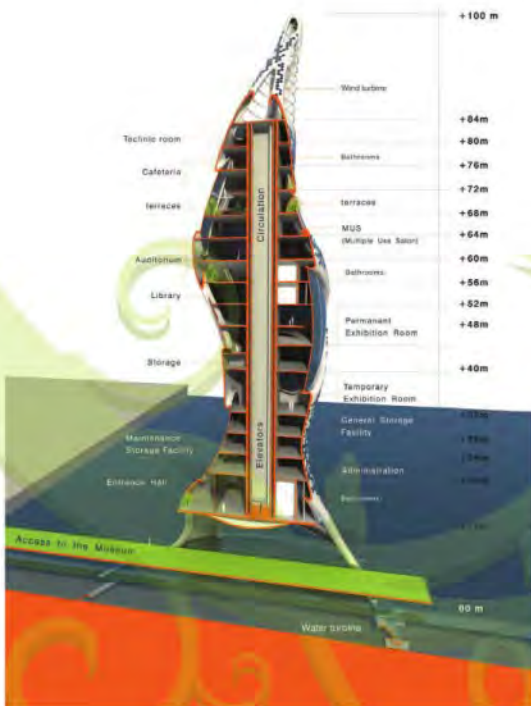
Windows are covered by semi-transparent photovoltaic cells, acting as protective screens and generating energy. The multifunctional characteristics of the "POWER Cell" satisfy the requirements of transparency, production of energy and shadows inside the building. The optical effect creates a connection between the outside and the inside while the generated shadow reduces the energetic requirements for the conditioning of the premises.

WATER TURBINES 18 water turbines are placed on the base of the building (under-water), generating rotating motor that takes energy from moving water.

WATER PURIFICATION

The complete skin of the building is acting as an enormous water filter. It takes the water from the river and purifies it, using the technology of Nano Ceramic utilizing the principle of electro-adhesion and Nano technology; Nano Ceramic is capable of removing a wide range of water borne contaminants including bacteria, cysts, viruses and colloidal particles. This allows using the water of the river for all wet purposes of the building including drinking water.

All these components and technologies make a full and complete self-sufficient building not attached to the city grid.



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