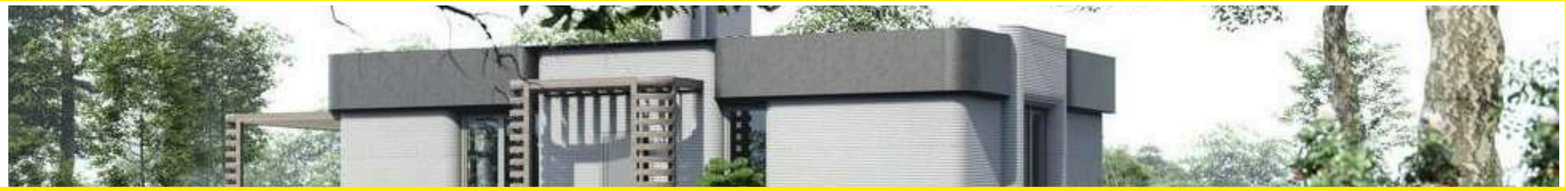
UCAT-3D

Ukrainian Construction Additive Technologies



3D printers for printing ready-made houses and concrete modular structures

U *krainian*

C *onstruction*

A *dditive*

T *echnologies*

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PROBLEM

- People have nowhere to live;
  > 300,000 houses were destroyed;
- There is a shortage of construction specialists: left/at war/disabled;

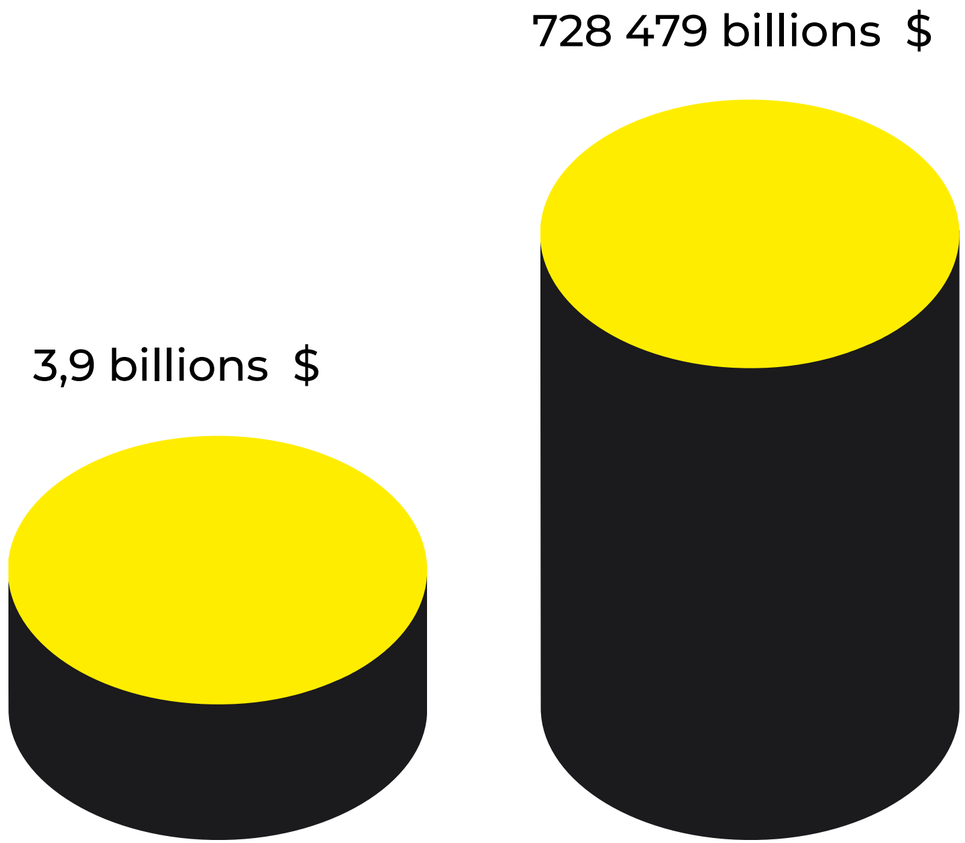
- Shortage and high cost of construction materials;
- The classic construction method and permitting restrictions do not allow people to quickly restore housing
- Low energy efficiency of classical construction

SOLUTION - CONSTRUCTION 3D PRINTERS

- Automation of the construction process - printing a box of a 100 m² house in 48 man-hours;
- Strong houses for modern challenges - using high-quality concrete mixes from Henkel;
- Use of energy-saving technologies and certified environmental materials;
- Heat Transmission Resistance of Enclosing Structures is 4.17 (m2 * C)/W; can be increased due to insulation
- Ready-made architectural solutions;
- Low cost per m² - 269 Euro/m²

Global Market for 3D Concrete Printing

Market forecast to grow at CAGR of 355.6%



The world is implementing construction 3D printing more and more often.

