



**greeneng**  
Green Engineering

**INNOVATION**  
Construction & Insulation & Arts



Presented by Bülent Gürakın

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# CONSTRUCTION AND INSULATION MATERIALS & TECHNIQUES OF THE FUTURE

THE FIRST INDUSTRIAL MATERIAL USED BY HUMANITY: CLAY + NATURAL POZZOLANS

PITC DECK







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Proje yöneticileri



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## PITCH DECK İÇERİĞİ

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## THE MAIN PROBLEM WE FOCUS ON THE SOLUTION

### **Extraordinary energy loss caused by uninsulated buildings:**

Today, 90% of the buildings in the world are uninsulated.

1/3 of the energy produced in the world is used in the heating and cooling of the buildings.

Energy production alone is responsible for 40% of the world's carbon emissions.

A standard insulated structure, compared to an uninsulated structure; It consumes 10 times less energy in heating and cooling.

A perfectly insulated building can be heated and cooled with 15 times less energy.

While the annual energy requirement for heating and cooling a building is 30-60 kWh / m<sup>2</sup> in Germany, where building standards are based on scientific foundations, it is 250-350 kWh / m<sup>2</sup> in Turkey.

Germany is much colder in terms of climate and its gross national product is 9 times higher than Turkey.

This is the picture worldwide, with the exception of a handful of developed countries.

This is a huge paradox.

### **Unhealthy and environmentally enemy synthetic insulation materials:**

The problems created by these materials last for decades in the buildings they are used in, and for centuries in nature after they become waste. The sustainable environmentally friendly materials we have developed are an excellent alternative in this regard.





## THE MAIN PROBLEM WE FOCUS ON THE SOLUTION

**A new generation of construction materials focused on problem solving and bearing these features as an alternative to conventional construction materials that are inadequate in solving problems and new techniques to use these materials:**

The construction sector does not leave its carbon footprint only while constructing the building. After leaving the building to the user, it continues to leave this carbon footprint throughout the life of the building, depending on the material and technique used. This adds up to incredible numbers.

**Ensuring that the sustainable main material we have developed is used as a problem solver in other industries.**

As a result:

The main goal we focus on is; "TO CONTRIBUTE TO THE SOLUTION OF THE ENVIRONMENTAL RISKS THAT THE WORLD FACES BY DEVELOPING NEW, SUSTAINABLE AND NATURAL-FRIENDLY INDUSTRIAL RAW MATERIALS AND TECHNIQUES TO USE THESE RAW MATERIALS".



## THE RESULT WE WANT TO REACH

### **New environmentally friendly materials and new techniques using these materials**

Although the problem seems very big and unsolvable, the root of the problem in the construction sector is hidden in solving the problem from the very beginning, that is, while the building is being built. With the new materials and construction techniques we have developed, "extremely economical, healthy and comfortable buildings with full insulation, requiring very little energy in heating and cooling, and easily accessible by lower income groups can be built.

**At the same time, the materials we have developed can be used as problem solvers in other industries.**



## CONNECTED PROBLEMS

"A shameful 50-year-old story of pollution within a civilization story of tens of thousands of years"



### UN AVOIDABLE, PERMANENT ENVIRONMENTAL POLLUTION

Too much profit in a short time +  
Unconscious overconsumption +  
Uncontrolled industrial  
production = rapidly deteriorating  
ecology



### BUILDINGS THAT CONSUME EXCESSIVE ENERGY AS LIVED INSIDE

Obligation to pay very high  
environmental costs for  
comfort



### PARADOKS = DESTROYING ECOLOGY FOR AN SUSTAINABLE ECONOMY

The last bill all living  
things paid



### LOTS OF CARBON EMISSIONS & CLIMATE CHANGEİ

The bankruptcy of the  
development story

3



## FOCUSING ON SOLUTION



INSULATION AND BUILDING  
SOLUTIONS IN HARMONY WITH  
NATURE REQUIRED

---

An old but renewed  
perspective



WE ARE VERY CREATIVE BUT IT  
CANNOT BE REMEDY THAT WE  
ARE VERY SMART ...

