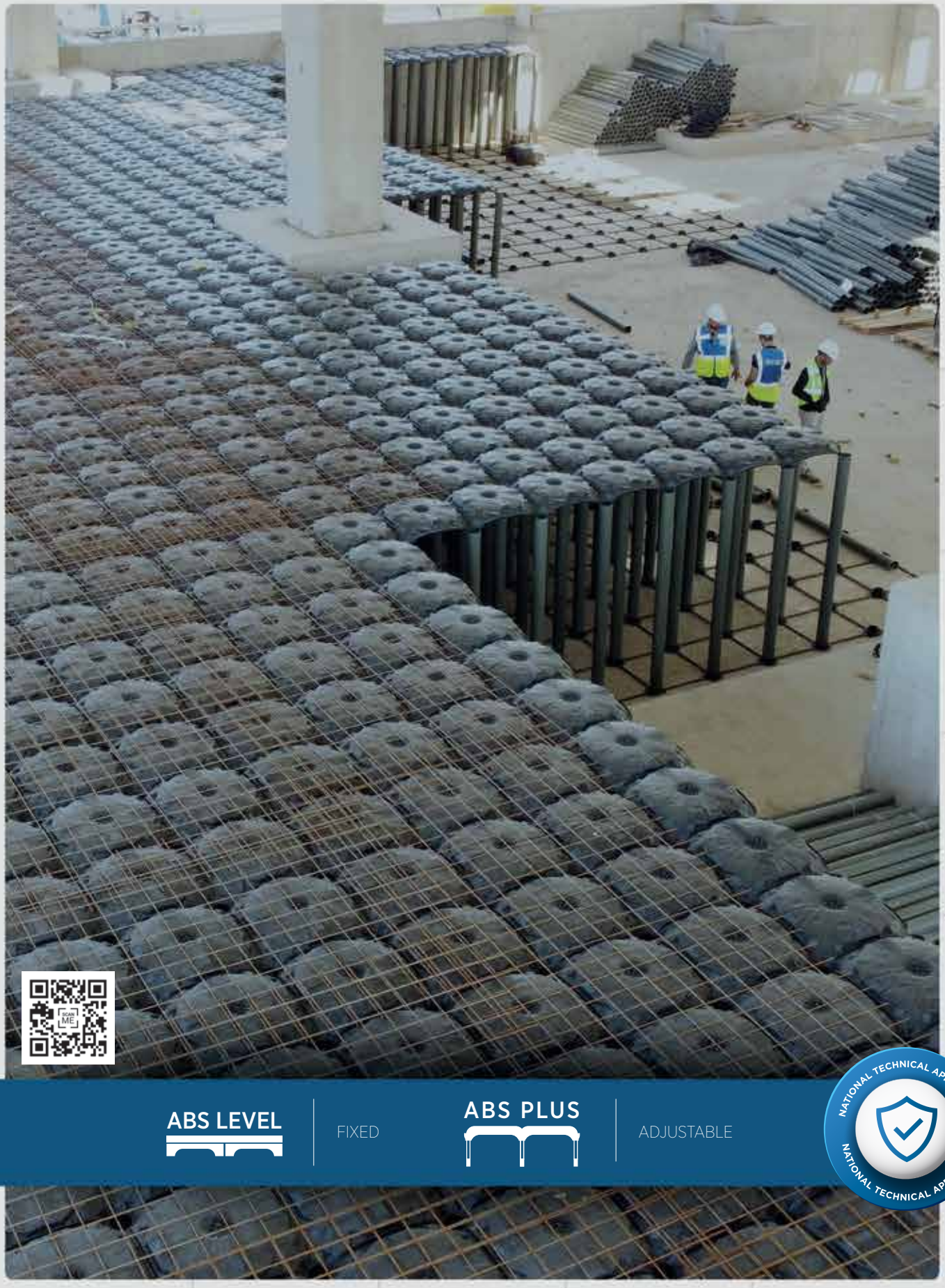
abs Disposable Formworks

DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS



ABS LEVEL | FIXED

ABS PLUS | ADJUSTABLE

NATIONAL TECHNICAL APPROVAL

disposableformworks.com

LIGHTWEIGHT, SIMPLE, FAST

WHAT ARE ABS DISPOSABLE FORMWORKS?

Typical ABS Plus System Cross Section

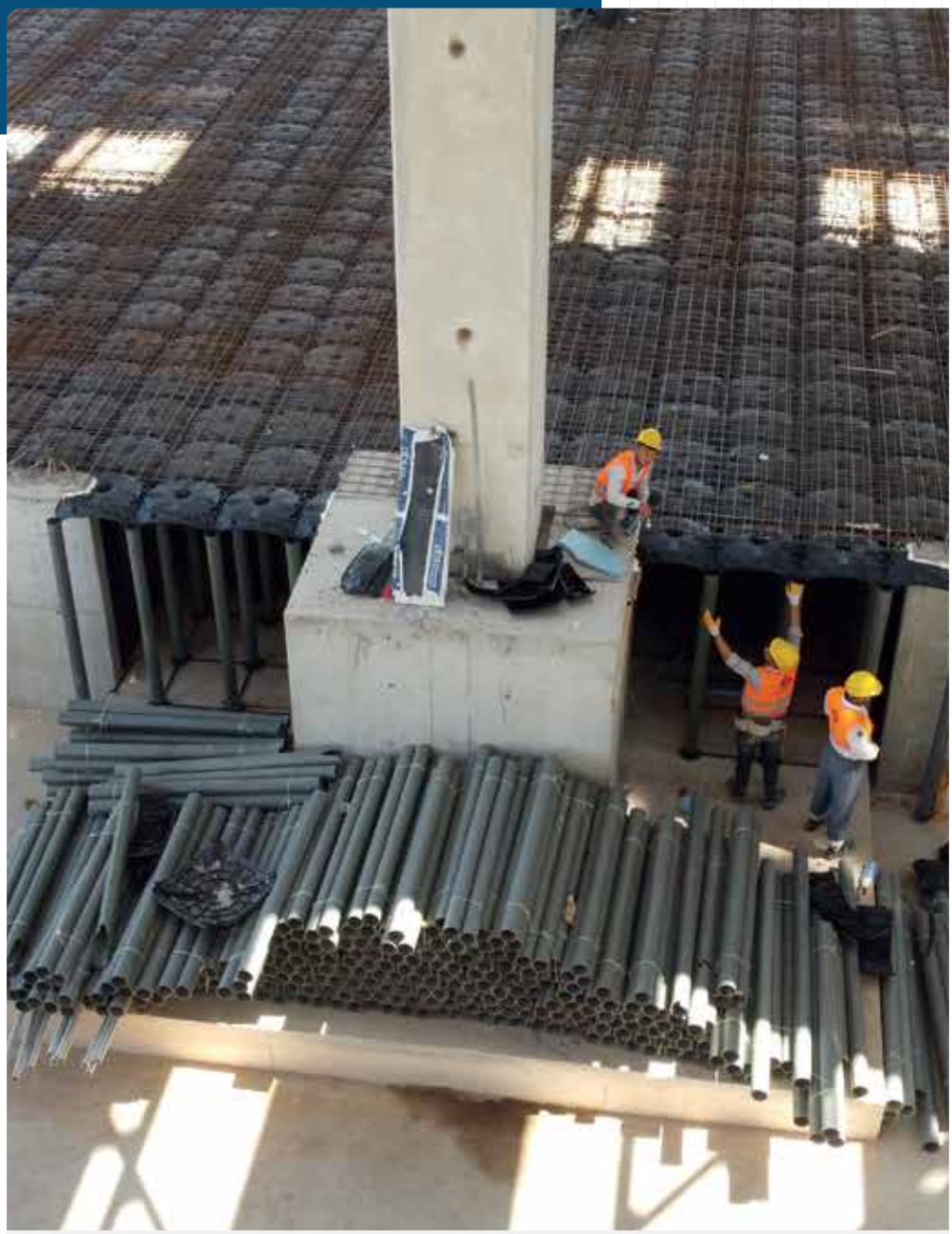
ABS Disposable Formworks help to construct reinforced concrete raised floors