Dubai, according to the city's development strategy, by 2030: 25% of all buildings must be created on a 3D printer.

Ukraine should become a construction hub, an advanced state in the implementation of the latest technologies in construction.

http://www.researchandmarkets.com/reports/5301800

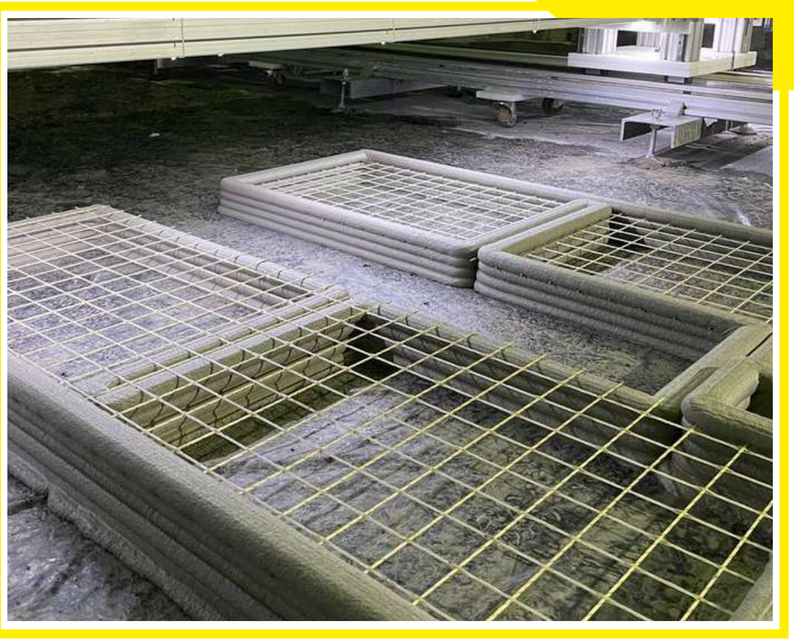
Comparison table **characteristics between classic construction methods and 3D printing**

	Salary optimization , automation	Savings on construction equipment	Availability and savings on materials	Savings on logistics	Security in production	No construction waste	Energy efficiency	Strength and durability	Build time	Complex architectural solutions	Cost
Sip panel	-	-	-	-	+/-	-	+/-	+/-	+/-	-	+/-
Brick	-	-	-	-	-	-	+/-	+	-	-	-
Monolithic frame	-	-	-	-	-	-	-	+/-	-	-	-
Panel	-	-	-	-	-	-	-	-	+/-	-	+/-
Wooden	-	+/-	+/-	-	+/-	+/-	+/-	-	+/-	-	+/-
3D printing	+	+	+	+	+	+	+	+	+	+	+

BENEFITS

construction of warm walls of a 100m² house with decoration, (area of walls with partitions, 130m²)

TECHNOLOGY	TERM	COST OF M2 WALL	SPECIALISTS
3D printing	3 days	€ 47	3
Gas block	15 days	€ 70	5
Brick	21 days	€ 85	5



WALLS

Concrete walls printed using a 3D printer have high strength and reliability,
which provides them with durability and resistance to various weather conditions.

Wall 1 layer
Layer thickness 40 mm
Extrusion weight 100 kg/m²

The wall is 2 layers
Layer thickness 80 mm
Extrusion weight 200 kg/m²
The possibility of using internal insulation

Roof or wall in 3 layers
Layer thickness 120 mm
The weight of the extrusion is 340 kg/m²
The number of straight layers is 2
The number of wavy layers is 1
The possibility of using internal insulation

The wall is 4 layers
The total thickness is 500 mm
The thickness of the layers is 160 mm
The weight of the extrusion is 440 kg/m²
The number of straight layers is 3
The number of wavy layers is 1


