

3D CONCRETE PRINTING



AVAILABLE
AS A SERVICE

From single homes
to landmark structures



CORAL

FROM SINGLE HOMES TO LANDMARK STRUCTURES

HOMES

From Tiny Homes to Luxury Villas



Flexible living solutions for every lifestyle and community

Social Housing – affordable, fast-to-build homes for cities and NGOs

Tiny Homes – compact, energy-efficient living

Family Homes & Residences – modern housing with smart layouts

Luxury Villas – bespoke villas focused on design and comfort

Residential Developments – modular neighborhoods scalable to demand

COMMERCIAL & URBAN

Smart buildings for business and modern cities



Efficient, durable, and scalable structures for public and commercial use

Commercial Buildings – office and administrative facilities

Industrial & Logistics Facilities – production halls and warehouses

Schools & Educational Buildings – fast-build modular schools

Urban Infrastructure – shelters, kiosks, and community hubs

Parks & Public Spaces – playgrounds and urban structures

Noise Barriers & Technical Structures – durable functional infrastructure

MULTISTORY & HIGH-PERFORMANCE

Advanced multi-level construction made possible by 3D concrete printing



Advanced construction solutions for vertical, infrastructure, and iconic projects

Multistory Buildings – large residential and mixed-use projects

High-Rise Structures – efficient vertical construction

Infrastructure Buildings – stations and technical hubs

High-Tech Architecture – complex geometries beyond tradition

Cable Car Stations – precise complex structures

Landmark & Exhibition Buildings – churches and zoo pavilions

FACTORY-BUILT CONSTRUCTION

CASE STUDY THE FIRST 3D PRINTED RESTAURANT IN THE WORLD



RUN A CONTROLLED PRODUCTION LINE

- **Controlled factory-based production environment.**
- Ideal for repeat runs and high-volume output.
- **Printing of panels,** façade systems, and modular elements.
- Consistent quality through standardized processes.
- Scalable production for large and repetitive developments.



- Combination of off-site prefabrication and on-site construction.
- Custom 3D-printed integrated formwork elements **in three weeks.**
- Rapid on-site assembly under extreme mountain conditions.
- Total of **48 printed wall elements** and 7 printed ceiling slabs.



PRODUCTION & CONSTRUCTION PROCESS

The project leveraged the advantages of off-site industrial production while maintaining flexibility for on-site installation. All structural elements were produced in a controlled factory environment, ensuring consistent quality, dimensional accuracy, and predictable delivery times. Custom 3D-printed elements also served as integrated formwork, reducing additional construction steps and minimizing material waste. Once completed, all components were transported to the site and assembled quickly, even under demanding alpine conditions.

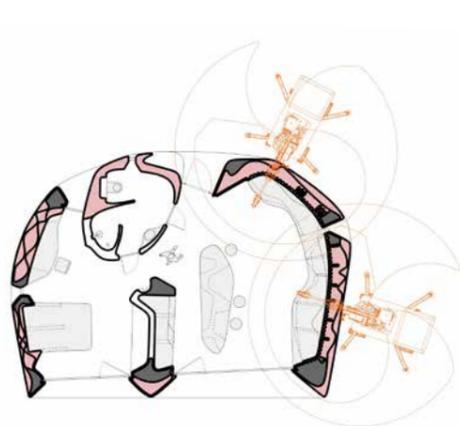
FIELD-BUILT CONSTRUCTION



BRING PRODUCTION TO THE BUILD

- Best for schedule compression and site-driven geometry.
- Print walls, cores, site elements, and shells.
- Reduce logistics and dependency on prefabricated SKUs.

