

# UNIDOME ✨

## SHAPING THE FUTURE OF SUSTAINABLE CONSTRUCTION

Join us in shaping the future of sustainable construction by embracing innovative practices and eco-friendly materials.



**Unidome** stand for innovation, quality and environmental awareness. Our patented void formers modules & concrete shaper elements enable significant concrete savings without making static or structural compromises. This makes a significant contribution to sustainability in the construction industry.

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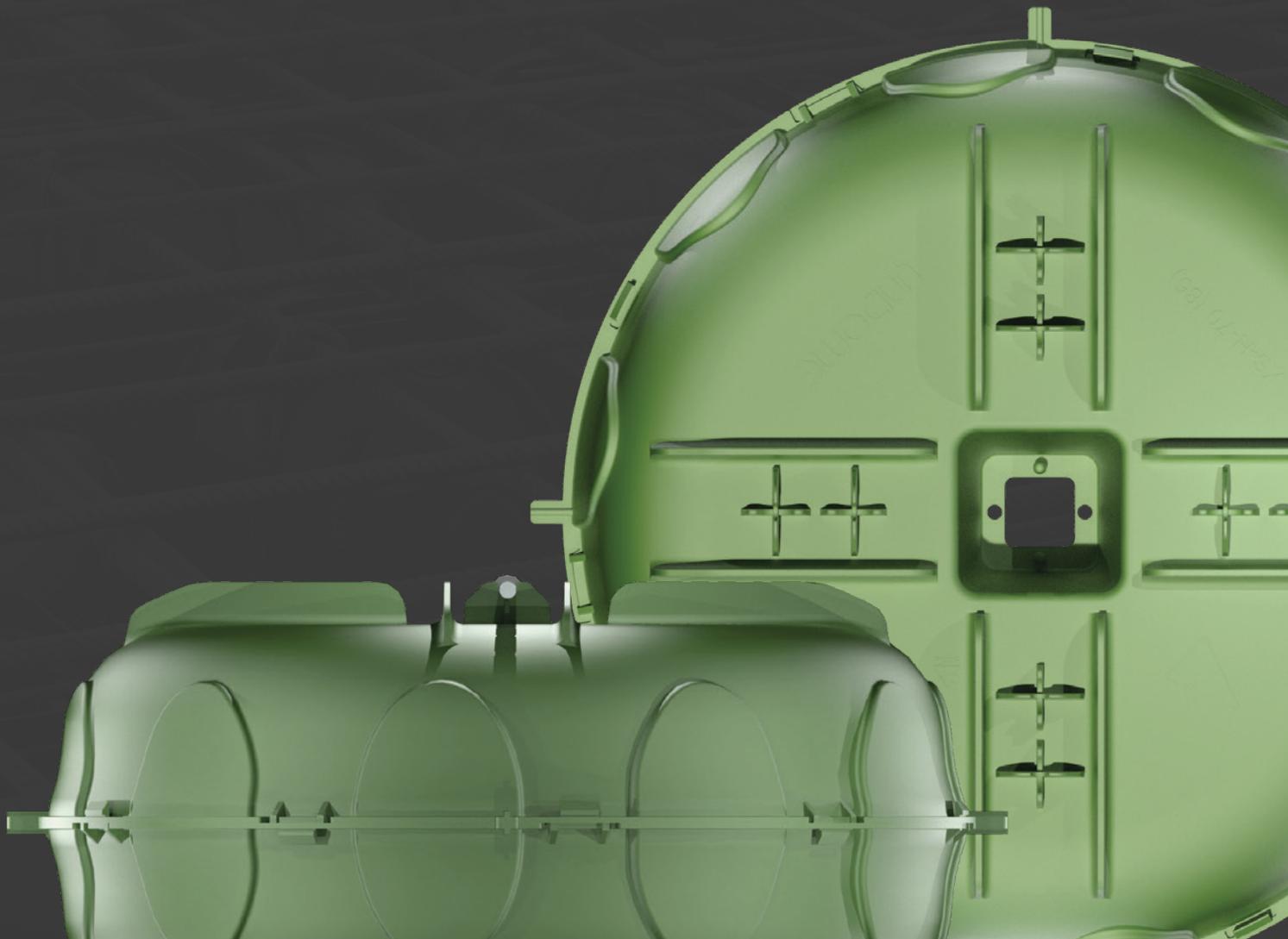
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## About Company

1970's were the early years in which the use of voided concrete slabs began. Not until years later with extensive research, practice and development, carried out by **Dr. Karsten Pfeffer**, the use of void formers had worldwide attention. In 2005, the first void former developed by **Dr. Karsten** was launched in **Germany**. Followed by two other products developments until 2016. In 2019, **UNIDOME** concrete shapers were created, giving the best version of concrete shapers resulted from all years of experience. **UNIDOME** is more sustainable, cost effective and design convenient.