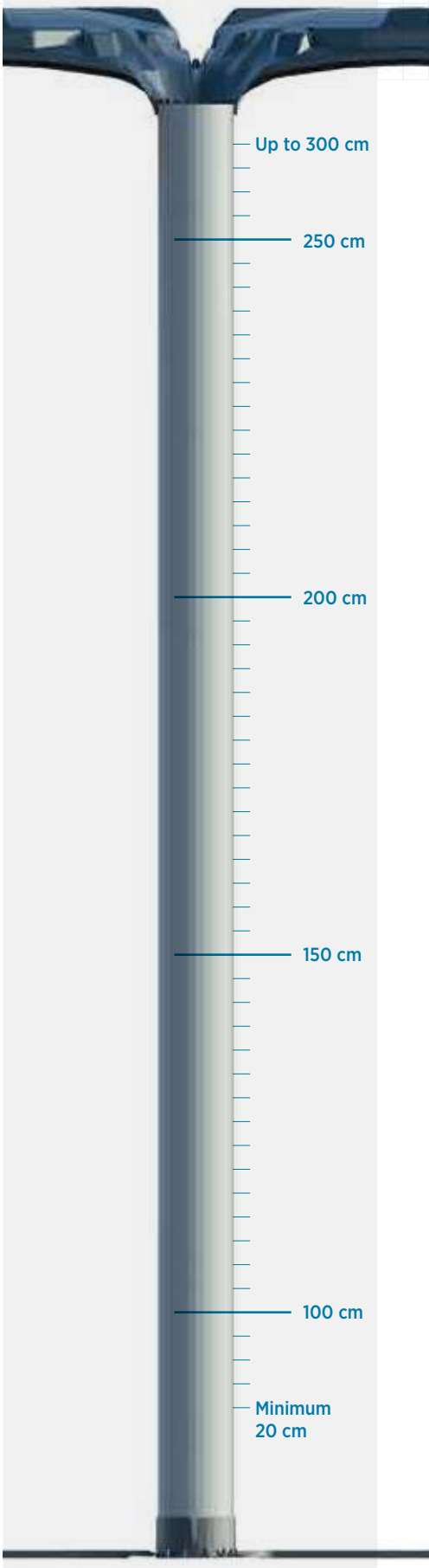
ABS Disposable Formworks are concrete shaping structures made of recycled plastic that are used only once. They are also called void formers, permanent formworks or single-use formworks. They create reinforced concrete raised floors up to 300 cm, thus providing a light, fast, easy and economical filling in any structure. Reinforced concrete raised floors are constructed faster and easier, are lighter weight and are more economical than conventional filling applications.

ABS Plus
Adjustable Height

ABS Level
Fixed Height

ABS PLUS | ADJUSTABLE HEIGHT





ABS PLUS | ADJUSTABLE HEIGHT DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS (20 - 300 cm)

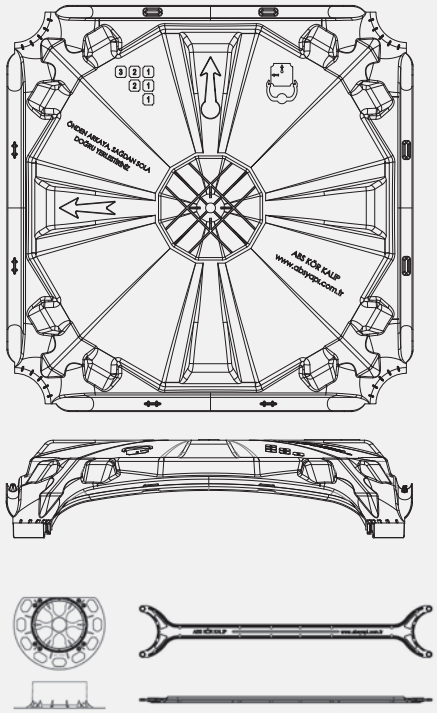
ABS Plus is an adjustable-height disposable concrete formwork system made of recycled plastic. The system is also called 'void formers', 'permanent formwork' or 'single-use formwork'. It creates reinforced concrete raised floors up to 300 cm, thus providing a light, fast, easy and economical filling in any structure.

To accommodate project-specific heights, the legs are cut to specification at factory before delivery. Alternatively, standard-length legs can be cut on-site by the customer fitting exact heights.

Unlike similar systems, the ABS Plus system consists of 2 legs per m², which, in addition to the advantages listed below, provides additional ease of application and significant cost savings on concrete and steel. ABS Plus system can be used for any sort of lightweight filling application. Uses include sunken slab fillings, landscape fillings to create a hard surface, inverted beam fillings, fillings between foundation footings, carpark ramps, pool decks, elevator/staircase hallway fillings and crawlspace construction.

For more information

ABS Plus (20 cm - 300 cm)



1. **ABS Plus - Spacer** (min. 2 max. 4 pcs per m², depending on the project)
2. **ABS Plus - Base** (2 pcs = 1 m², Ø125 mm, H 2,5 cm)
3. **ABS Plus - Leg** (2 pcs = 1 m², cut to the heights required by the project, Ø125 mm)
4. **ABS Plus - H15 Dome** (2 pcs = 1 m²)

Dimensions

Dome size	710 x 710 mm, 2 domes per m²
Dome height	150 mm, net height w/o leg connections
Net arch clearance	width 590 mm, height 59 mm
Base height	25 mm, 2 bases per m²
Leg diameter	Ø 125 mm, 2 legs per m²
Leg height	variable heights, depending on requirement
Number of spacers needed	max 4/m² lower than 50 cm heights may not require use of spacers, however all spacers are need for heights for more than 120 cm

Pallet dimensions

Pallet dimensions (dome)	75 x 150 x 255
Pieces per pallet (dome)	170 pcs
Area covered per pallet (dome)	85 m²
Pallet weight (dome)	350 kg

Material: dome, base and spacer recycled PP, leg recycled PVC
Application speed: 20 m²/man-hour on a rectangular area

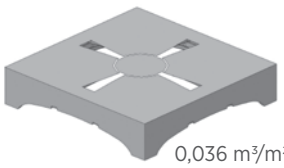
Formulas

d = height in m of the topping concrete calculated separately depending on the service loads needed
h = total height of the ABS Plus system in m before concrete casting

Total concrete consumption in m³/m² = d + 0,03554 + [0,02454 x (h - 0,15)]

Leg height in m = h - 0,15 m - 0,025 m

Dome Concrete Consumption



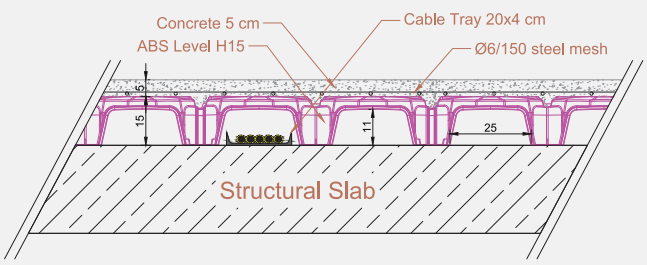
0,036 m³/m²

ABS LEVEL | FIXED-HEIGHT DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS (5, 10, 15 cm)

The 'Level' series of ABS Disposable Formworks offers fixed heights of 5, 10 and 15 cm to create reinforced concrete raised floors in commercial or industrial structures quickly, easily and extremely economically. The formworks are made of recycled plastic and are specifically designed to enable cable trays and/or plumbing pipes to pass through them.