**LUXEMBOURG'S
FIRST 3D PRINTED
HOME**



RETHINKING SPACE, SPEED & SUSTAINABILITY

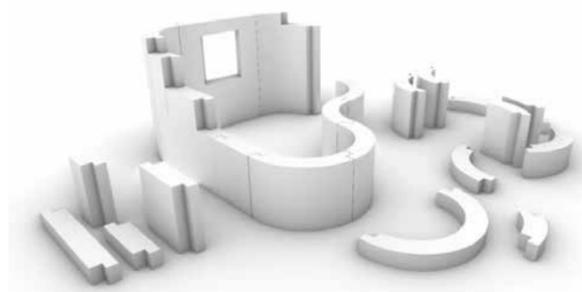
In the heart of Niederanven, Luxembourg's very first 3D-printed tiny house has risen. Proof that high-quality, climate-conscious living doesn't need to take years or cost millions. Printed in just one month on an underused micro lot in Rammeldange, the 47 m² (452 ft²) home pioneers a faster, cleaner way to build.

MODULAR ARCHITECTURE



FOR DEFENSE SYSTEMS

- Blocks can be **combined in many variations**.
- Barracks units, protective barriers, military training facility, control stations & checkpoints.
- New custom parts can be **printed in minutes**.
- Inner structure & unique joining system.
- Ballistic testing conducted to **NATO STANAG** requirements.



MILITARY TRAINING FACILITY



BARRACKS MODULES



PROTECTIVE BARRIERS



CONTROL STATIONS & CHECKPOINTS



BALLISTIC TESTS ACCORDING TO NATO STANDARDS

The ballistic protection of the individual elements has been verified in certified testing laboratories. The combination of sandwich construction with several layers of a customized concrete mix and sand or gravel has proven to be an effective protection.



CORAL 3DCP GENERATION 26

THE ECONOMICS OF EFFICIENCY

PARAMETER	CORAL 3DCP	TYPICAL COMPETITORS	BUSINESS IMPACT
Material cost	\$350–\$450 per yd ³ (€392–€504 per m ³)	\$800+ per yd ³ (€896+ per m ³)	<ul style="list-style-type: none"> About 50% lower material cost Higher margin
Material type	Local concrete + 2K additive	Proprietary bagged dry mixes	<ul style="list-style-type: none"> Less vendor dependency Lower logistics risk Lower material costs
Placement technology	2K, chemical solidification	1K, drying, thixotropy	<ul style="list-style-type: none"> Prints overhangs Higher speed No formwork
Deployment speed	Setup under 1 hour mobile setup	Couple of days (gantry systems)	<ul style="list-style-type: none"> Faster project turnaround Less downtime
Crew requirement	One operator	Often requires a technician team	<ul style="list-style-type: none"> Addresses labor shortages
Accuracy	±0.5 mm positioning (±0.02 in)	Lower accuracy around ±1 cm (±0.4 in)	<ul style="list-style-type: none"> Less finishing work Precise window and door installation.
Company background	Industrial automation heritage	Construction startup	<ul style="list-style-type: none"> Reliability Service Spare parts support Longer machine life

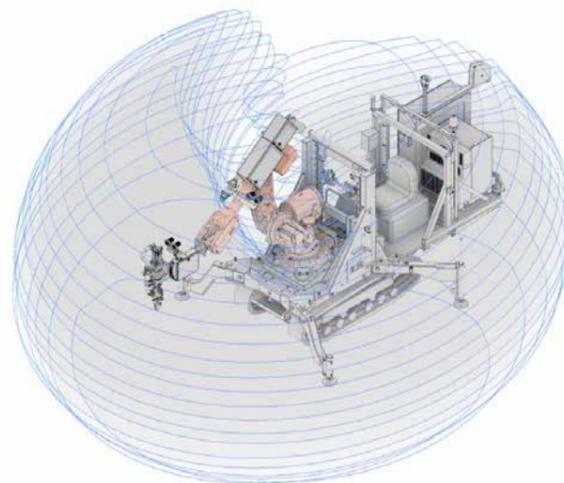
BUILD SIMPLY. SMART. PRECISE.