---

Are the solutions we found rational ..?  
Not enough  
The result: an ecology that cannot renew  
itself



THE RIGHT TIP FOR THE SOLUTION

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A material without a pollution  
story for tens of thousands of  
years: CLAY



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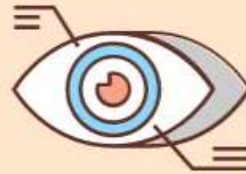
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## FOCUSING ON SOLUTION



IN OLD TIME PEOPLE WERE NOT  
SMARTER THAN US BUT MAYBE  
THE SOLUTION IS HIDDEN IN  
THE PAST OF HUMANITY

An old but new alternative  
= CLAY + POSOLANS



A NEW PERSPECTIVE TO OLD  
SOLUTIONS WITH INNOVATION

A brand new alternative solution  
that has been tried and is suitable  
for human and nature: CLAY +  
POSOLANS



RESULT: A COMPLETE SUCCESS

Ancient civilizations may be  
right to prefer clay and natural  
pozzolan.





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GREENG INNOVATION SOLUTIONS

**CHARACTERISTICS OF THE MATERIAL WE DEVELOPED**

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## MATERIAL WE DEVELOPED Clay + Natural Pusolan OUR MATERIAL HAS TWO DIFFERENT FORMS



"All the materials we have developed are different forms of these two materials."

### Nonporous Clay + Natural Pozzolan(GreCer)

- 1 100% ecological Clay + Natural pozzolana origin, non-porous, compressive strength adjustable from 20 MPa to 60 MPa (it is possible to increase this figure in special forms), showing ceramic properties, resistant to all kinds of natural conditions, resistant to water, A1 class fireproof, environmentally friendly, 1600 - 2500 kg / M3 density industrial material.

### Porous Clay + Natural Pozzolan(GrePor)

- 2 100% ecological, porous, resistant to all kinds of natural conditions, A1 class incombustible Clay + Natural pozzolana origin super insulating capability, 60 - 400 kg / M3 density, 0.020 - 0.15 W / mK insulation coefficient, 100 kPa', which we developed as a result of our R & D studies. Mineral insulation material with compressive strength from 7 MPa (it is possible to increase these numbers in special forms).

### The main feature of our material that makes it "special and unrivaled in its field"

Since both materials (GreCer and GrePor) have the same origins, they can be applied in layers in the same process. In other words, a single product with excellent properties can be obtained by applying an extremely hard surface of the desired thickness and a second layer of the desired thickness with an extremely light, excellent heat and sound insulation ability.

Since both materials come from the same origin, they are molecularly and chemically linked and show the properties of a single layer. They do not tend to be separated from each other by time, climatic conditions, mechanical and chemical effects and have an infinite life.