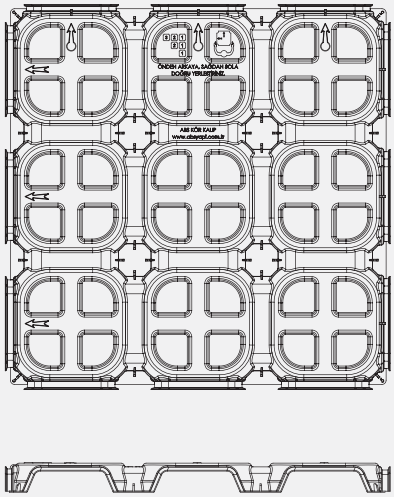
The products can be used alternatively to modular raised floor applications with metal pedestals. Moreover, commercial areas that are conventionally filled with 8–10 cm of dry screed to obtain a smooth concrete finish can be constructed as a reinforced concrete raised floor using ABS Level disposable formworks and junction boxes, which allows electrical and mechanical installations to pass through them. The space that normally would have been lost, can now be added to the usage area of the building.

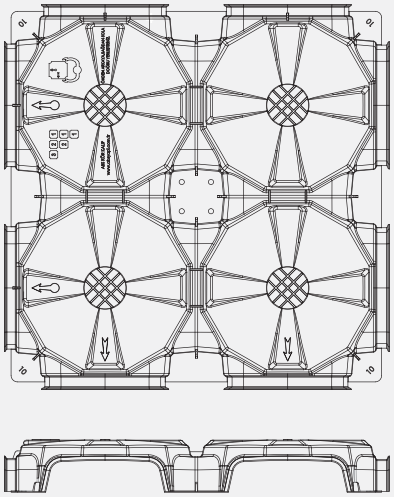
1) ABS Level - H5 (2 pcs = 1 m²)
2) ABS Level - H10 (2 pcs = 1 m²)
3) ABS Level - H15 (2 pcs = 1 m²)

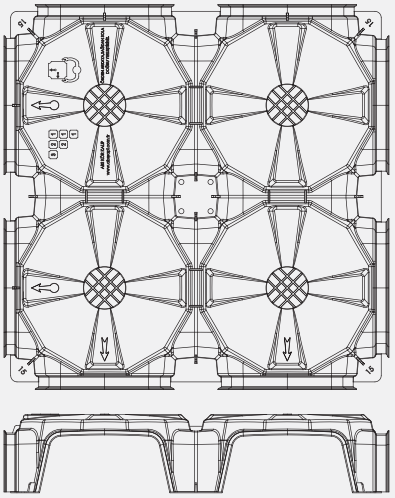


For more information

ABS Level - H5 | ABS Level - H10 | ABS Level - H15







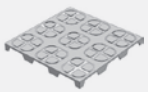
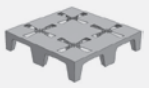
Dimensions

ABS Level - H5	ABS Level - H10	ABS Level - H15
710 x 710 x 50 mm	710 x 710 x 100 mm	710 x 710 x 150 mm
2 formworks per m²	2 formworks per m²	2 formworks per m²
1,78 kg/pcs	1,96 kg/pcs	2,16 kg/pcs

Net arch clearance

ABS Level - H5	ABS Level - H10	ABS Level - H15
160 mm width	230 mm width	250 mm width
40 mm height	60 mm height	110 mm height

Concrete consumption w/o topping concrete

ABS Level - H5		ABS Level - H10		ABS Level - H15	
0,010 m³/m²		0,022 m³/m²		0,025 m³/m²	

Pallet dimensions

ABS Level - H5	ABS Level - H10	ABS Level - H15
75 x 150 x 260 cm	75 x 150 x 260 cm	75 x 150 x 260 cm

Pieces per pallet and area covered

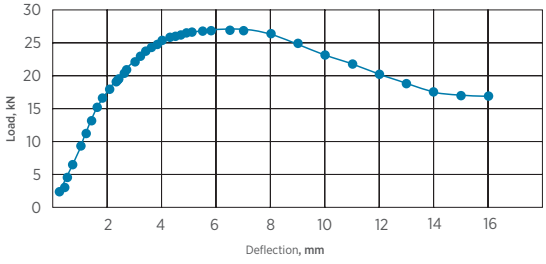
ABS Level - H5	ABS Level - H10	ABS Level - H15
300 pcs and 150 m²	250 pcs and 125 m²	250 pcs and 125 m²

Pallet weight

ABS Level - H5	ABS Level - H10	ABS Level - H15
545 kg	500 kg	550 kg

Material: recycled PP
Application speed: 100 m²/man-hour on a rectangular area

FORMWORK LOAD BEARING REPORT



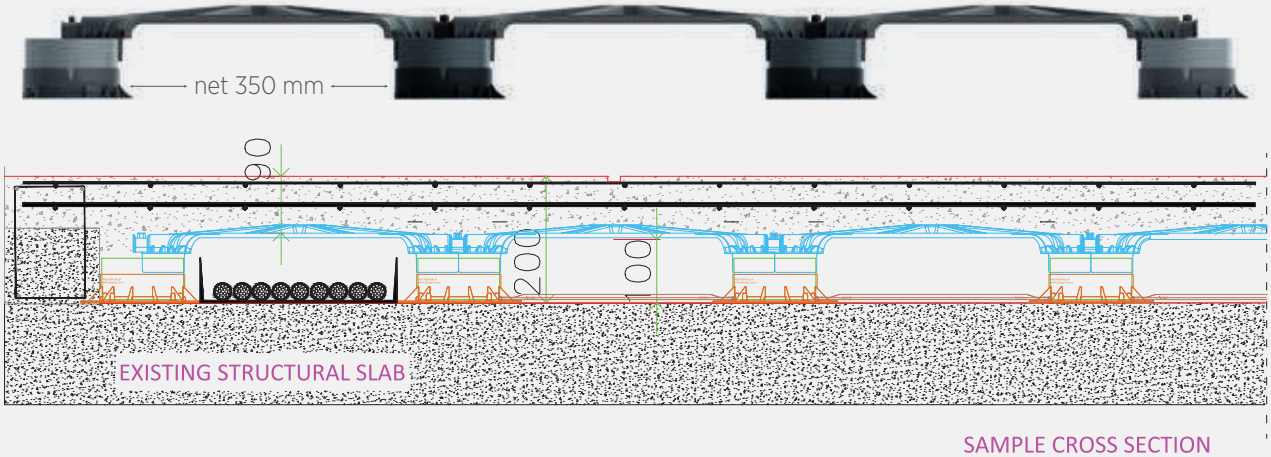
Sample No	Sample Type	Sample Size (mm)	Plate Size (mm)	Maximum Load		
				kN	kN/m²	
1	ABS Level H5	710x710x50	450x450	26.950	133.1	

- Please contact us for more detailed information.