PEOPLE CREATE
MACHINES BUILD
ЗРОБЛЕНО
В УКРАЇНІ

3D PRINTER, PRINCIPLE OF OPERATION **SCARA**

Characteristics	
Print speed, mm/sec	120
The size of the print field in diameter, mm	14 000
Electricity, kWh	7
Dimensions in the folded state (length, width, height), mm	4300 x 1400 x 1600
Maximum height (in the raised state), mm	3300
The maximum length of the arrow extension, mm	7000
Mixture supply system	Mortar mixing pump
Weight, kg	1200
Staff in shift	5
Extrusion, kg/day	19 241

ЗРОБЛЕНО В УКРАЇНІ

€ 150 000

*€ 120 000

For charitable organizations and organizations involved in the reconstruction of Ukraine

ЗРОБЛЕНО
В УКРАЇНІ

3D PRINTER THAT PRINTS IN 2 FIELDS AT THE SAME TIME

Characteristics	
Print speed, mm/sec	150x2
Electricity, kWh	5
The size of the print field, mm	2 field 2500x6000
The height of the printer, mm	2200
Print height of the printer, mm	1250
Mixture supply system	Mortar mixing pump
Weight, kg	800
Staff in shift	3
Extrusion, kg/day	58 320

€ 120 000

*€ 85 500

For charitable organizations and organizations involved in the reconstruction of Ukraine

ЗРОБЛЕНО
В УКРАЇНІ

3D PRINTER OF PORTAL TYPE - concrete products factory

Characteristics	
Print speed, mm/sec	150
Electricity, kWh	2
The size of the print field, mm	10 000 x 5000
The height of the printer, mm	2200
The height at which the printer prints, mm	1200
Mixture supply system	Peristaltic pump
Weight, kg	2000
Staff in shift	3
Extrusion, kg/day	29 160

€ 72 000

*€ 60 000

For charitable organizations and organizations involved in the reconstruction of Ukraine

AUTONOMOUS 3D PRINTER LIFT-RADIAL TYPE

Characteristics	
Print speed, mm/sec	150
Extrusion, kg/day	19 241
Electricity, kWh	6.5
Dimensions in the folded state (length, width, height), mm	4500 x 1200 x 1600
Maximum height (in the raised state), mm	3500
The maximum length of the arrow extension, mm	7000
Mixture supply system	Mortar mixing pump
Weight, kg	1800
Staff in shift	3
Production capacity in ready-made houses, m²/month	600

ЗРОБЛЕНО В УКРАЇНІ

€ 199 000

*€ 169 000

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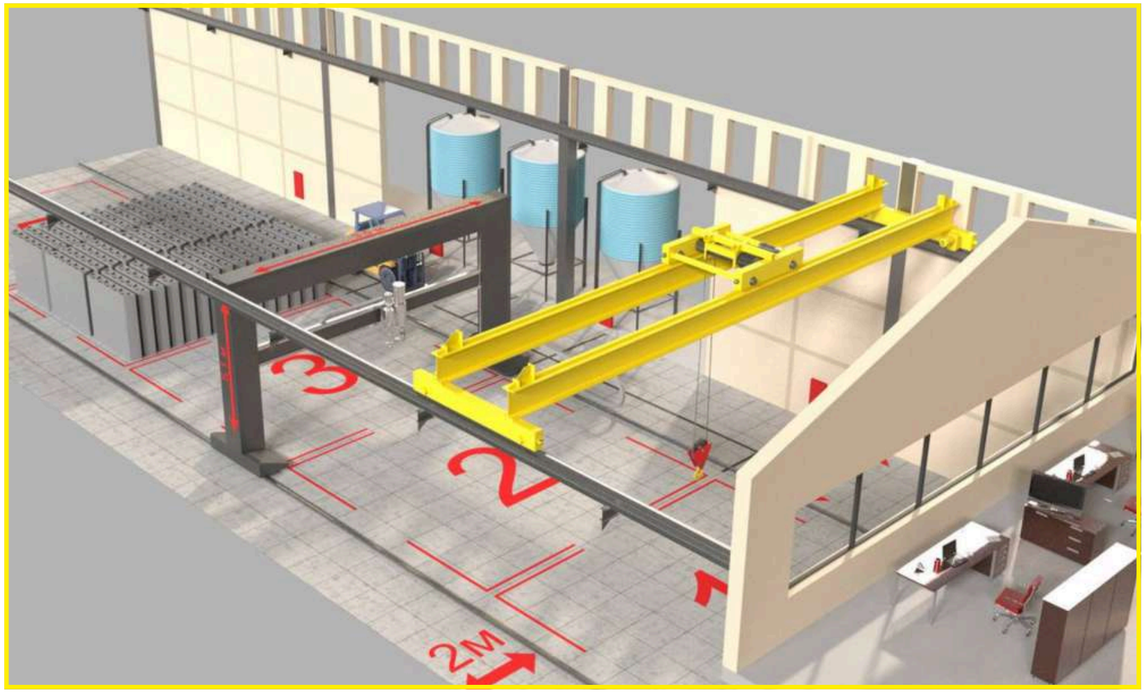
3D PORTAL PRINTER - FACTORY OF READY HOUSES AND MODULAR STRUCTURES