# IT IS A PROJECT THAT HAS BEEN WORKED ON THE PROJECT FOR LONG YEARS, BRING TO TRL 7 LEVEL, READY FOR TRL 8 - 9 LEVELS

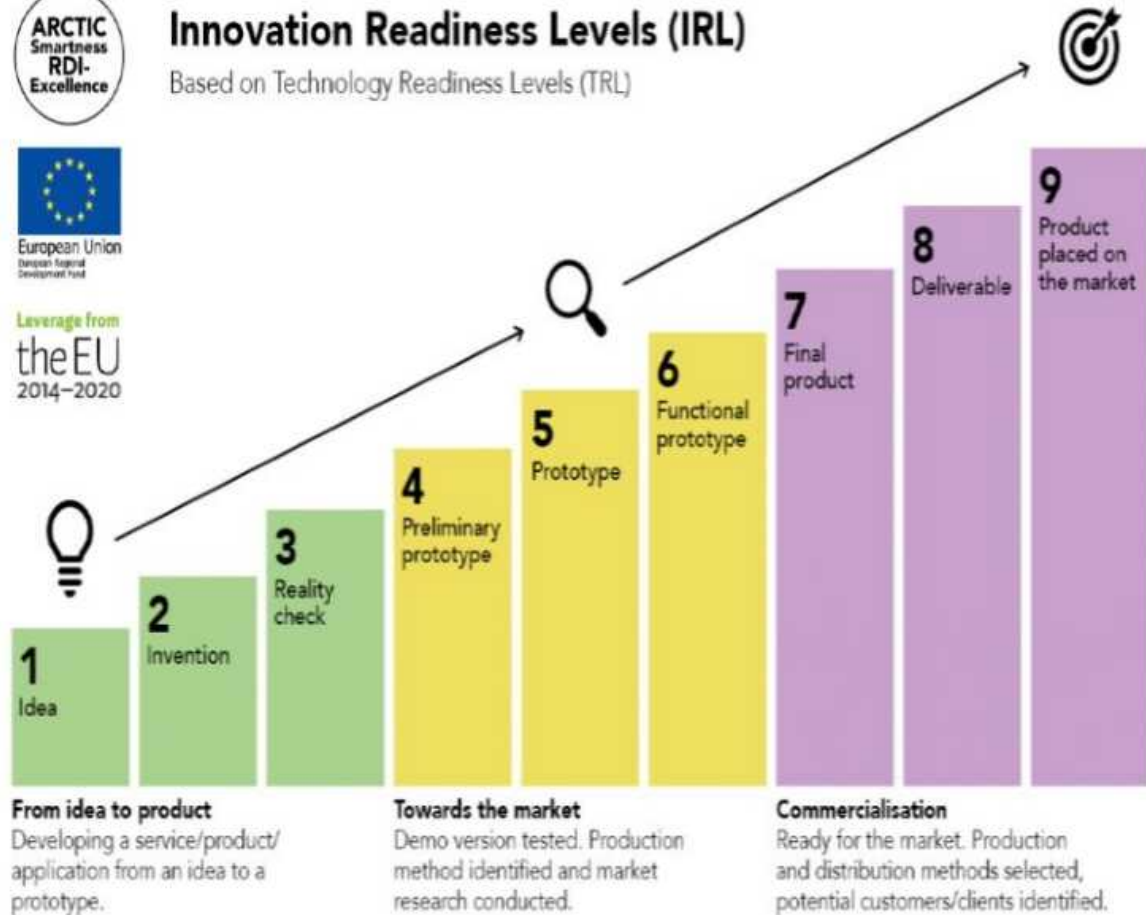
The project started in 2015, and in 2018 it turned into an official project and received support from the establishment of the Republic of Turkey KOSGEB. In December 2020, the first phase was finalized with high success. The second and third phases of our project are being prepared for implementation in line with the new data emerging.



Leverage from  
the EU  
2014-2020

## Innovation Readiness Levels (IRL)

Based on Technology Readiness Levels (TRL)



OUR MATERIAL IS “ECOLOGICAL AND CARBON FOOTPRINT EXTREMELY LOW BUILDING MATERIAL AND INDUSTRIAL RAW MATERIAL. IT HAS NO COMPETITOR IN THE ECOLOGICAL BUILDING MATERIALS MARKET.



All the negative features that are ignored in all products in the ecological building materials sector (impermeability to water, insufficient insulation values, limited product variety, supply difficulty, need for expertise, very high prices, etc.) have been eliminated as a result of our R&D studies. You can see the product groups we have developed for this market and more on our website at

[www.greenginovation.com](http://www.greenginovation.com)



## THE MATERIAL WE HAVE DEVELOPED IS A 1 CLASS FIREPROOF MATERIAL

Since it consists of only clay + natural pozzolanes, it does not contain any flammable components. It does not trigger fire or release deadly gases.