## About Unidome

**UNIDOME** products in its most developed form will provide the lightest, safest and most economical slab that will meet all stakeholders' expectations and requirements in a building.



# Key Features



## LIGHTWEIGHT

By using Unidome, the dead load can be reduced by up to 35%.



## ENVIRONMENTAL PROTECTION

CO2 emissions, as well as energy consumption, can be reduced by up to 20%.



## COST SAVING

Due to the material efficiency and the lightweight, the building costs are reduced.



## LARGE SPANS

The lightweight design enables wide spans with less support columns.



## FLEXIBILITY

Possibility of combination with other types of construction, such as post-tensioning, concrete core activation, composite construction, etc....



## SLIM SLABS

The lightweight reduces deformation and allows thinner slabs.

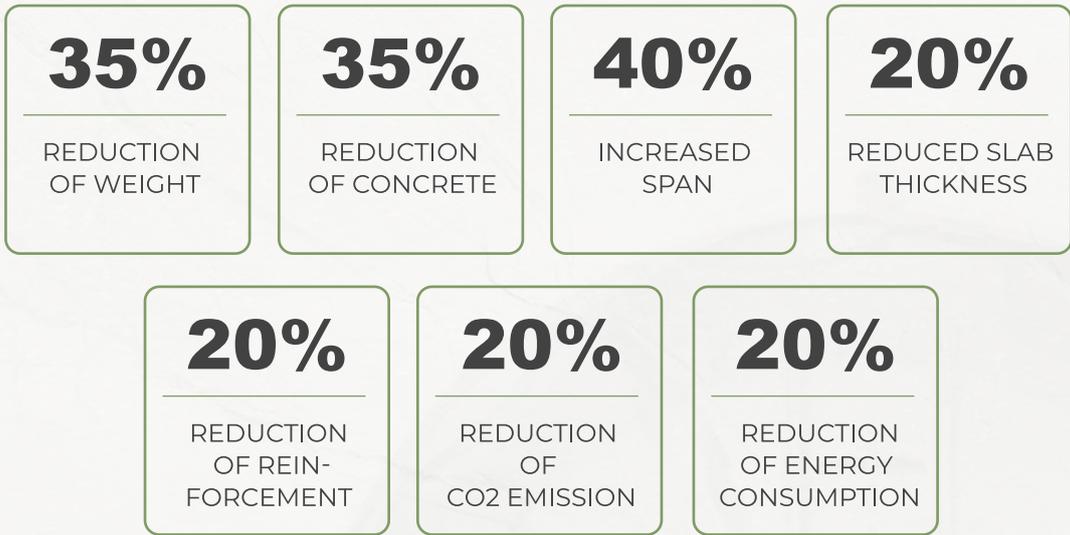


Conventional

Sustainable

# Why Unidome

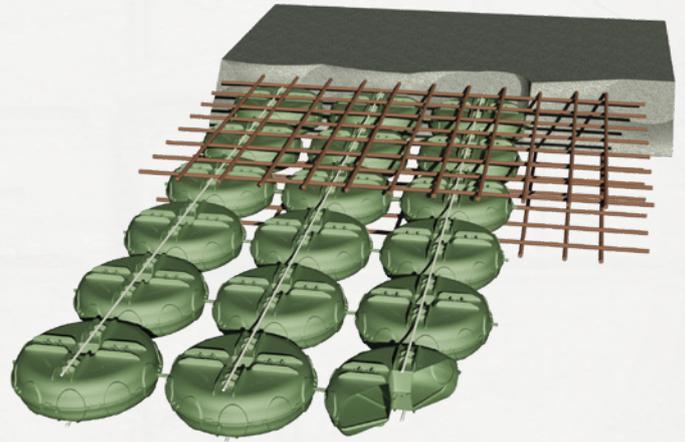
Unidome’s voided slab solution revolutionizes modern construction by creating lighter, stronger, and more sustainable structures. By reducing concrete usage, material costs, and overall slab weight, it enhances structural efficiency while minimizing environmental impact.



- Average savings listed above when compared to traditional solid flat slab structure.
- Exact savings are calculated on a per project basis.
- To properly calculate project savings you have to evaluate the entire structure, not individual slabs.