SPECIAL VERSION

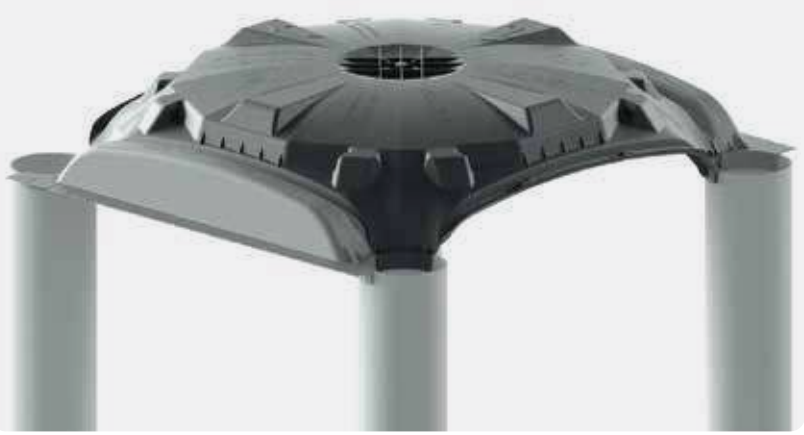
ABS PLUS S | VARIABLE-HEIGHT DISPOSABLE FORMWORK SYSTEM FOR MAXIMUM CLEARANCE

ABS Plus S (S for special, smart, and slim) offers maximum possible net arch clearance among all the existing disposable formwork designs. Thanks to its unique umbrella cage shape it has an almost flat ceiling allowing MEP (mechanical, electrical, and plumbing) installations to pass through uninterruptedly, at a maximum available leg opening of 350 mm. Moreover, the formwork system can be installed at a minimum height of 75 mm leaving a net clearance of 50 mm under the arch. This registered umbrella cage design also works as a concrete spacer on its top, allowing less topping concrete for a stronger structure.



SAMPLE CROSS SECTION

ACCESORIES



ABS PLUS | DOME SIDE SHUTTER

This unique design helps to cover the opening between uncut ABS Plus domes and perimeter wall completely even if the wall surface is uneven. The design covers the arch of the dome with minimum concrete consumption while keeping the leg entry completely open for concrete casting.

ADVANTAGES

THE LIGHTEST SOLUTION

Regardless of the height, only the weight of the topping concrete is added to the structure.

EASE OF LOGISTICS

Unmatched logistical advantage; products are designed to be stackable, nesting in each other. At a sample height of 100 cm, 1 truck of disposable formwork equivalents 50 trucks of alternative filling material!

HIGH LOAD BEARING

Through the creation of hundreds of columns, arches and domes, the reinforced concrete raised floor has a very high load bearing capacity.

REDUCED CONSTRUCTION TIME

Construction activities on upper floors can proceed without having to wait for the filling application on lower floors, as the filling application can be done anytime, saving very valuable construction time.

VOID SPACE CREATION

The void space that gets created can be used for installations (electrical, mechanical, etc.) to pass through; columns have a net opening of 59 cm.

FAST AND EASY

The installation does not require any skilled labor; it can be done very fast and easy.

RAMP CONSTRUCTION

The legs can be cut at any size needed to create a ramp.

CONTINUOUS CONRETE SURFACE

Any sort of covering application can be applied on the concrete surface very easily.

HEAT AND SOUND INSULATION

The void space that gets created provides heat and sound insulation.

RADON AND DAMP BARRIER

If used above foundations and properly ventilated, it is the most economical and safest way to removing radon gas, humidity and dampness from living quarters.

SEPARATOR WALL CONSTRUCTION

Separator walls can be installed directly on the newly created concrete surface.

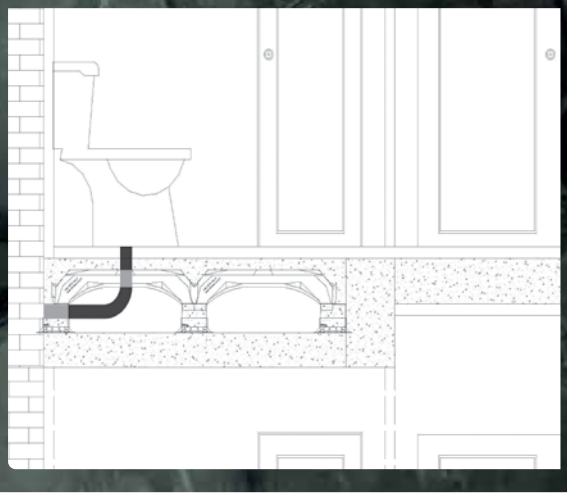
ENVIRONMENTAL VALUE

Because the disposable formworks are made of recycled PP, they help to gain considerable LEED certificate points.

ABS Disposable Formwork System for lightweigth fillings is the first and only domestic product group in its field with National Technical Approval and G marking.

UTO-TTO/19-1915

SUNKEN SLAB FILLING



In commercial buildings in particular, sunken slabs may be required on ground floors or podium areas. By using ABS Disposable Formworks, these areas can be raised to the height specifications of architectural plans. Constructing reinforced concrete raised floors by using ABS Disposable Formworks is one of the lightest and most practical solutions to leveling differences.

In multi-use projects, different parts of a building on a common floor may not be level. Such differences usually occur on ground floors, podium areas, courtyards or roof gardens. The lower “sunken slab” therefore must be raised to the height of the more dominant slab. Constructing a lightweight reinforced concrete raised floor using ABS Disposable Formworks is fast and economical. ABS Disposable Formworks also offer an extra benefit: by allowing MEP (mechanical, electrical, plumbing) installations to pass through the void space, they add what would normally be lost space to the functional area of the structure.