## FURTHER BUILDINGS THAT REQUIRE INSULATION, WARM IN WINTER, COOL IN SUMMER



In total, excellent optimum  
isolation in the constructed  
structure + lossless with very  
low energy,  
excellent heating & cooling





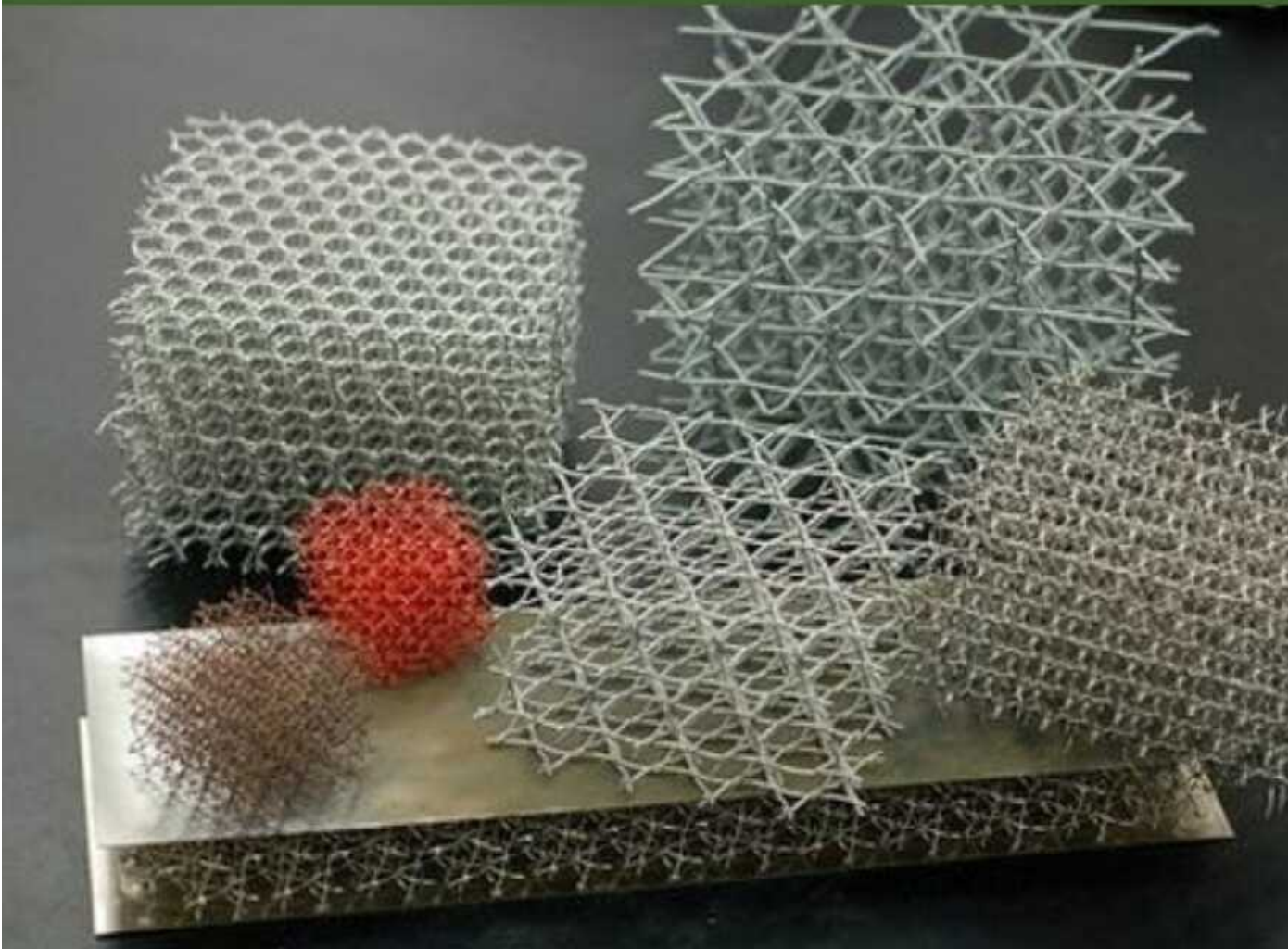
## SIX TIMES LIGHTER AND MUCH HIGHER BUILDINGS

When all three phases of the project are completed, it will be possible to make the buildings to be built with our material extraordinarily light. This feature will bring advantages such as significant economy in construction cost, much less energy consumption as the building does not require insulation, less raw material use and resistance to very severe earthquakes with its flexible structure.





## USE MUCH LESS CARRIER ELEMENTS...



Much lighter carbon fiber, glass fiber fibers or carrier materials made of these fibers instead of iron = much less use + economy + very low carbon emission.