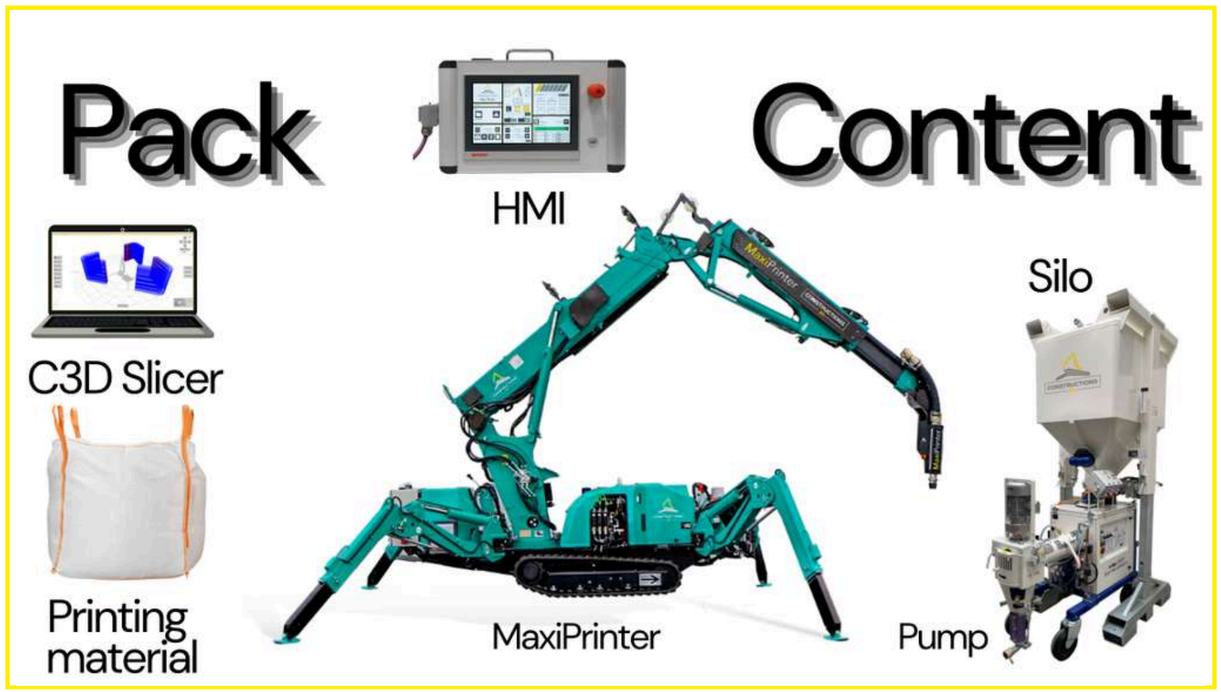
Characteristics	
Print speed, mm/sec	300
Extrusion, kg/day	58 320
Electricity, kWh	20
The size of the print field (length, width, height), mm	24 000x7500x3500
Mixture supply system	Mortar mixing pump
Staff in shift	7
Production capacity in ready-made houses, m²/month	1273

€ 550 000

*€ 495 000

For charitable organizations and organizations involved in the reconstruction of Ukraine