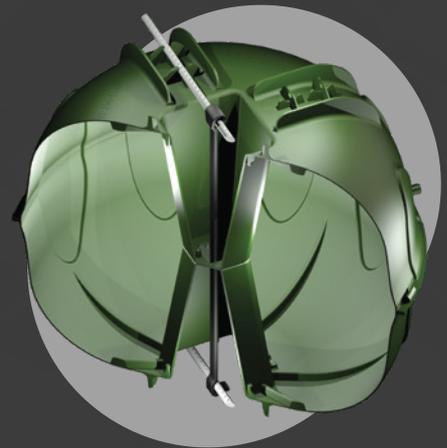
# The Unidome Technology

**The Unidome Technology** comprises a construction method, a design concept and the corresponding building products to realize the Unidome construction method. The design is a material-efficient lightweight construction method in which material is eliminated where it has only a negligible load-bearing function. The Unidome design concept is a methodology developed over decades to calculate the resulting cavity structures in a simple and safe way by using the factor method and reverting to the conventional and internationally accepted design principles in the reinforced concrete construction. The internationally patented and approved Unidome construction products are concrete formers developed and tested for their respective applications to produce safe, economical and sustainable concrete structures.



**UNIDOME CONCRETE SHAPER XS**

The efficient construction method using biaxial cavity slabs has become increasingly popular on the market over the past twenty years and is now an internationally established solution. Unidome's latest products take this sustainable technology to the next level, thanks to several new features resulting from decades of practical experience.



**UNIDOME XS-D**

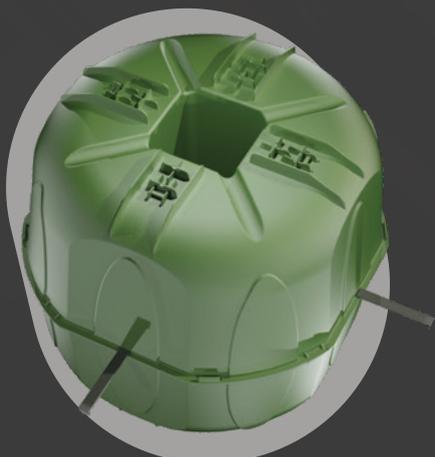
The sustainable product line for concrete components between 50 cm and 100 cm thickness.

The XS-D for doubled or tripled sustainability.

**UNIDOME XS-A**

The product line that allows a lightweight slab to withstand even more shear force.

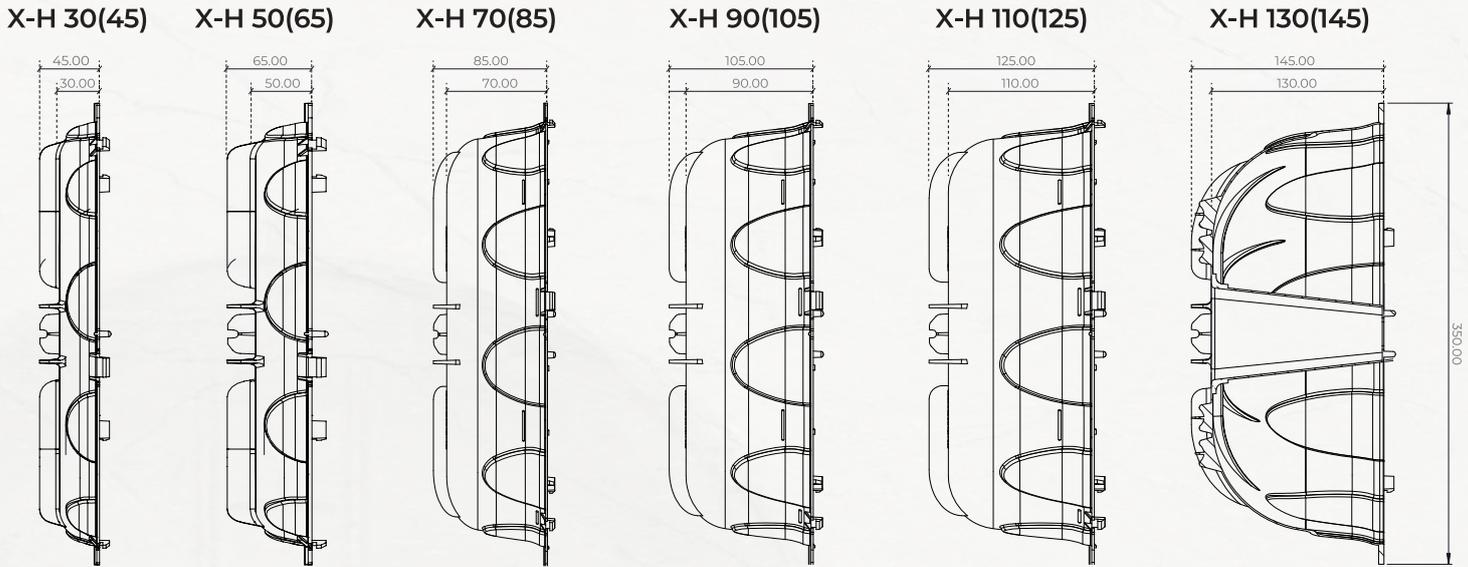
Perfectly complements the XS product line in high-stress areas.