## VERY LOW CARBON FOOTPRINT ON A GLOBAL SCALE

Extraordinary global economy  
when our material is used widely  
+ much more  
less carbon emission.



# EASY ACCESSIBLE COMFORTABLE HEALTHY BUILDINGS FOR LOW INCOME GROUPS



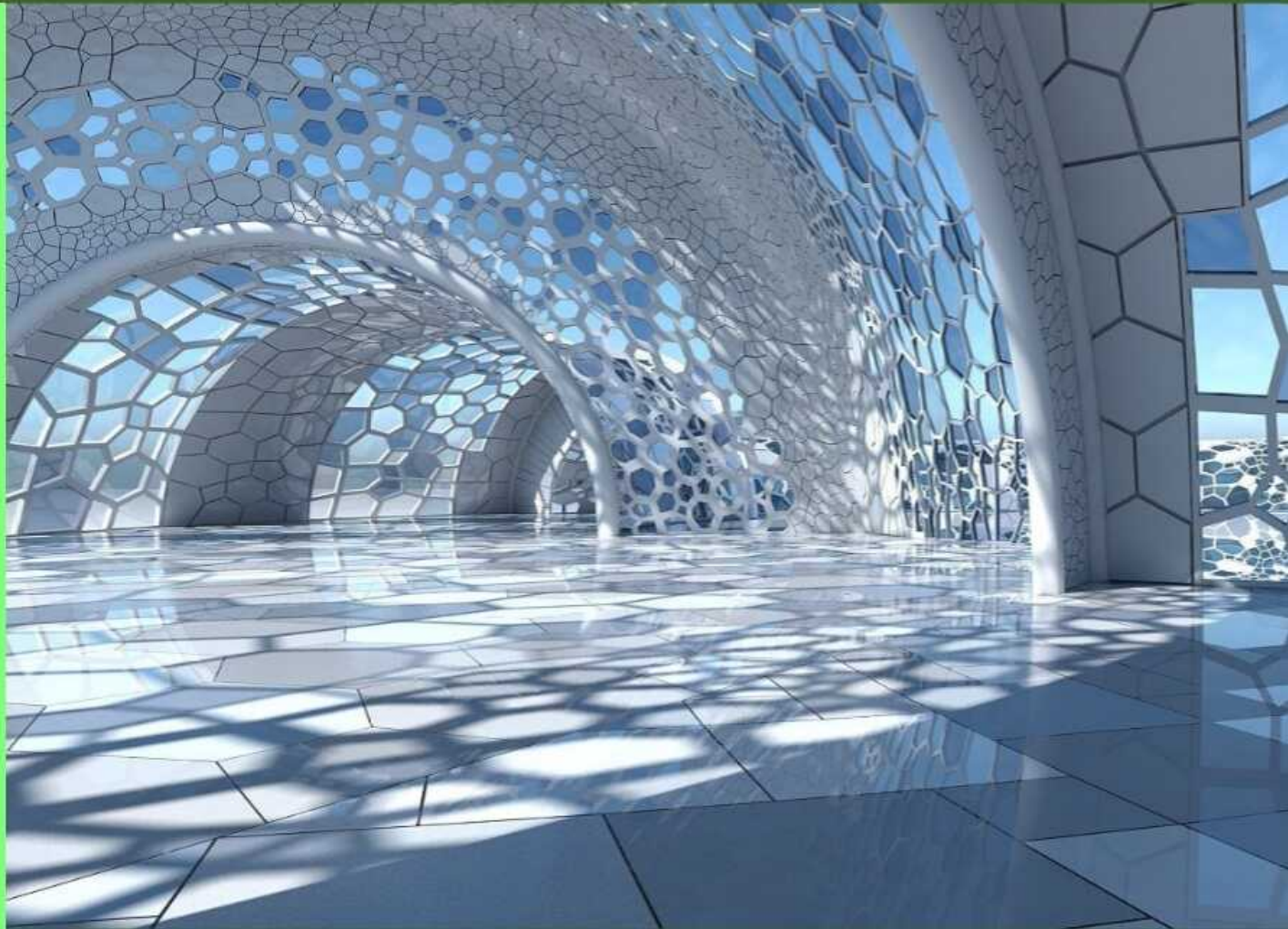
With our material and the Gre GRC building construction technique we have developed, it is possible to build healthy and comfortable buildings that are extremely economical, very fast, healthy, can be heated and cooled at very low cost, and accessible to low income groups.





