



NEW CONSTRUCTION  
TECHNOLOGY

ECO  
THERMO  
HOUSE



# Building Objects

EPS Panels Building System has been proven in commercial projects as well as single and multifamily residential projects.



## **COMMERCIAL**

- Government buildings
- Educational buildings
  - Industrial buildings
  - Military buildings
- Religious buildings
- Transport buildings
  - Infrastructure



## **RESIDENTIAL**

- Villas
- Townhouses
- Apartments
- Bungalows
  - Annexes
- Additional floors
  - Hangars





# Technological application variants

**Various types of panels,  
used in projects**



**without design or  
build limitations.**



# Technological application variants

**Construction possible  
in places hard  
to reach**



# Technological application variants

## Construction on and near water





# Technological application variants

**Disassembling  
buildings easily**



**and installation  
on a new site**



# Technological application variants

**Adding additional stories  
to existing buildings**



**or extensions are  
very easy and  
cost effective**



# Technological application variants

**Using panels  
as insulation walls.**





# PRICES AND EXAMPLES

## ECO THERMO HOUSE



### Examples and Prices

#### **EcoThermoHouse™ technology**

is without design limitations resulting in greater versatility for architects. Arched roofs, arched windows, curved walls and other complex designs have never been easier or more material efficient.

Prices are calculated per square meter of the materials for the walls, floors and roof panels. Since project applications and structural load requirements often dictate the size and type of panels needed, our standard policy is to provide quotations from architectural drawings.

Our company, for an additional fee, can provide **engineering** on a case by case basis.

The price per square meter of the wall may vary between different types of panels. In most cases, we adapt customer's plans to our system, but we can also provide a limited number of stock plans, pre-engineered to maximize the benefits of Panels. We will be happy to give you a quotation for your set of drawings.

# EcoThermoHouse™ technology

## Examples and Prices



### **Villa A**

**2** Bedrooms  
**84m<sup>2</sup>** (living space)  
2 floors, balcony, pergola  
Parking place

Panel Set  
walls, floor, roof

**12.565 €**





# EcoThermoHouse™ technology

## Examples and Prices



### **Villa C**

**3 Bedrooms**

**150 m<sup>2</sup> (living space)**

2 floors, balcony, pergola, boiler

Parking place



Panel Set  
walls, floor, roof

**14.278 €**

### **ECONOMY \* BUILDER BENEFITS**

**EcoThermoHouse™** introduces the latest advancement in technology and gives all the benefits and savings both to the Builder and House-owner.

Benefits accrue well beyond the design and construction budget through:

#### **Technology**

- to use the simplest foundations, as lightweight construction and a cement pad of 40cm;
- no heavy machinery and equipment is needed for the installation; minimal site disturbance;
- high speed of construction (framing of 200m<sup>2</sup> house can be erected in 2 weeks);
- ready-made panels include pre-framed doors and windows, thereby framing time can be cut by at least 50%;
- using the patented EPS attachment method allows for closing the roof without trussing;
- environmental building site with minimal construction waste off-site, non on-site;
- recyclability of all components in the event of deconstruction.

#### **Money**

- extremely competitive price of the Panel set compared to conventional building materials;
- savings in labour cost, i.e. eliminating the need for highly skilled installation contractors and reducing the crew;
- reduces greatly transport charges;
- no need for the closing of the building site;
- substantially saving material cost for finishing, owing to the fact that the walls are straight and flat;
- panels are made with EPS and insulation values are maintained and maximised. No need to buy extra insulation materials;
- waste and clean-up costs are minimal;

# **ECONOMY \* HOUSEOWNER BENEFITS**

**EcoThermoHouse™** introduces the latest advancement in technology and give all the benefits and savings both to Builder and House owner.

### **Technology**

- movable construction system allows easy disassembling and removal of the house to another site;
- the house is sturdily built and protected against earthquakes, hurricanes, and other natural disasters;
- there is no concrete shrinkage with this technology;
- substantial energy savings due to construction of the building with this technology;
- ECO indoor air quality, as in wooden houses, resulting in a Thermos effect, i.e.