**UNIDOME XL**

The ultimate product line for light-weight concrete components as well as for foundations with large component thicknesses.

## Available Unidome Sizes



## Application Details

### UNIDOME XS

Unidome XS usage data		XS-60 (90)	XS-80 (110)	XS-100 (130)	XS-120 (150)	XS-140 (170)	XS-160 (190)	XS-180 (210)	XS-200 (230)	XS-220 (250)	XS-240 (270)	XS-260 (290)
for more details please check technical data sheets												
Minimum slab thickness	cm	18	20	22	24	26	28	30	32	35	38	40
Cavity height	cm	6	8	10	12	14	16	18	20	22	24	26
Total height concrete shaper	cm	9	11	13	15	17	19	21	23	25	27	29
Volume displacement	m <sup>3</sup> /m <sup>2</sup>	0,0335	0,0443	0,0551	0,0652	0,0753	0,0837	0,0938	0,1010	0,1123	0,1195	0,1265
Weight reduction (concrete 25 kN/m <sup>3</sup> )	kN/m <sup>2</sup>	0,84	1,11	1,38	1,63	1,88	2,09	2,35	2,53	2,81	2,99	3,16

The sustainable product line for concrete slab thickness between 18 cm and 50 cm.

### UNIDOME XS-D

Unidome XS-D usage data		SELECTED EXAMPLES	XS-D2-280 (330)	XS-D2-320 (370)	XS-D2-360 (410)	XS-D2-400 (450)	XS-D2-440 (490)	XS-D2-520 (570)	XS-D3-540 (610)	XS-D3-600 (670)	XS-D3-660 (730)	XS-D3-720 (790)	XS-D3-780 (850)
more detailed information after individual consultation (Design as ribbed slab / waffleslab)													
Minimum slab thickness	cm		50	55	60	65	70	75	80	85	90	95	100
Cavity height	cm		28	32	36	40	44	52	54	60	66	72	78
Total height concrete shaper	cm		33	37	41	45	49	57	61	67	73	79	85
Volume displacement	m <sup>3</sup> /m <sup>2</sup>		0,1506	0,1674	0,1876	0,202	0,2246	0,253	0,2814	0,303	0,3369	0,3585	0,3795
Weight reduction (concrete 25 kN/m <sup>3</sup> )	kN/m <sup>2</sup>		3,77	4,19	4,69	5,05	5,62	6,33	7,04	7,58	8,42	8,96	9,49

Concrete slabs and foundations between 50 cm and 100 cm.

# Installation Instructions

These installation instructions serve as a comprehensive roadmap for successful construction implementation.



## 1 SITE DELIVERY

Materials are delivered directly to the construction site, ensuring timely availability for project needs.



## 2 PREPARATION

Materials are organized and set up for efficient assembly at the construction site.



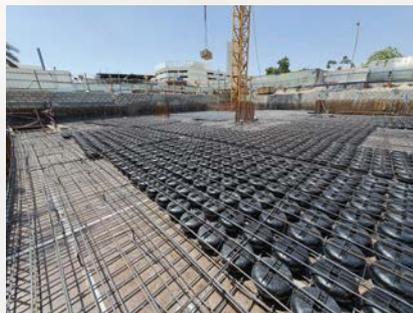
## 3 ASSEMBLY PROCESS

The void formers are assembled according to the project specifications to create the final structure.



## 4 INSTALLATION

The lower reinforcement is positioned, and UNIDOME void former are installed to form the slab structure.



## 5 REINFORCEMENT

The upper steel layer of reinforcement is added to strengthen the slab structure.