SUNKEN SLAB FILLING REFERENCE APPLICATION

Residential Tower

Far East

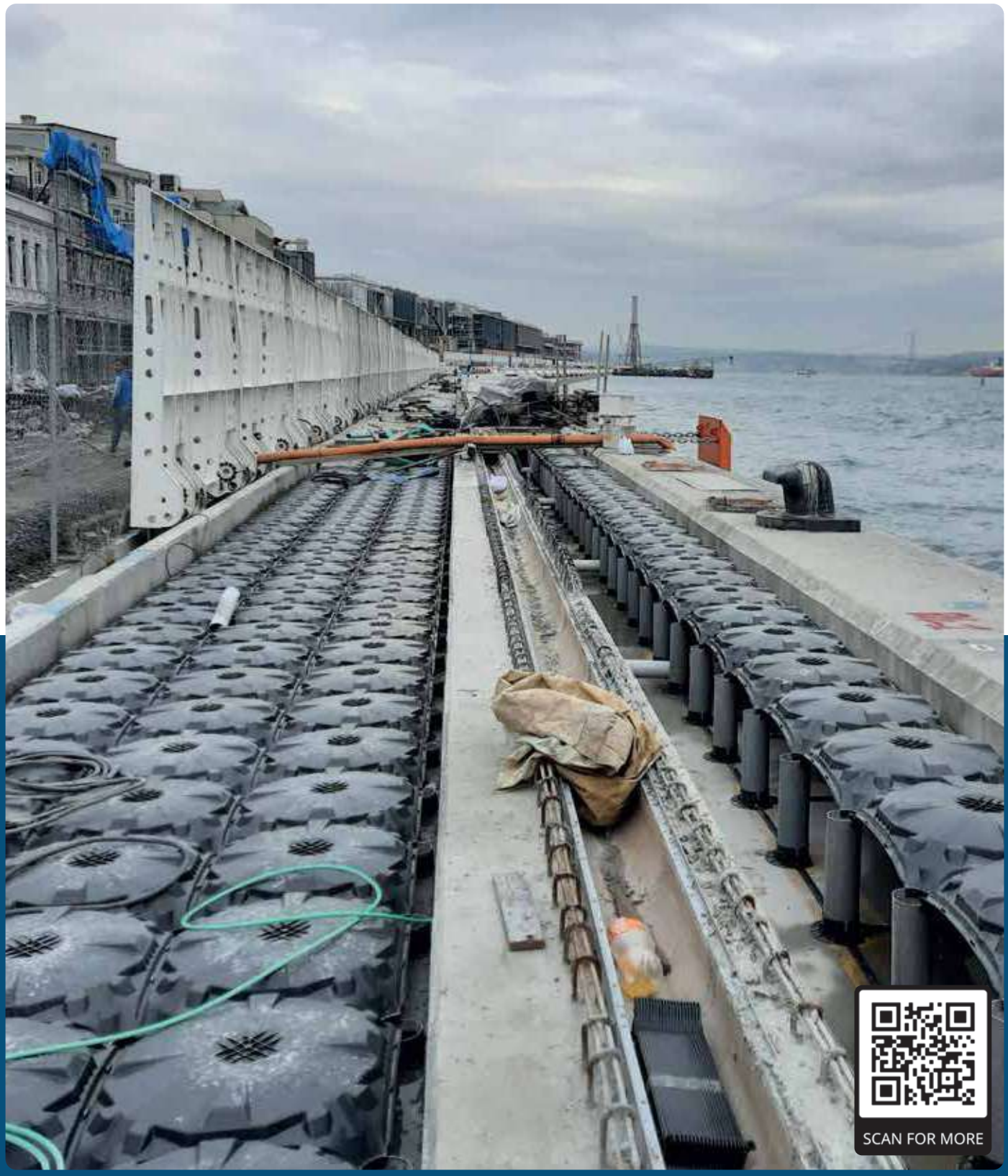
ABS Disposable Formwork H35 cm

SUNKEN SLAB FILLING REFERENCE APPLICATION

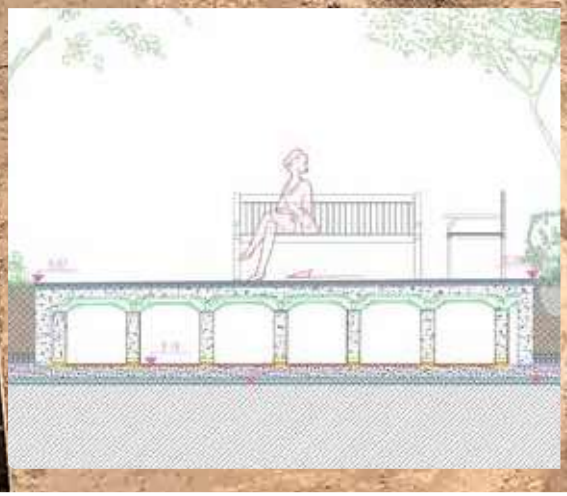
Gebze Bilsem School

Gebze, İzmit

ABS Disposable Formwork H40 cm



LANDSCAPE FILLING



ABS Disposable Formworks are preferred not only because they are the lightest filling application. Thanks to the fact that they do not interrupt the drainage slope, they are also the preferred choice for constructing hard surfaces in landscape projects, and they completely eliminate the risk of long-term cracks.

With increasing congestion in today's cities, the need for green spaces increases as well. One way to address this need is to utilize rooftops, podiums and terraces for gardens. This idea is a very a simple one, but it presents tough engineering challenges—including total building weight and drainage. ABS Disposable Formworks are useful for constructing practical and robust hard surfaces in such elevated gardens. The formworks can be laid on top of (or next to) inclined drainage sheets without blocking the flow of drain water. Landscape architects can therefore plan freely, without being concerned about hard-surface walkways blocking the drainage direction.