**HOT in winter and COOL in summer**

### **Money**

- significant savings of time on the project reduces project costs;
- owing to the speed of construction of this house, bank loan will be more widely available;
- the low-energy house, will result in greatly reduced utility bills;
- air conditioning and heating costs reduced by up to 1/3;
- fewer a crew; opportunity to erect EPS walls yourself will save greatly on time and labour costs;
- savings made on construction materials: plastering, insulation, frames and truss system;
- savings made with the reduction of waste disposal

**EcoThermoHouse™** : Owning an EcoThermoHouse will not only save you money during and after construction but will continue to save you money for many years to come .



# PROCESS OF PROJECT

## ECO THERMO HOUSE



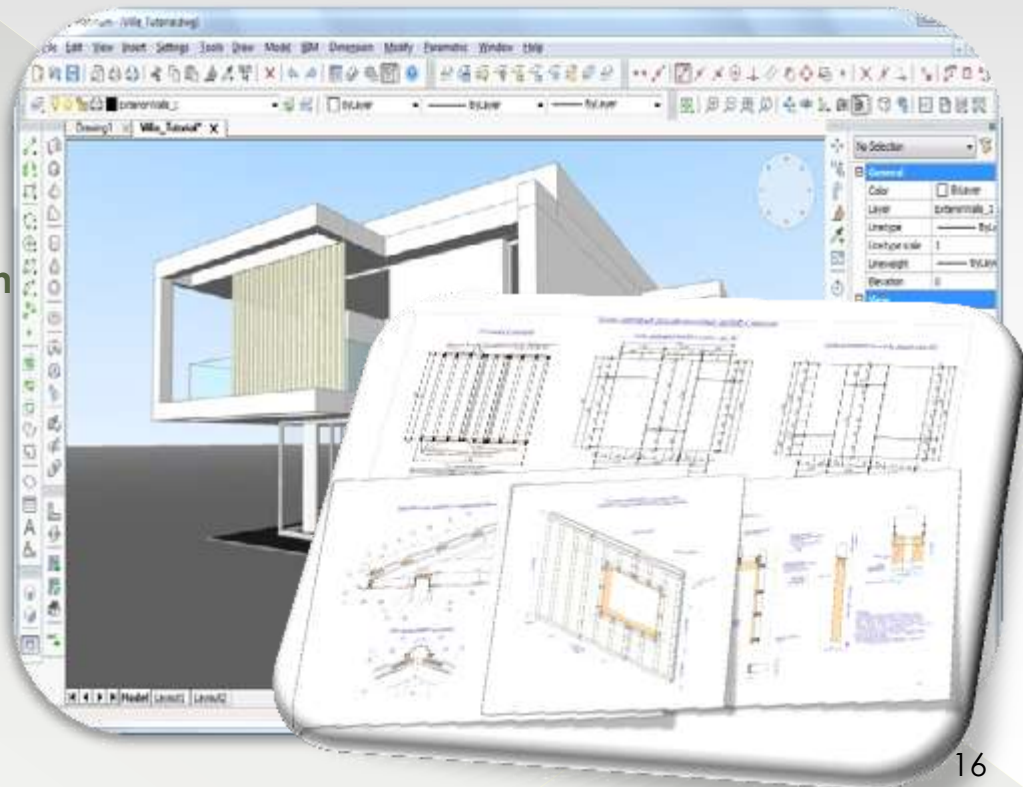
## PROCESS OF PROJECT



Pre-project drawings can be presented to the company initially. The company can also offer many standard projects to suit your personal needs or help you start from scratch.

Our planning and design Department then creates a technical album, consisting of all specifications and plans, such as:

- panel system connection drawings;
- water – supply engineering;
- heating system;
- sewerage system;
- electric supply.



## PROCESS OF PROJECT

Manufacturing of the panels according to the project,

**10 days**



where all the panels, bearing walls, interior and exterior walls are made from the drawings in accordance with the labels (numbers) applied by each panel.



**35 days**

Transportation of the panels to the Buyer's point of delivery





## PROCESS OF PROJECT

“specialist supervision”

Installation supervision under the guidance of our experts

14 days



Congratulation!

Completed project!