## 6 CASTING PHASE

The first layer of concrete is poured to begin forming the structural slab.



## 7 CURING

A 1-2 hour pause allows the initial concrete layer to set before further work.



## 8 COMPLETION

The second layer of concrete is poured to finalize the slab construction.



## 9 POST DESHUTTERING

The formwork is removed to reveal the completed concrete structure.

# Unidome Prefabricated Element Solution

## Concrete Formers XP

The new Unidome XP product line has been specially developed for use in combination with prefabricated element panels. The innovative XP concrete former half shells are already installed with high dimensional accuracy during the production of the element panels in the manufacturer's factory and, in addition to increased sustainability, ensure an optimized degree of prefabrication. The Unidome XP concrete formers have integrated spacer ribs on the top to ensure the necessary distance from the load-bearing reinforcement. The centrally positioned channel allows the transverse reinforcement to be installed with the maximum spacing required by the standard. Laterally and centrally arranged support benches for the transverse reinforcement ensure that the reinforcement bars are neatly encased and thus ensure optimum workability when pouring the concrete on site - simply ingenious.

**More than ever, we are all committed to**  
**climate protection**



**UNIDOME VOID FORMERS** reduce the concrete consumption of reinforced concrete ceilings by approx. 20 % to over 30 % and make the slabs just as much lighter. At the same time, steel reinforcement can be saved without reducing the load-bearing capacity. This saves material, energy, labor, time and money. Thanks to the newly developed XP product line, the sustainable Unidome Void Former technology is now also available for use in fdu Element slabs.

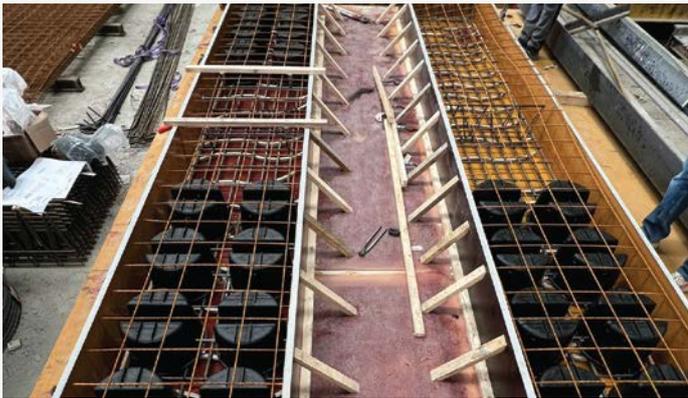
Talk to our specialists and build more sustainably together with us.



# XP TESTING

Planning a sustainable FDU- UNIDOME element panel solution is very simple. First, a load reduction is considered during the static calculation according to the XP data sheets or a software tool. The void former areas or solid areas are then defined, considering the permitted shear load-bearing capacity. In the process of execution planning, the exact element plans are drawn up in consultation with those involved in the planning. We will of course be happy to advise you in detail regarding your project. We look forward to being contacted by you.

Unidome XP Application		XP 90 (105)	XP-PLUS 90 (105)	XP 110 (125)	XP-PLUS 110 (125)	XP 130 (145)	XP-PLUS 130 (145)	XP 150 (165)	XP-PLUS 150 (165)	XP 170 (185)	XP-PLUS 170 (185)	XP 190 (205)	XP-PLUS 190 (205)
Minimum slab thickness	cm	20-23		22-25		24-27		26-29		28-31		30-35	
Height of cavity	cm	9		11		13		15		17		19	
Total height with ribs	cm	10,5		12,5		14,5		16,5		18,5		20,5	
Volume reduction	m <sup>3</sup> / m <sup>2</sup>	0,0339	0,0424	0,0413	0,0517	0,0475	0,0593	0,0533	0,0666	0,0587	0,0733	0,0637	0,0796
Load reduction (Concrete 25 kN/m )	kN / m <sup>2</sup>	0,85	1,06	1,03	1,29	1,19	1,48	1,33	1,66	1,47	1,83	1,59	1,99
CO2 Saving	to / m <sup>2</sup>	0,007	0,009	0,009	0,011	0,010	0,013	0,011	0,014	0,012	0,016	0,014	0,017
Stiffness factor	-	0,97	0,96	0,96	0,95	0,95	0,94	0,94	0,93	0,93	0,92	0,92	0,91
Shear factor	-	0,65	0,55	0,64	0,54	0,63	0,53	0,62	0,52	0,61	0,51	0,60	0,50