We create a wide range of structures using a single system without special materials, complex processes, or specialized crews. Our approach integrates optimization and customization, responding intelligently to site conditions and developer requirements. **Digital execution reduces reliance on 2D drawings, minimizing human error and reducing the need for on-site supervision.**

3DCP CONSTRAINTS

3DCP Constraints – Geometric Parameters (Coral)

- Layer thickness**
 Defined by nozzle diameter and structural requirements.
 Nozzle diameter: 30–50 mm (1–2 in)
 Typical layer width: 40–80 mm (1.6–3.2 in)
- Layer height**
 10–30 mm (0.4–1.2 in)
 Ideal layer aspect ratio \approx 3:1 (width : height)
- Overhang angle (unsupported)**
 Depends on the geometry type; with curved path of layer and gradual inclination, unsupported overhangs of up to 20° are achievable.
- Tolerance & precision**
 Positioning accuracy: ± 0.5 mm (± 0.02 in)
 (laser-controlled system)
- Printing speed (geometry-dependent)**
 Head speed: 180–600 mm/s (7–24 in/s)
 Output: 0.9–2.0 m³/h (32–70 ft³/h)
 Typical operation: ~ 1.2 m³/h
- Supports nonplanar printing and printhead tilting**
 Used for terrain compensation and special geometries.
- With continuous printing and stable material behavior, structures can be printed up to their full design height in a single process.
- Wall connections**
 There are multiple ways to connect walls either by linking them through openings such as windows or doors, or by printing one wall directly next to another. This creates a joint that can be concealed or intentionally used as a design feature.
- Robot envelope / printing range**
 Length: 6 m (20 ft)
 Height: up to 3.4 m (12 ft)

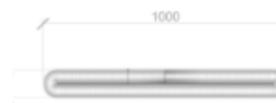


STANDARDIZATION OF 3DCP STRUCTURES

We have developed a standardized portfolio of 3D concrete-printed structures used across our projects. It includes **partition walls** and **load-bearing walls with integrated insulation**, clear structural definitions, and transparent pricing. Examples are shown below.

3D printed concrete can serve as the primary structural material, reducing complexity, trades, and construction time. Standardization transforms 3DCP from a prototype solution into **a reliable, predictable building system** designed for efficiency, performance, and scalability.

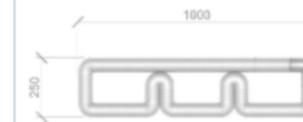
Partition walls



For a wall with dimensions:
 Width: 1 m (3 ft 3 3/8 in)
 Height: 3 m (9 ft 10 1/8 in)

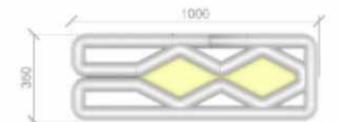
Price: \$272 / €233
Print time: 22 min
Material volume: 0.36 m³ (13 ft³)

Load-bearing walls



Price: \$354 / €303
Print time: 30 min
Material volume: 0.48 m³ (17 ft³)

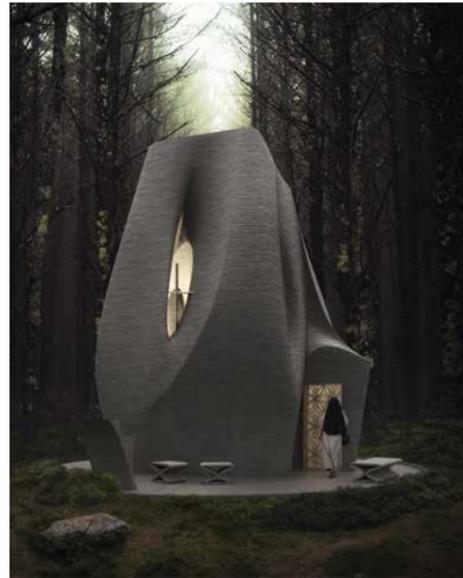
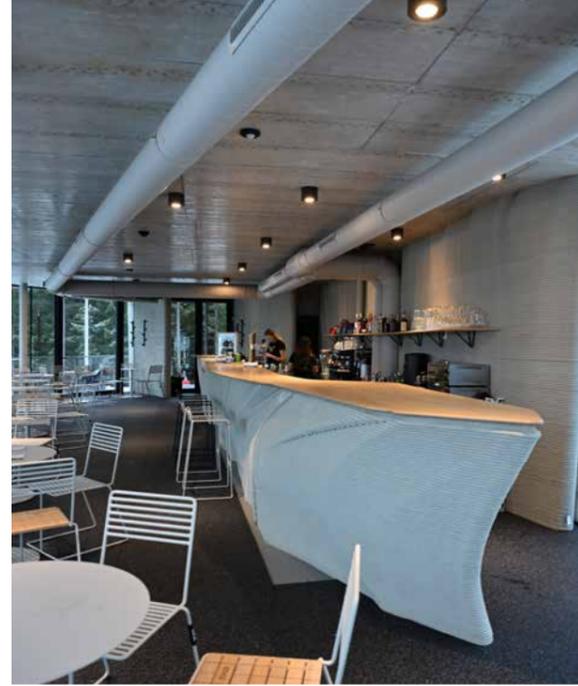
Load-bearing walls + Insulation