61  
days



# CHARACTERISTICS

# ECO THERMO HOUSE



# STEEL Frame + EPS

## Expanded Polystyrene

### EcoThermoHouse™

is a unique patented process utilizing the power of composite technology. A structural grade double **steel frame** with rigid, fire retarding **EPS** bonded to the steel frame with heat activated adhesive, produces a light weight composite panel that provides structural framing, insulation and vapour barrier in one fast, high-tech step.





## EPS Panel - Types



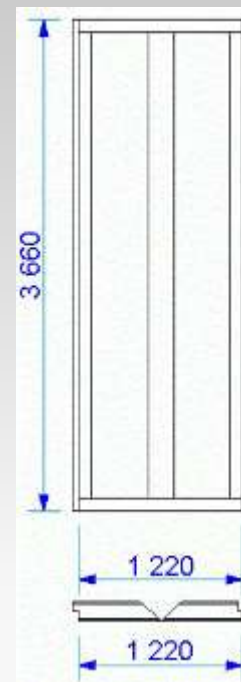
wall  
floor  
roof



window



door



## EPS Panel - Types



angle



radial

**EPS panels** are specifically designed for each project and panel sizes vary depending mostly on door and window sizes. Our standard policy is to provide quotations from architectural drawings.



## CHARACTERISTIC OF THE PANELS



Studs are manufactured from 24 gauge, **G-90 galvanized steel, 0.7 mm** and are positioned on both sides of the panel. This steel is also utilized as edge metal at the top and bottom of each panel.



### Thickness:

89 mm  
100 mm  
140 mm  
150 mm  
210 mm

### Width:

1220 mm max.

### Length:

3660 mm max.



### Weight

**30 kg**

Light and  
easy to handle.





## load – bearing capabilities

vertical  
compression

9500 kg



horizontal  
compression

3000 kg



lateral  
compression

600 kg



## CHARACTERISTIC OF THE PANELS



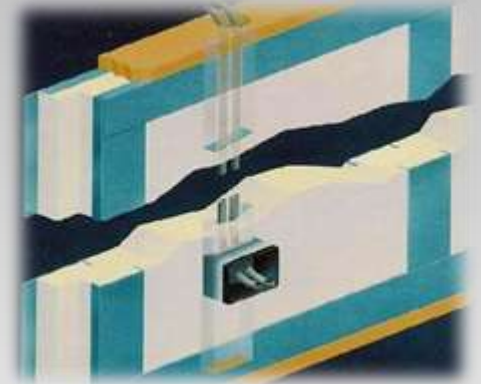
**shiplap interlock**

Panels interlock with shiplap joints and self-tapping tech screws. The preferred method is to use metal track for the top and bottom plate.



**no thermal bridges**

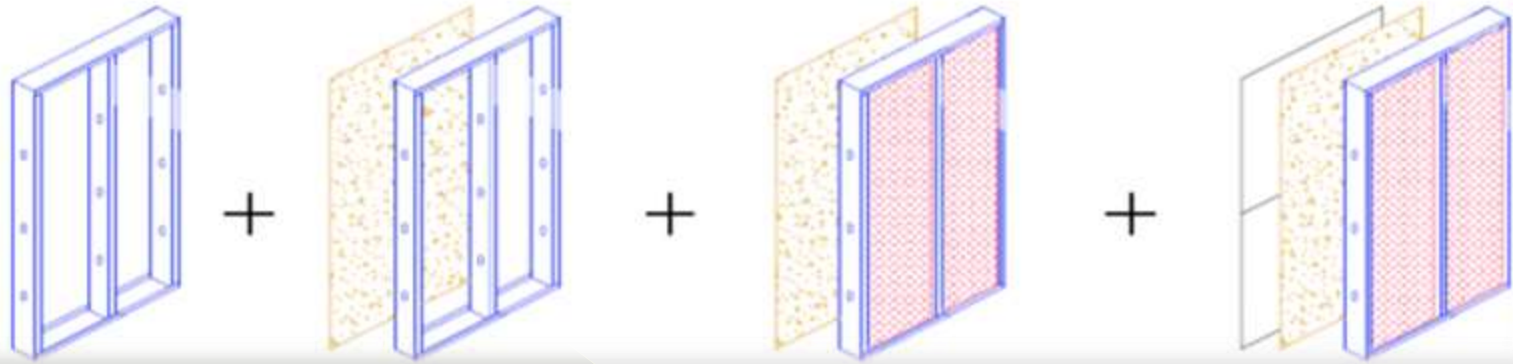
Combined with advanced expanded polystyrene (EPS), an airtight building envelope of maximum thermal performance is produced, providing superior installation with near-zero air leakage to maximize the performance of the building envelope.