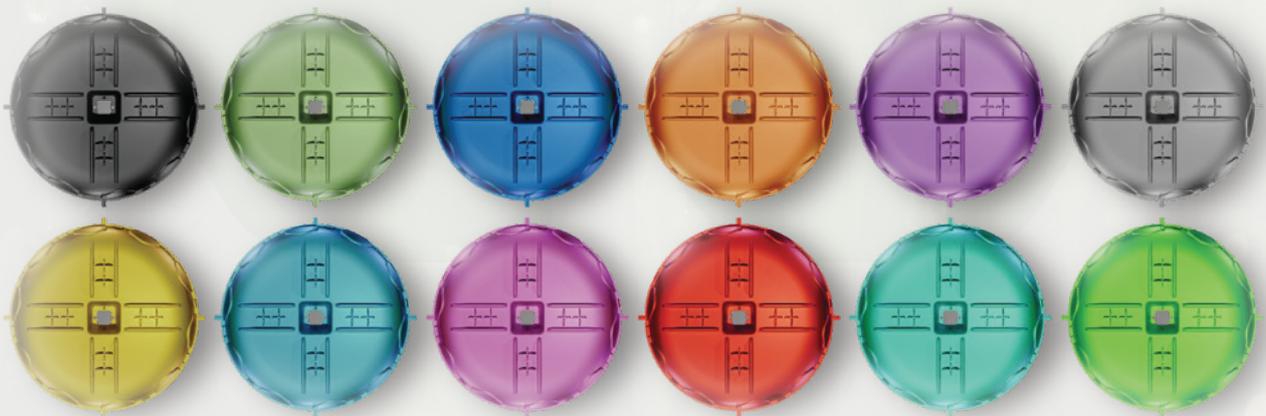
## Sustainability

The direct reduction of concrete consumption and thus of components such as sand, aggregate, water and cement describes only a part of the overall possible material efficiency. The reinforcement content of the floor slab components can also be significantly reduced. In addition, the load reduction achieved leads to slimmer load-transmitting components such as columns, walls and foundations.

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# 100% RECYCLING

The color does not matter for us



## SOCIAL RESPONSIBILITY

UNIDOME is enabling people from all countries to make use of our affordable and safe technology. Sincerity, ethical behavior and long-term oriented relationships define the main pillars of our philosophy.

## ECONOMIC VIABILITY

Money saving is not the only benefit from using UNIDOME, the minimized construction period will benefit the client and the contractor by having the project handed over in less time. Also, UNIDOME building will be more architecturally spacious and more flexible to any changes that might be carried out by the client in the future.



## SUSTAINABILITY

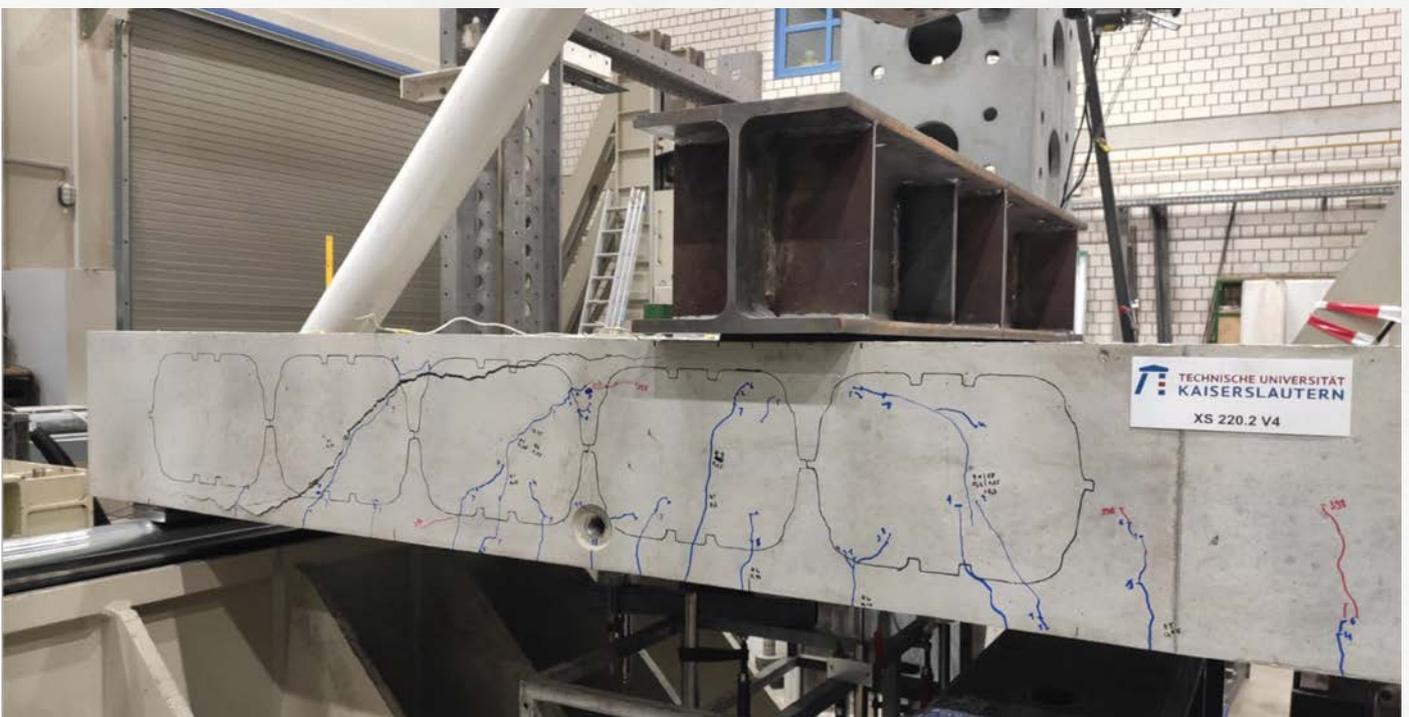
UNIDOME products are made from 100 % recycled material. UNIDOME concrete shapers reduce about %30 of the concrete used in a slab, in addition to CO2 emission reduction by remarkable amount.