## THE OPPORTUNITY OF ARCHITECTS, CIVIL ENGINEERS TO REALIZE THEIR DREAMS WITHOUT LIMITS

With the extraordinary lightness it provides and the elimination of the size limitation it brings, all classical calculations and systems in the construction and building construction sector will completely change. Impossible designs can be made with classical techniques.





# INDUSTRIAL RAW MATERIAL ALTERNATIVE TO POLYESTER AND SIMILAR TOXIC AND ENVIRONMENTALLY ENEMY SYNTHETIC MATERIALS



A special form of our material can be used in many industries as an alternative to polyester and similar toxic and environmentally harmful synthetic resins.

With our material, products such as environmentally friendly and completely ecological water tanks, food rest, fermentation, storage tanks, clean water transport pipes, security huts, kiosks, vehicle and boat parts can be produced much more economically and with 0 damage to the environment.



## OUR PROJECTS

Our main project is a very comprehensive, ambitious project that will fundamentally change many known things. We think that this project is a very important project in terms of environment and sustainability.

Our project consists of three main stages.

### 1 INITIAL R&D PROJECT WHICH WILL DETERMINE THE CHARACTERISTICS, CAPACITY AND CHARACTERISTICS OF THE MATERIAL

We started this project in 2015, made it an official project in 2018 and completed it with full success on 21 12 2020 with the support of KOSGEB.

### 2 DETERMINING THE MAIN USAGE AREA WHERE THE MATERIAL CAN BE USED MOST COMMON AND DEVELOP A NEW PROJECT THAT INCLUDES APPLICATION TECHNIQUES.

At this stage, we have prepared a new project called "ALTERNATIVE NEW AND REVOLUTIONARY MODULAR STRUCTURE AND CONSTRUCTION TECHNIQUE: GreGRC system (Greeng Glas Fiber Reinforced Ceramic)". The infrastructure, road map and framework of the project have been prepared and it is at the start stage.



## OUR PROJECTS

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AS THE THIRD AND THE MOST ADVANCED STAGE, "THE USE OF SPECIAL FORMS OF OUR MATERIAL BY USING OTHER MATERIALS INSTEAD OF IRON IN BUILDING COLUMNS, BEAMS AND OTHER CARRIER SECTIONS AND IN BETWEEN CONCRETE PLATFORMS."

### AS A RESULT

With the realization of our second and third projects, all parameters in building construction techniques will change radically, our material can be used instead of concrete and cement, much more economical, lightweight, very low carbon footprint, truly ecological, healthy, comfortable buildings that can be heated and cooled with very low energy. be able to be. At the same time, our material can be used in various industries as a sustainable and ecological industrial raw material.





## Market Size



According to the world bank data;  
the size of the global construction  
industry is around 1.7 - 2.0 Trillion  
US dollars annually

Approximately 40% of this tuft is  
directly related to our material.



The material we have developed  
is much more economical and  
superior than all classical  
materials in total.



Our project needs a fast, robust  
and rational marketing strategy.  
We laid the foundations, we can  
raise the structure together.



Users will naturally prefer our  
material when the material is put  
on the market.



This project is necessary for our world. It is very difficult for us to sustain such a big project alone. To complete the scientific aspect, we need official and semi-official institutions, media support for promotion, and financial resources to finance our work.

We are looking for Universities and Research Institutes, Non-Governmental Organizations, Environment and research foundations, funds and companies with strong infrastructure to carry the project to the market.

For more information, you can visit our website [www.greenginnovation.com](http://www.greenginnovation.com). Or you can contact us at [blntgrkn@gmail.com](mailto:blntgrkn@gmail.com).