LANDSCAPE FILLING REFERENCE APPLICATION

Galataport Istanbul

Istanbul, Turkey

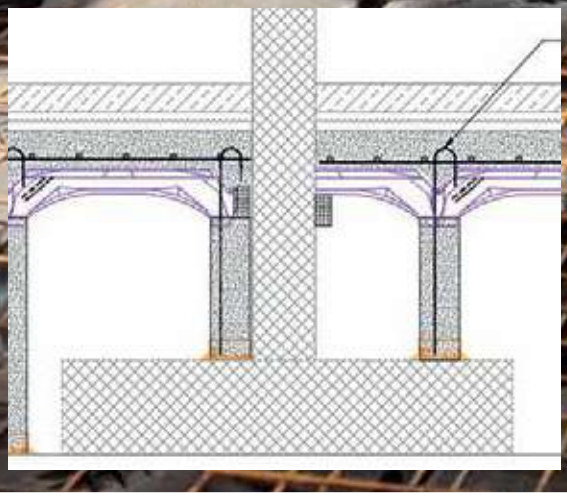
ABS Disposable Formwork H30 & 60 cm

Gaziantep Iconova

Gaziantep, Turkey

ABS Disposable Formwork H50 cm

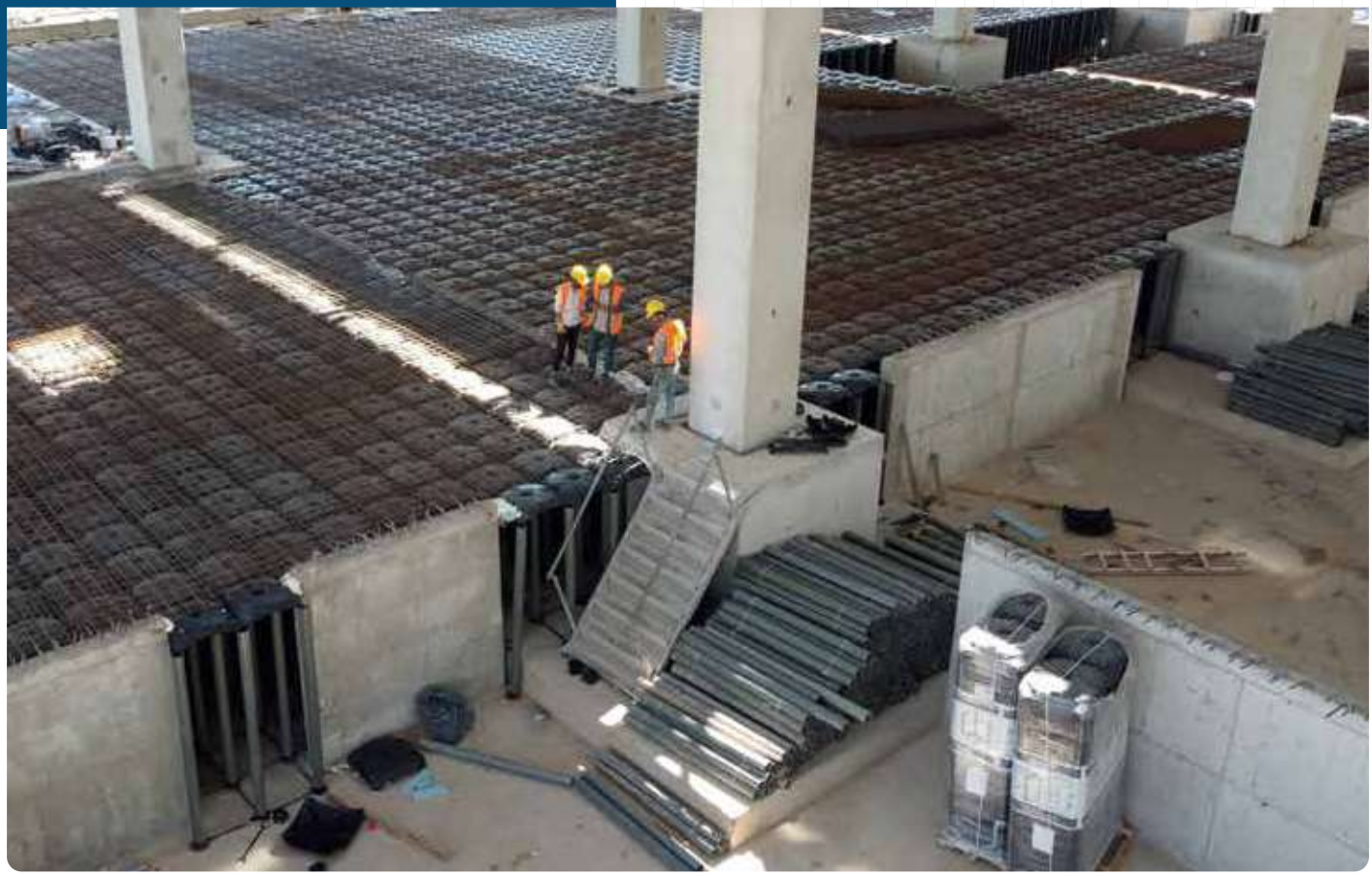
FILLING BETWEEN FOUNDATION FOOTINGS



In order to reduce the thickness of a raft foundation without risking the integrity of the entire structure, column/wall footings are required above the raft foundation surface. A footing distributes the load on top of the column/wall evenly on the raft foundation, which also avoids puncturing the column/wall into the raft foundation. Overall, this is an effective and economical method of creating foundations.

However, a footing creates a serious handicap; the space between the footings needs to be filled and paved to create an even surface so that it can be added to the useful area of the building. These areas are traditionally filled with a gravel-sand mix and compacted every 20-30 cm. The compacted area has to be covered with a plastic sheet to prevent concrete leakages, and 20 cm of concrete with double mesh steel reinforcement has to be poured and paved.

FILLING BETWEEN FOUNDATION FOOTINGS REFERENCE APPLICATION



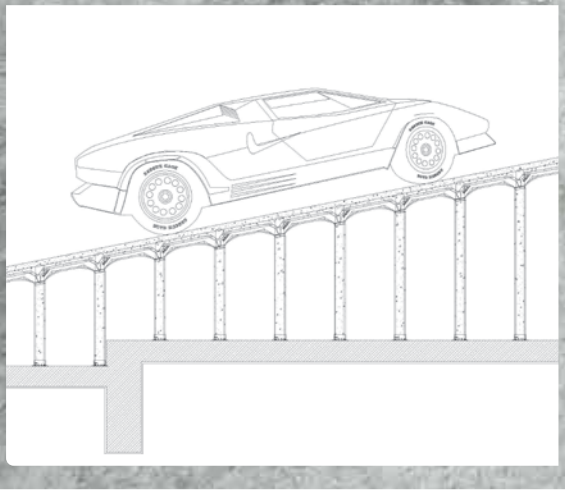
TOGG Gemlik Campus

Bursa, Turkey

ABS Disposable Formwork H250 cm

FILLING BETWEEN FOUNDATION FOOTINGS REFERENCE APPLICATION

CAR PARK RAMP CONSTRUCTION



Car park ramps that are constructed using ABS Disposable Formworks are lighter and more economical than conventional shear wall and beam designs. Conventional car park ramp designs require sheer walls and beams to carry the weight of vehicle traffic on an inclined surface. ABS Disposable Formworks allow construction of a flat slab where the ramp is going to be (that is, a surface just like the main slab structure). Later, ABS Disposable Formworks can be used to construct the incline (from 0 meters up to 3 meters), adding to the structure only the thickness of the slope – and a little more for the ABS columns. It is a faster, lighter and more economical solution than conventional methods.