Maxi Printer
CONSTRUCTIONS-3D

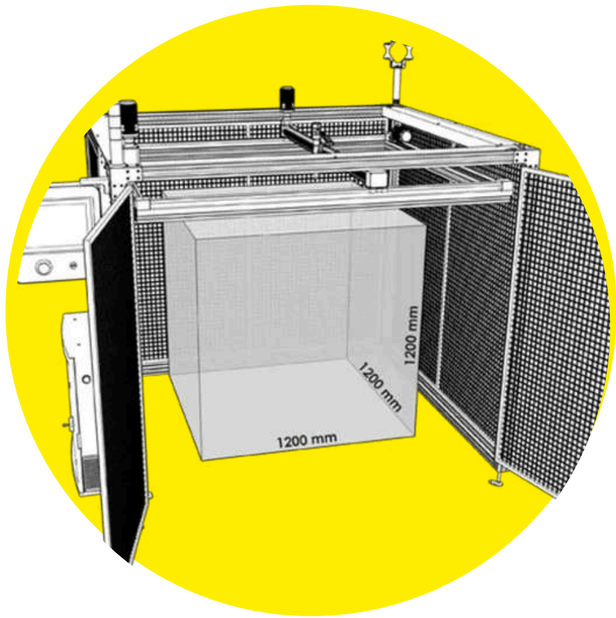


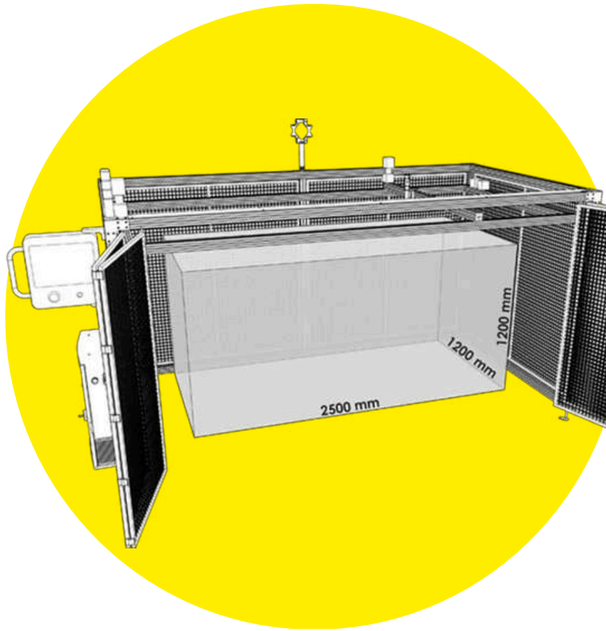
Characteristics	
Print speed, mm/sec	250
Electricity, kWh	10
The size of the print field, mm	12 500 x 12 500
The height of the printer, mm	1990
The height at which the printer prints, mm	3850
Mixture supply system	Mortar mixing pump
Weight, kg	2700
Staff in shift	3
Extrusion, kg/day	10 000

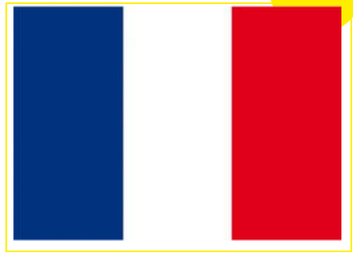
€ 495 000

Mini Printer PRO, Mini Printer XL Constructions-3D

Characteristics	
Print speed, mm/sec	400
Electricity, kWh	10
The size of the print field, mm	1200 x 1200 x 1200 / 2400 x 1200 x 1200
Mixture supply system	Проточна автоматизована. змішувальна станція
Weight, kg	450
Staff in shift	3
Extrusion, kg/day	6000







€ 108 000

FROM PLAN TO IMPLEMENTATION

7 steps to a ready-made house

1. **Take a ready-made architectural project**
Classic architectural projects are developed in special applications that our software understands well

2. **Upload to Slicer - this is our digital assistant**
The program automatically divides the plan into horizontal stages of layer-by-layer printing, taking into account the type of wall (bearing/non-bearing), its width and thickness, and the distances between them. This allows for geometrically accurate layer-by-layer application of the concrete mixture

3. **Calculate the costs of the mixture**
After creating a model for 3D printing, the program issues the amount of construction mix required to implement the project. At this stage, you can also see possible thermal bridges and avoid them

4. **Press the button, start printing the house**
Of course, before starting printing, it is advisable to prepare the place where printing will take place 😉

5. **Monitor printing, install communications, ventilation ducts, and carry out reinforcement**
When printing, machine vision is used, but the presence of a person on the object must be ensured. Communications are mounted between two layers of walls.

6. **Install windows and doors**

7. **Get ready to put the house into operation**

Freedom in architecture

3D concrete printing is not only about printing houses Free design and implementation of non-standard designs.

3D printing technology allows you to create various architectural forms that would be difficult or even impossible to implement using traditional construction methods. In addition, this technology allows to significantly reduce the time for their manufacture and minimize errors during their manufacture.