Price: \$546 / €467
Print time: 47 min
Material volume: 0.78 m³ (28 ft³)



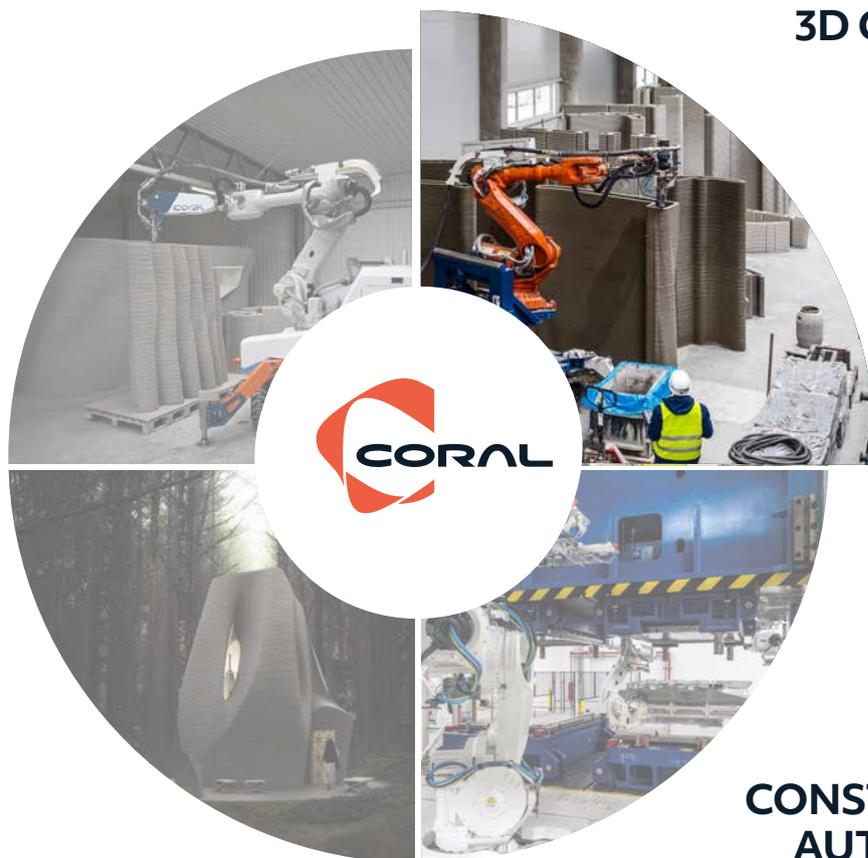
Note:
 All prices are approximate and include labor, preparation, and additives, but exclude insulation and infill concrete.
 Reference concrete price:
 €220 / m³ (\$6.90 / ft³)



CORAL CONSTRUCTION TECHNOLOGIES ECOSYSTEM

ROBOTIC CONCRETE PRINTER

SALES & LEASING



3D CONCRETE PRINTING

AVAILABLE
AS A SERVICE

CORAL ARCHITECTS

3DCP DESIGN &
ENGINEERING

CONSTRUCTION AUTOMATION

SYSTEM
INTEGRATION

Coral Construction Technologies

Global 3DCP Ecosystem

Headquarters: Prague, Czech Republic, Europe

Phone / WhatsApp: +420 739 665 205

sales@coral3dcp.com

www.coral3dcp.com

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