## SAFETY

Nowadays, we have become aware that the easiest way to create safe construction is to create an intelligent structure with minimal material consumption while attaining maximum rigidity and strength. Especially in earthquake prone regions, the safety of vulnerable structures can be increased drastically using UNIDOME.

## Research & Development

The cooperation with various internationally recognized research institutes, partners and local authorities enables us to offer tested, proven as well as quality-assured products and a construction technology for global application. The Unidome visionaries have a broad know-how in the field of sustainable void former technology and can look back to an experience of more than 20 years. This experience is of course also being utilized for new developments.



# Research & Development



**SHEAR TESTS  
WITH DIFFERENT  
SIZES AND SHAPES**



# Project References



**UniQ Towers**  
Germany



**Al Atlal Tower**  
Kuwait



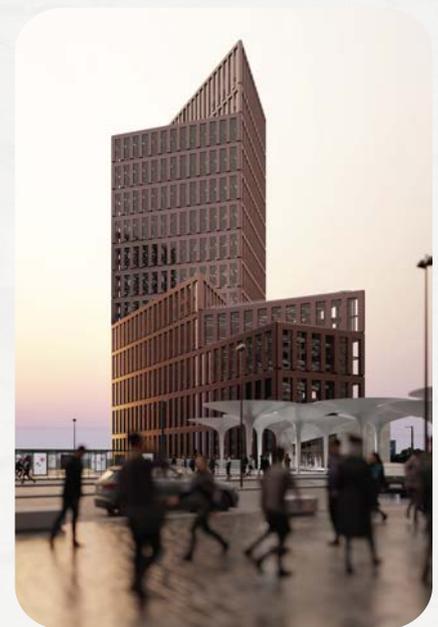
**Elsa Bienenfeld Schule**  
Austria



**Othaim Hotel**  
Riyadh, Saudi Arabia



**Al Raya Mall**  
Jordan



**The Node**  
Finland



# Project References



**IKON Tower**  
Spain



**Green Building**  
Germany



**4 Buildings (G+7)**  
**Commercial & Residential**  
Sharjah, United Arab Emirates



**VYE SODIC**  
Egypt



**Bin Dawood Mall**  
Makkah, Saudi Arabia



**Pixels**  
Kuwait



# Project References



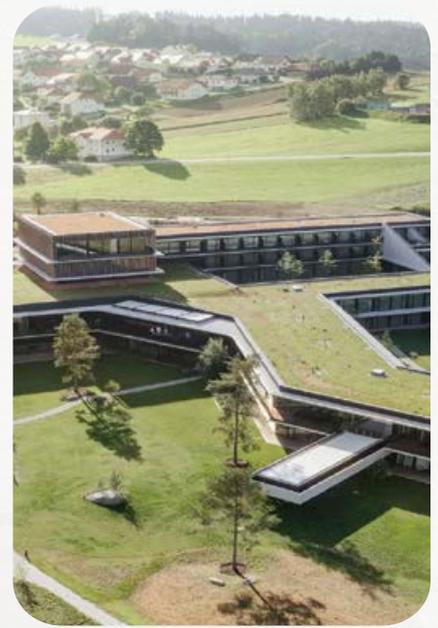
**The Grove Al Sadiyat Island**

Abu Dhabi, United Arab Emirates



**Othaim Park**

Dammam, Saudi Arabia



**Loxone Campus**

Austria



**Zentralklinikum Lörrach**

Germany



**Gebäude D4**

Switzerland