- Stairs
- Ventilation shafts
- Building blocks
- Protective structures
- Fences
- Non-standard walls
- Elements of garden decor
- Even fireplaces
- Everything invented by man can be implemented in concrete

PROBLEM

-300,000 houses were destroyed
- Scarcity and high cost of building materials
- Shortage of skilled workers workforce
-Architectural limitations
- Low energy efficiency

DECISION

- 3D printing will make it possible to ensure housing construction quickly
- independent of scarce building materials, we have a fixed price for building mix from the Henkel company, and security arrangements are necessary volumes
- training and retraining of personnel
- own engineers
- the possibility of implementing complex architectural forms and printing modules
- installation of insulating materials during printing

KEY METRICS

- Launch of 2 portals and 1 radial 3D printers in 2025-2026
- Production capacity per month: 1273m2 (portal)/ 600 m2 (radial)
- Sale of 6 3D printers/year
- Rental of 2 3D printers
- Training 30+ qualified specialists

KEY VALUE DECISIONS

“UCAT: 3D" - we create reliable houses in 48 hours, thanks to 3D printers and high-strength concrete, with saving up to 35% interest from classical construction.

BENEFITS

- print speed - up to 300 mm/sec
- developed in partnership with Henkel dry construction mix (class of concrete B30)
- world-renowned architects are involved in the design, the rule of 2 walls is used
- automated 3D printing reduces dependence on the labor force
- independence from scarcity building materials
- absence of construction debris
- ·24/7/365 printing capability

CHANNELS

- mass media
- internet marketing
- exhibitions
- seminars
- conferences
- grant applications
- attraction of charitable and investment funds
- dealers and partners

CONSUMERS

- Private contractors, investment and charitable funds, builders, communal. enterprises, military engineering, subdivisions, developers, the state, individuals

- Early customers: partner countries, grant providers, state, benefactors who direct their activity on reconstruction of destroyed housing for affected families as a result of war

COST STRUCTURE

1. Investment in equipment and transport
2. Purchase of construction mix
3. Rent of production premises from 1200 sq.m
4. Selection and training of personnel
5. Marketing
6. Legal and accounting support
7. Salary
8. Electricity and water supply

INCOME STREAMS

1. Printing of houses, sale of modular structures and other architectural forms
2. Distribution of construction 3D printers
3. Rental of construction 3D printers
4. Maintenance of construction 3D printers
5. Training and retraining of personnel

REQUEST
FOR SPONSORSHIP
AND PARTNERSHIP

UCAT

Ukrainian Construction Additive Technologies

Our partners:

КБУ Конфедерація Будівельників України

Відбудова України Благодійний фонд

REHAU

romstal світ інсталяцій

Henkel

3D QUANTER

Академія Будівництва України Науково-технічний центр

Сучасний світ

VIANT furniture factory

PAVLYK nice to be home

Betonix - the first modular house printed by a 3D construction printer.

"Betonix"
- the first modular house printed in concrete on a 3D printer

A pilot project aimed at introducing 3D concrete printing to facilitate rapid and high-quality reconstruction

Implemented in partnership with leaders in the construction industry

Will change the rules of the game in construction

ЗРОБЛЕНО
В УКРАЇНІ

The features of the 'Betonix' project

High speed of printing and assembly of modular structures (4 work shifts)