**electrical wiring**

The panel also has a unique moulded horizontal and vertical chase to accommodate electrical wiring. Other chases for plumbing and wiring are usually made with a hot knife.

# Uses of EPS Panels





# BUILDING PROCESS

# ECO THERMO HOUSE



## Principle of interlocking



*Using metal track for the bottom plate*



*screwing*



*Cutting window and door openings*

Combinations of pre-insulated components are screwed together to form unique high performance energy ThermaPanels that is fast, lightweight and extremely strong with superior thermal properties. Rough openings for doors and windows are formed during the manufacturing process. Panels interlock with shiplap joints and self-tapping tech screws. The preferred method is to use metal track for the top and bottom plate.

Erecting EPS walls yourself can save valuable time and labour cost.



# EcoThermoHouse™ technology

## Building process



***Constructing foundation***



***Placing metal tracks for walls***



***Beginning from the corner***



***Windows and door cutting***



# EcoThermoHouse™ technology

## Building process



# Exterior and interior cladding

Any type of cladding may be field applied to the interior and exterior sides of the panel similar to traditional construction methods.  
The flat surface of panels allows to save a time and costs of finishing materials.



Natural stone



Imitation stone



Aluminum siding



Classic plaster



Stucco italiano



Natural brick

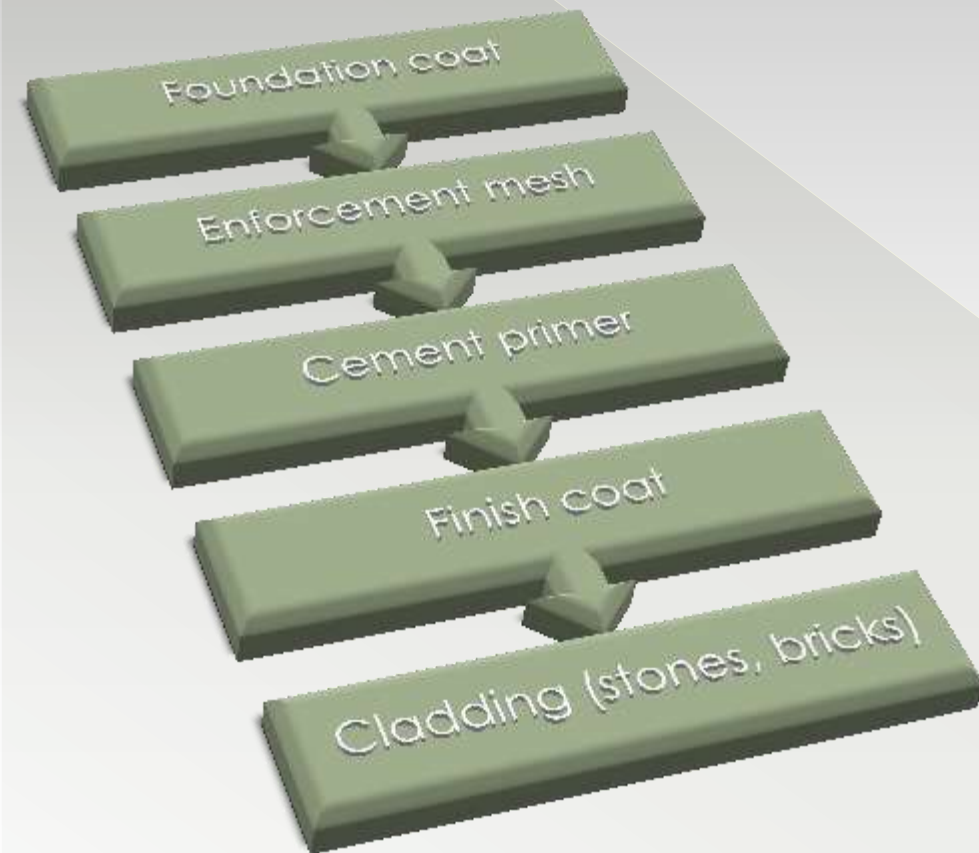


Wood siding



Vinyl siding

# Layers of coating





## ADVANTAGES AND BENEFITS

### Environmental stress condition

**-60 C°**



**+50 C°**

an airtight building envelope of maximum thermal performance providing comfortable, healthy and safe indoor air quality