CAR PARK RAMP CONSTRUCTION REFERENCE APPLICATION

Emaar Square

Istanbul, Turkey

ABS Disposable Formwork H110 & 250 cm

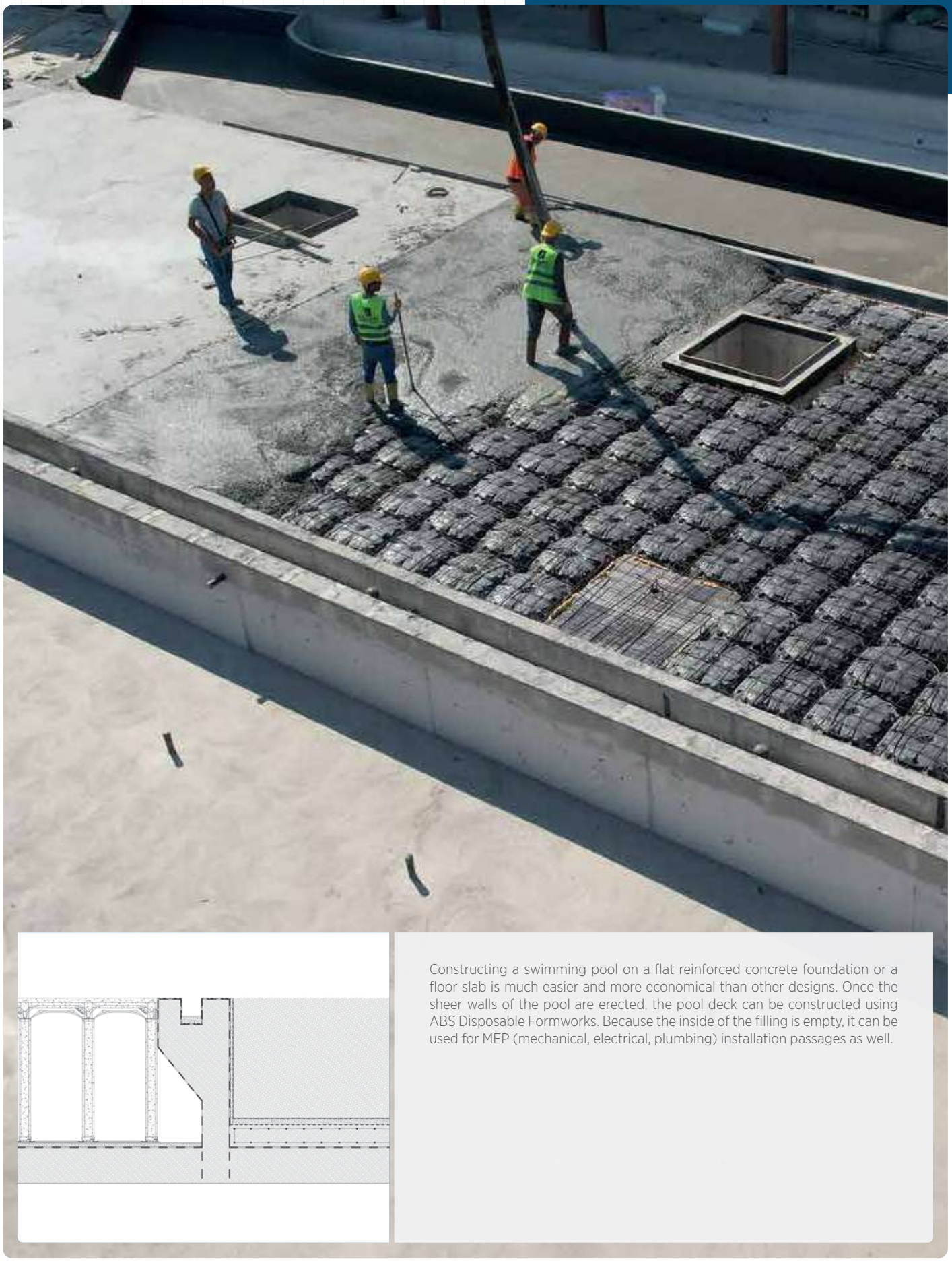
RAMP CONSTRUCTION REFERENCE APPLICATION

Sabah Al-Salem University

Kuwait City, Kuwait

ABS Disposable Formwork H100 cm

POOL DECK SLAB FILLING



Constructing a swimming pool on a flat reinforced concrete foundation or a floor slab is much easier and more economical than other designs. Once the sheer walls of the pool are erected, the pool deck can be constructed using ABS Disposable Formworks. Because the inside of the filling is empty, it can be used for MEP (mechanical, electrical, plumbing) installation passages as well.

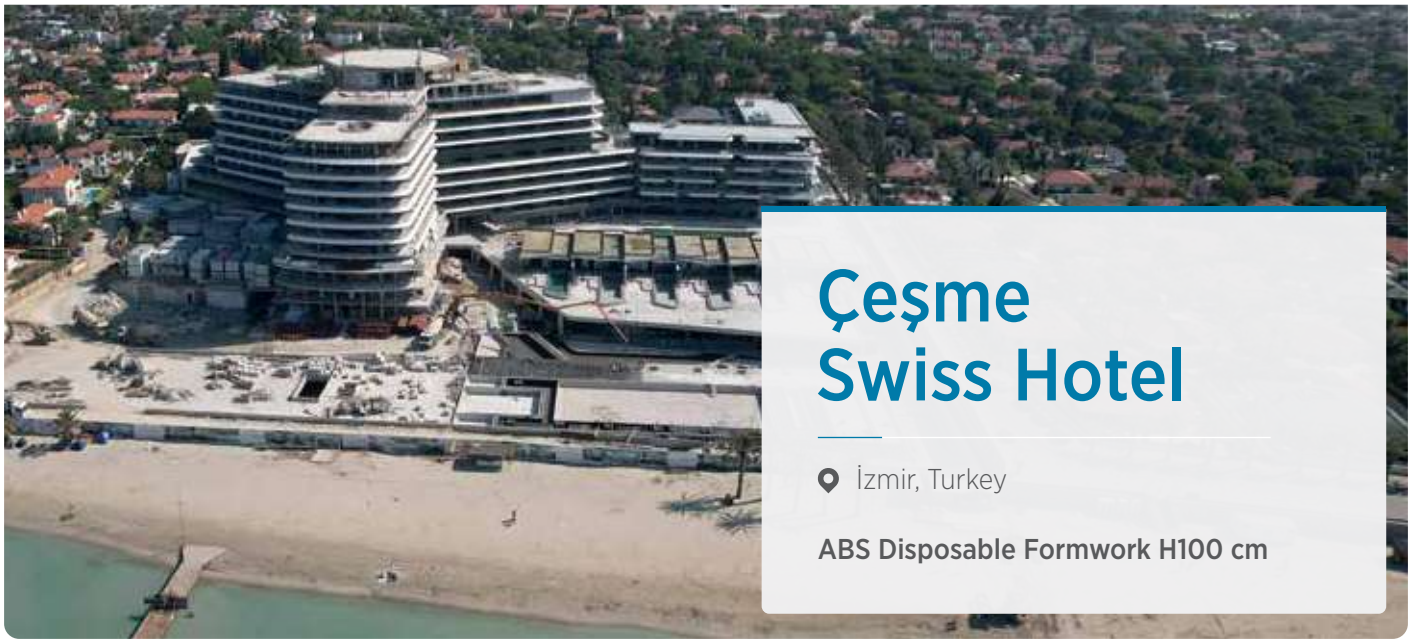
POOL DECK SLAB FILLING REFERENCE APPLICATION