**Faculty of Modern Science & Modern Media**

Palestine



# Project References



**FFC / IHPL Office tower**  
Pakistan



**HSG Learning Center**  
Switzerland



**Taiba Hospital**  
Kuwait



**Klinikum Passau BA 6**  
Germany



**Perla 3**  
Abu Dhabi, United Arab  
Emirates



**Central Park**  
Bulgaria



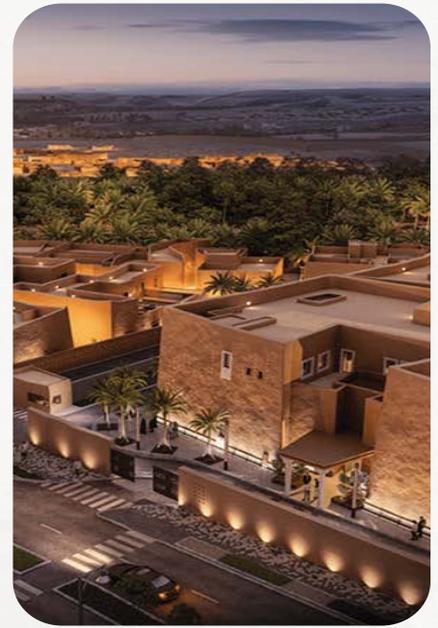
# Project References



**Diva Towers**  
Abu Dhabi, United Arab Emirates



**VISTA NOCTURNAB**  
Spain



**Samahn Heritage Hotel**  
Diriyah, Saudi Arabia



**Al Fahel residential building**  
Jordan



**GEMÜ Headquarters**  
Germany



**AL-ROOMI CHALET**  
Kuwait



# Project References



**Olive Drive Villas**  
Jordan  




**Luxury Villas**  
Bahrain  



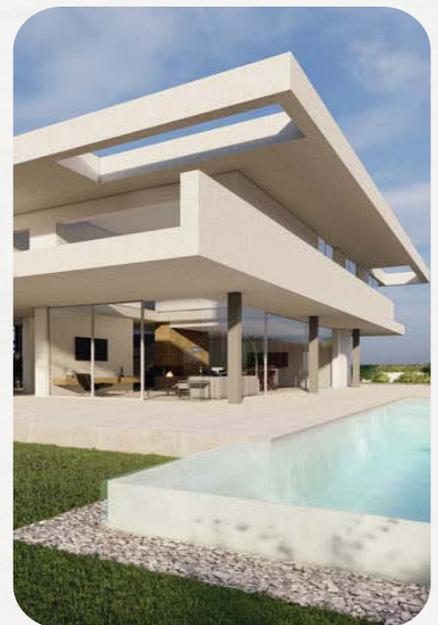

**Arabella Hotel**  
Kuwait  




**Delta Headquarters**  
Serbia  




**Zeiss Hightech**  
Germany  

**Casa La Gola**  
Spain  


# Project References



**Alaa Residential Building**  
Palestine  




**Tower One**  
Spain  




**Struzon Project**  
India  




**Sky One Offices**  
Germany  




**School on Dreyhausenstrabe**  
Austria  




**Horizon Beach Hotel**  
Kuwait  




## Unidome Global DWC LLC

DWC - Unit WA-47  
Dubai Logistics City  
Dubai - United Arab Emirates  
☎ 00971 4 870 3999  
✉ office@unidome.me

## AAA Company

Prince Sulthan Ibn  
Abdul Aziz Street, AlMadhar  
Al Shamali Bld.  
☎ +966 549595453  
✉ office@unidome.me

## Unidome Deutschland GmbH

Grobe Hub 10a  
65344 Eltville-Martinsthal - Germany  
☎ 0049 6123 795 8933  
✉ office@unidome.de

## Office Valencia

Pg. de Russafa, 20  
46002 Valencia - Spain  
☎ 0034 658 809 292  
✉ office@unidome.es

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