**Thermal Climate indoor:  
HOT in winter and COOL in summer**

### ENERGY - savings

**EcoThermoHouse™** is super energy efficient thereby substantially reducing energy bills and keeping you and your family permanently comfortable in the house . The house will also have a unique thermal climate owing to the use of the advanced EPS in the construction .

**THINK** about zero-energy housing of the future together with lower maintenance. Little need for much heating in the winter and little need for the use of air conditioners in the summer. After heating the house the temperature will remain consistent for around 8 hours.



*\* energy loss in a standard brick house*

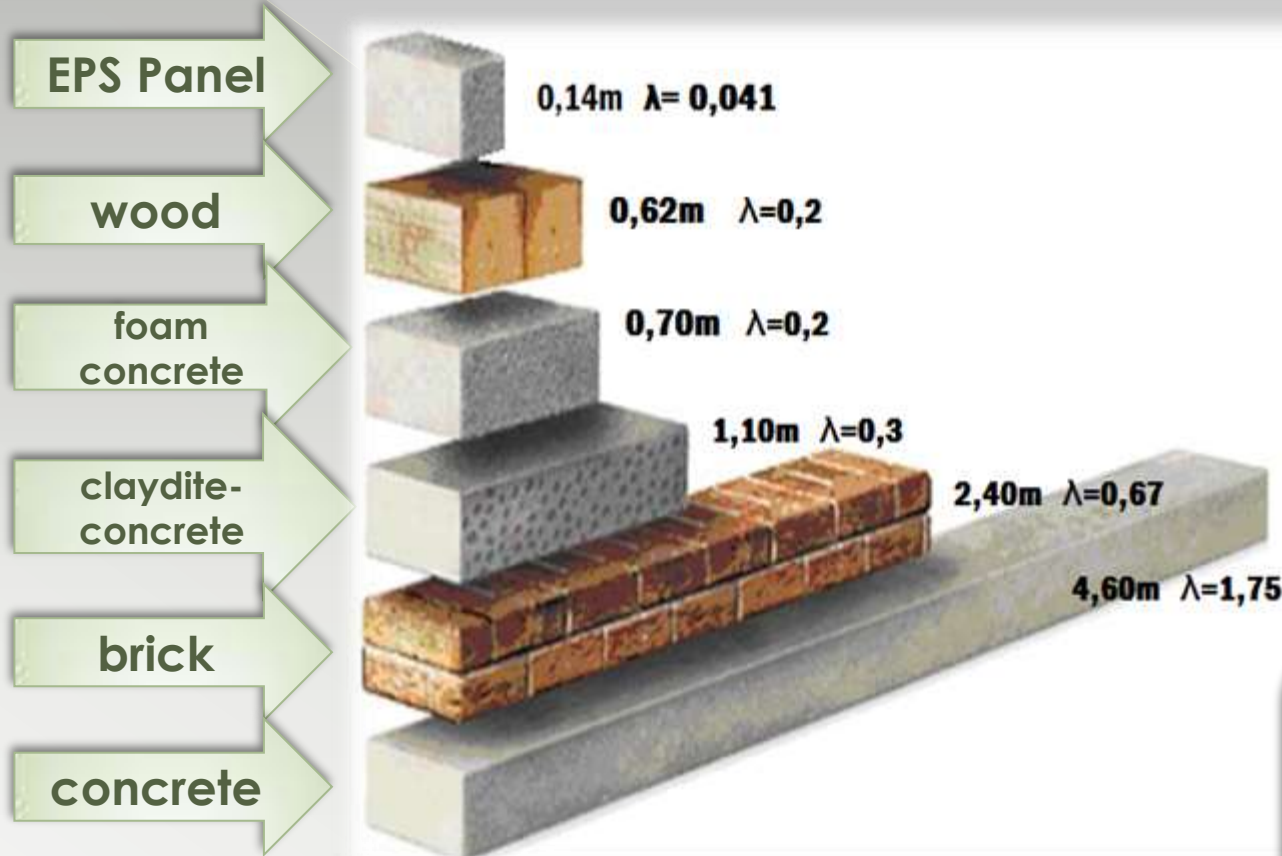
The savings on energy cost can be huge, up to **80%**:

Example: 200 € (month) x 12 (year) x 5 years = **12.000 €**

**Overall:** air conditioning and heating capacity reduced by up to **1/3**.



## Thermal conductivity coefficient



EPS Panel **0,14 m**

width is equivalent to

brick wall **2,4 m,**

concrete wall **4,6 m!**

**K Value**

**0,041**

**W/m\*K**

K-Values are consistent and stable due to the closed cellular structure, which contains stabilized air.



## ADVANTAGES AND BENEFITS

### Fire resistant

Panels have a **fire retardant ANTIPYRENE HBCD** added to the EPS mixture during construction that will not support a flame in event of fire. There is no off gassing, because the panels contain no CFC's or HCFC's, no formaldehyde. This assures the very best fire ratings for both code officials and insurance agencies. Fire tests have proven that EPS gives off fewer toxins than conventional wood framing.



Flame  
explosive  
limit is zero

0

Energy  
polystyrene  
proportion in  
the combustion  
process of less

than **2%**

Grade  
of fire  
resistance  
(hour)

**0,75**

Fire  
behaviour-  
melts  
and then  
degrades,  
i.e. passes in  
a gaseous  
state.



## ADVANTAGES AND BENEFITS

### Environmental stress condition

**Acoustic**  
**45 dB**

Normal 41 dB



**Earthquake**

**9 mag**



**Hurricane**  
**150 km/h**



**Flood**

Water absorption  
is max.

**2%**



Panels, unlike wood, will stand up for decades in its original shape it was the first day built. The panels are protected against moisture, mold, mildew, decay, termites (EPS treated with Timbor), pests and allergens.

termites



rats



mildew



corrosion



decay



## ECOLOGY

### EcoThermoHouse™ technology

is by using "Build Green Structural Insulated Panels", also by using G90 galvanized Steel and material efficient EPS (both 100% Recyclable) - results in

- a light-weight product (environmentally preferable for transportation) with
- minimal construction waste off-site, non on-site,
- minimal site disturbance (no heavy equipment needed for installation), and
- recyclability of all components in the event of deconstruction
- are non toxic, no off gassing in event of fire
- a reduction in the contributory costs of the built environment to global warming and the qualitative attributes of healthy buildings.

**THINK about the planet, especially forest depletion  
by using "Green products".**



*\*\*\*Panels meet or exceed all building codes and green building standards.*



# Our Objects



School - Art House

Auto Salon



# Our Objects



**Car Wash Station**



**Expo Centre**

# Our Objects



Hotel 24 rooms

Mini Market





# Our Objects



Kindergarten

Factory



# Our Objects



Church

Apartments



# Our Objects



**Commercial Bank**

**Hotel 30 rooms**





# Our Objects



**Sports Skiing Centre**

**Yacht Club**



# EcoThermoHouse© technology

Speedy Construction

Cost Effective

Energy Savings

Economical

Eco - Friendly



# EcoThermoHouse™ technology

## Our contacts



\* show-room "Limassol"  
Spyrou Kyprianou Ave, Limassol, 3077 Cyprus  
(near Agip PS)



\*\* show-room "Lysos – Panorama Hills"  
Meladeia, Pafos, Cyprus

## Office in Cyprus

**"Wellingtonia Enterprises Ltd."**

Exclusive importer

**"Chrysostomou & Theocharous Developers Ltd."**

General partner

20, Gianoulli Chalepa Str., 3060, Limassol, CY  
P.O.Box 57338, 3315, Limassol, CY

Tel.: +357 25 575159

Fax: +357 25 575585

Mob.: +357 99040077 (RU\_EN)

Mob.: +357 99642006 (GR\_EN)

EML: [eco@cyprus-property4sale.com](mailto:eco@cyprus-property4sale.com)

[www.cyprus-property4sale.com](http://www.cyprus-property4sale.com)

FB: EcoThermoHouse



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