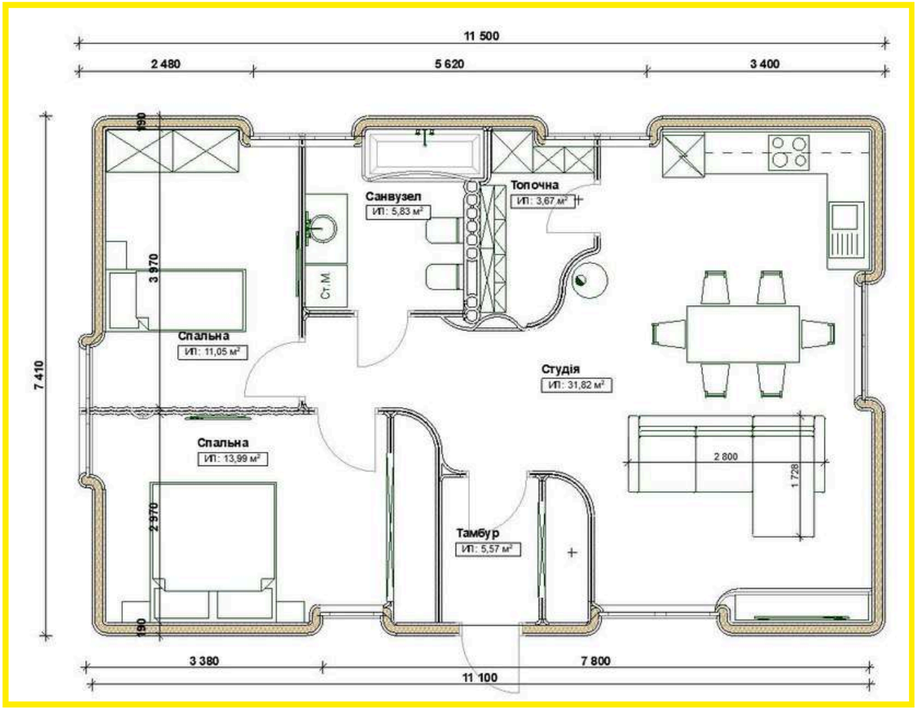
The modular house has an area of 75 m², providing comfortable living for a family. It includes an entrance hall, a studio, a heating room, a bathroom, and two bedrooms

Permanent, long-lasting housing achieved through the use of a durable, specially developed sand-cement mixture for 3D printing from Henkel

Energy-efficient house with insulation inside the printed walls, which does not require interior and exterior decoration

A secure capsule room designed to protect residents in military threat conditions

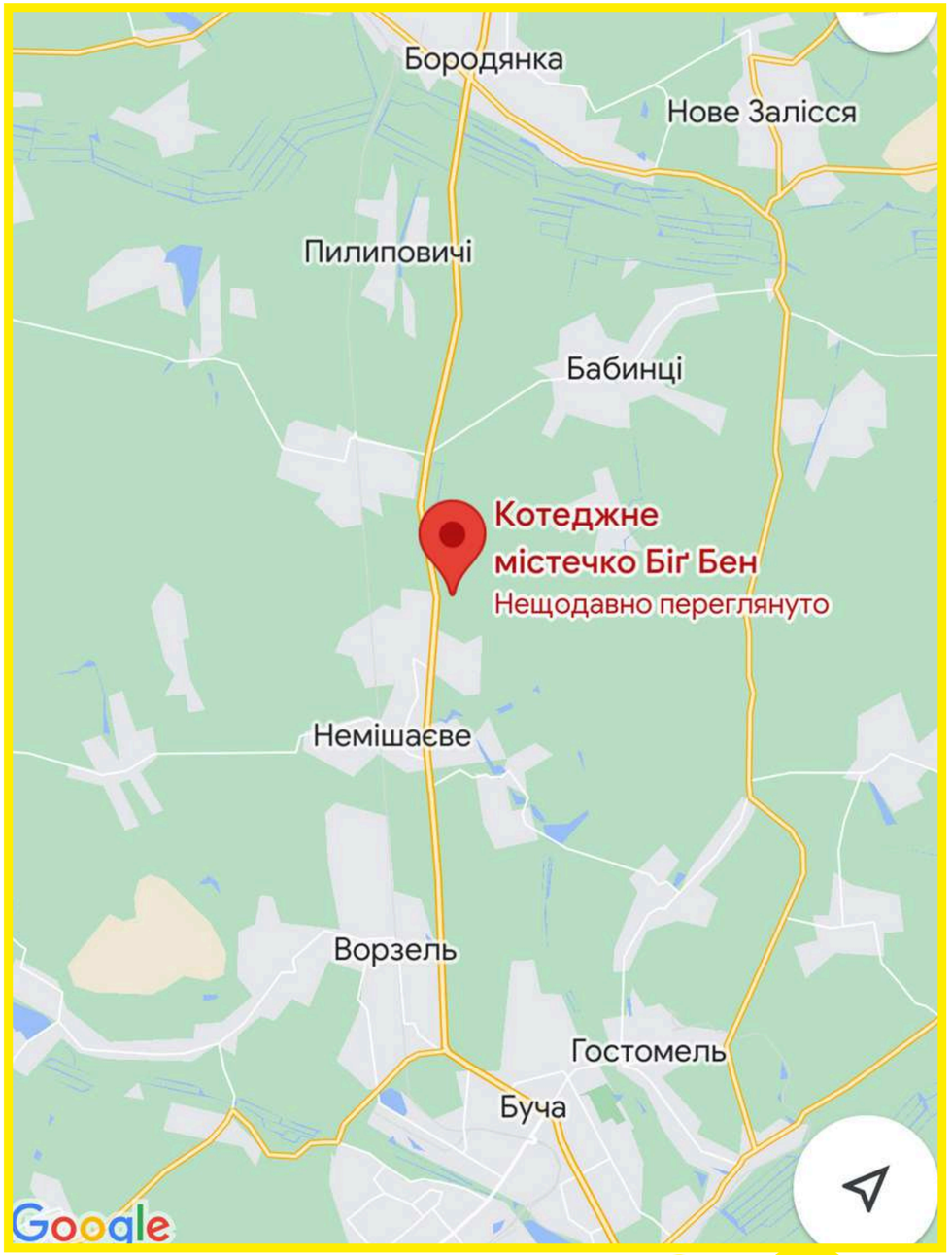
An interior featuring unique printed elements showcasing the capability to implement complex architectural solutions.



Location of the Object

Today, communities that have suffered from destruction, partner countries, non-governmental organizations, and foundations are assessing the extent of the damage and seeking Ukrainian companies that can demonstrate transparency, openness, and ready technological solutions for the fastest possible reconstruction.

"Betonix" - a modular showroom made of concrete segments, will be open for viewing to interested partners. It will be located in the village of Mykulychi along the Kyiv-Kovel highway, between the town of Bucha and the village of Borodyanka in the Kyiv region, which has suffered significant damage due to the war and requires urgent restoration. This is a full-fledged construction hub where modern building solutions are already being implemented in partnership with international foundations and technology companies.



ЗРОБЛЕНО
В УКРАЇНІ

TECHNOLOGY

3D PRINTER THAT PRINTS IN 2 FIELDS AT THE SAME TIME

Characteristics	
Print speed, mm/sec	300
Electricity, kWh	5
The size of the print field, mm	2 field 250x500
The height of the printer, mm	2200
Print height of the printer, mm	1200
Mixture supply system	Mortar mixing pump
Weight, kg	800
Staff in shift	3
Extrusion, kg/day	58 320

3-5 standard house projects with ready-made solutions will be developed. This aligns with the needs of foundations, communities, and private developers.

A special mobile printer model that can print ready-made modules 365 days a year.

PERSPECTIVE:

3D Printing of modular houses in Ukraine

Mission: To achieve maximum simplification, cost reduction, and optimization of the construction process through automation.
Goal: 1000 houses within the next 3 years.

Technological Innovation: 3D printing technology enables the rapid construction of high-quality housing with savings of up to 30% compared to traditional construction.
At an industrial scale, one 3D printer can produce modules for assembling a house within 48 hours

The Future of Construction: 3D printing fundamentally changes the approach to construction, addressing issues of speed and quality, reducing construction costs, enabling complex architectural designs, mitigating the human factor, addressing labor shortages, and reducing CO2 emissions, etc.

Shared Perspective: The development and implementation of on-site 3D printing of buildings and structures will enable the rapid initiation of production processes and the establishment of sales for ready-made solutions with goods/services of key partners

Transparency and Control: 3D printing technology ensures a clear understanding of the quantity of consumable materials and the time required for planned tasks. This allows for efficient time and resource management. Reporting to the client becomes much simpler.

Let's change lives for the better together and build a country we can be proud of!

ЗРОБЛЕНО
В УКРАЇНІ

We invite you to join our sponsors and partners in the following categories:

General sponsor	Providing financial support or goods equivalent to $10,000 USD.
Media sponsor	Media coverage of the event according to the specified schedule and number of publications, as well as information dissemination through other channels (TV, radio, Internet)
Sponsor of a Strong Foundation	Performing foundation construction work
Windows and doors	Supplying windows and doors for the project.
Plumbing and Sewage System	Supplying plumbing fixtures for the project
Lighting Fixtures	Providing lighting fixtures and electrical power cables for the project.
Interior Flooring Materials	Supplying materials for interior floor coverings
Heating Systems and Air Conditioning	Supplying heating and air conditioning systems for the project.
Construction Tools	Demonstration of the use of reliable construction tools on the project and a giveaway of prizes from the sponsor.
Furniture	Furnishing the project with furniture.
Landscaping and Beautification	Carrying out landscaping and beautification work on the project.

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