Rumeli Villas

Istanbul, Turkey

ABS Disposable Formwork H180 cm

POOL DECK SLAB FILLING REFERENCE APPLICATION

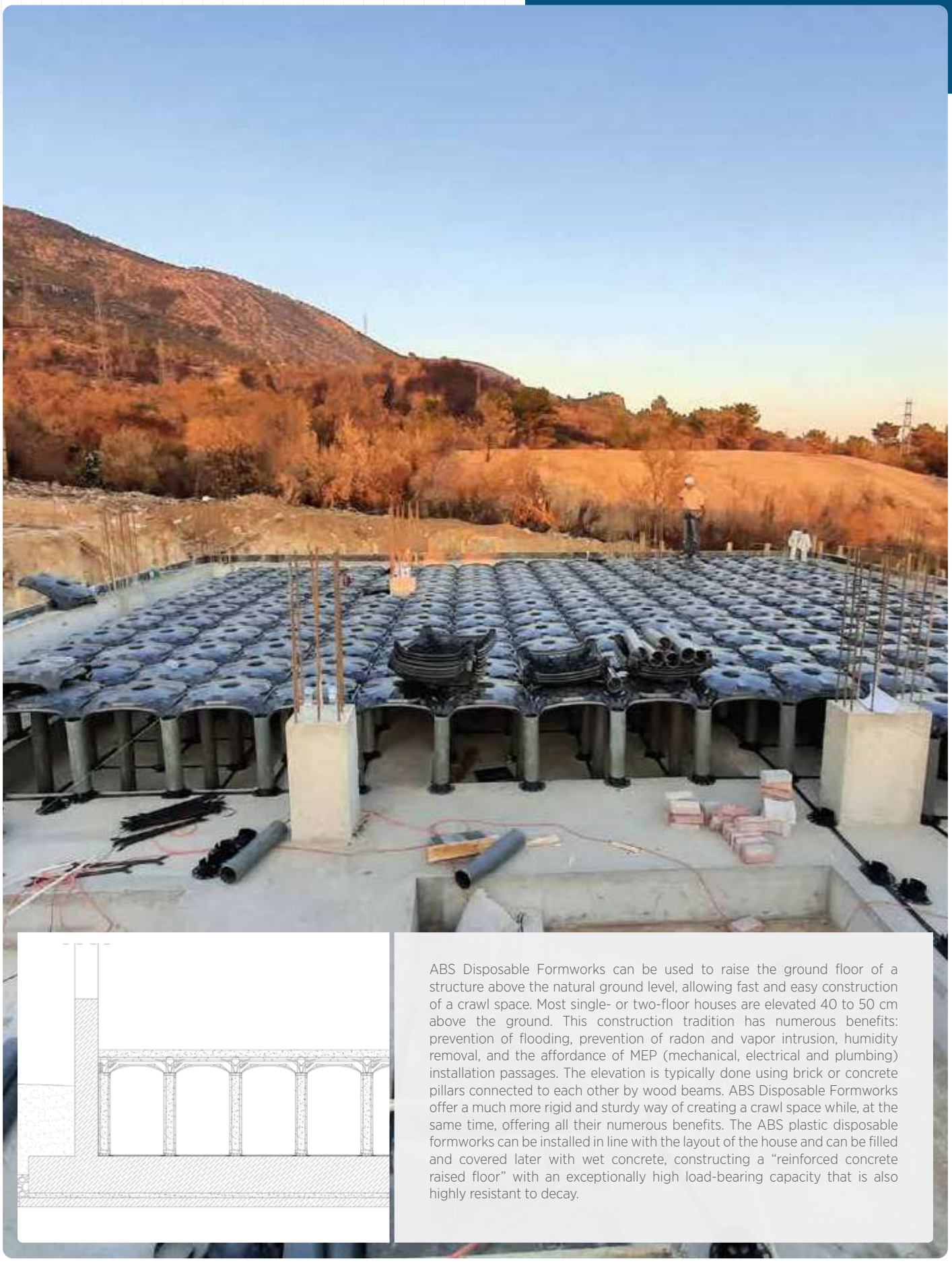


Çeşme Swiss Hotel

İzmir, Turkey

ABS Disposable Formwork H100 cm

CRAWL SPACE CONSTRUCTION



ABS Disposable Formworks can be used to raise the ground floor of a structure above the natural ground level, allowing fast and easy construction of a crawl space. Most single- or two-floor houses are elevated 40 to 50 cm above the ground. This construction tradition has numerous benefits: prevention of flooding, prevention of radon and vapor intrusion, humidity removal, and the affordance of MEP (mechanical, electrical and plumbing) installation passages. The elevation is typically done using brick or concrete pillars connected to each other by wood beams. ABS Disposable Formworks offer a much more rigid and sturdy way of creating a crawl space while, at the same time, offering all their numerous benefits. The ABS plastic disposable formworks can be installed in line with the layout of the house and can be filled and covered later with wet concrete, constructing a “reinforced concrete raised floor” with an exceptionally high load-bearing capacity that is also highly resistant to decay.

Manavgat Villas

Antalya, Turkey

ABS Disposable Formwork H75 cm

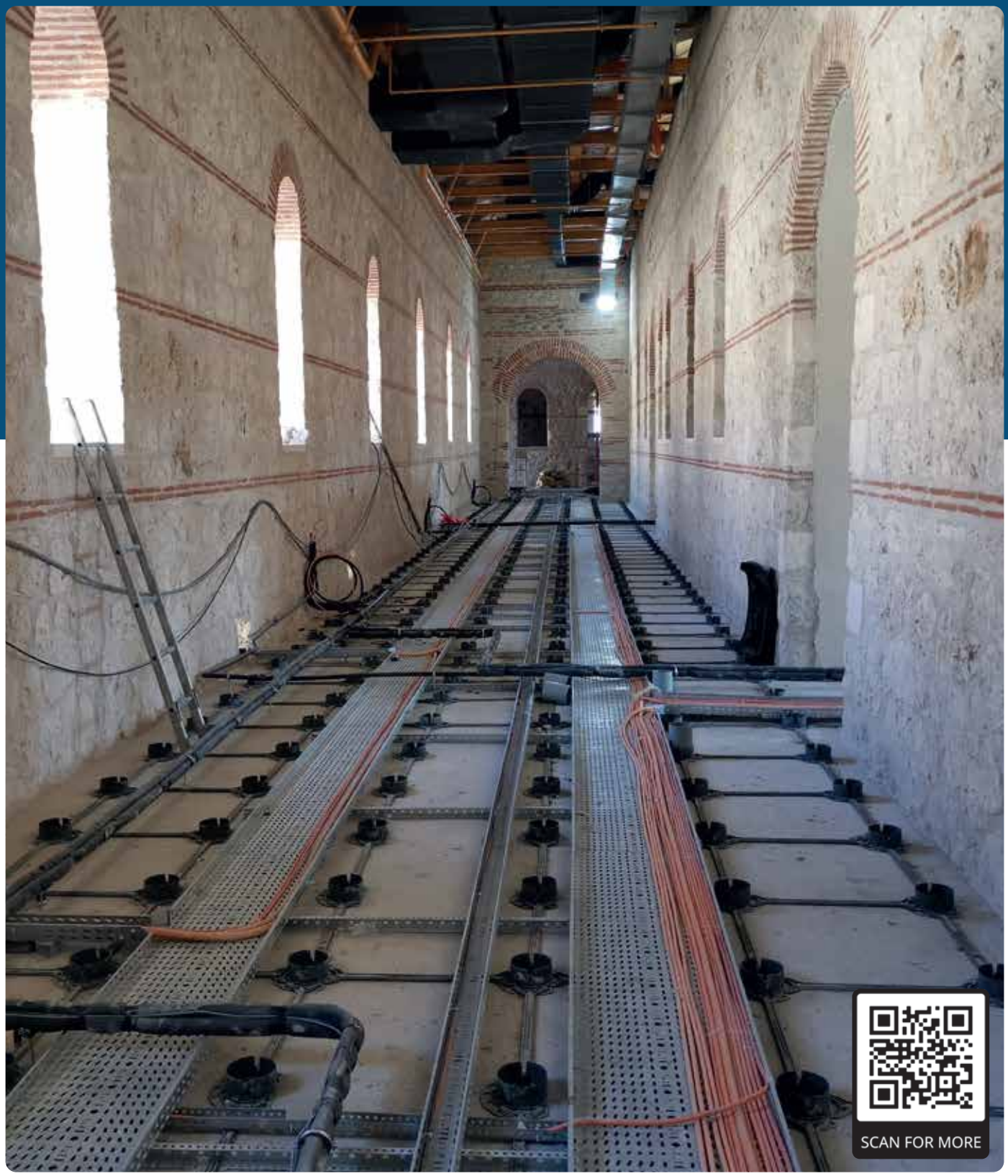
CRAWL SPACE CONSTRUCTION REFERENCE APPLICATION

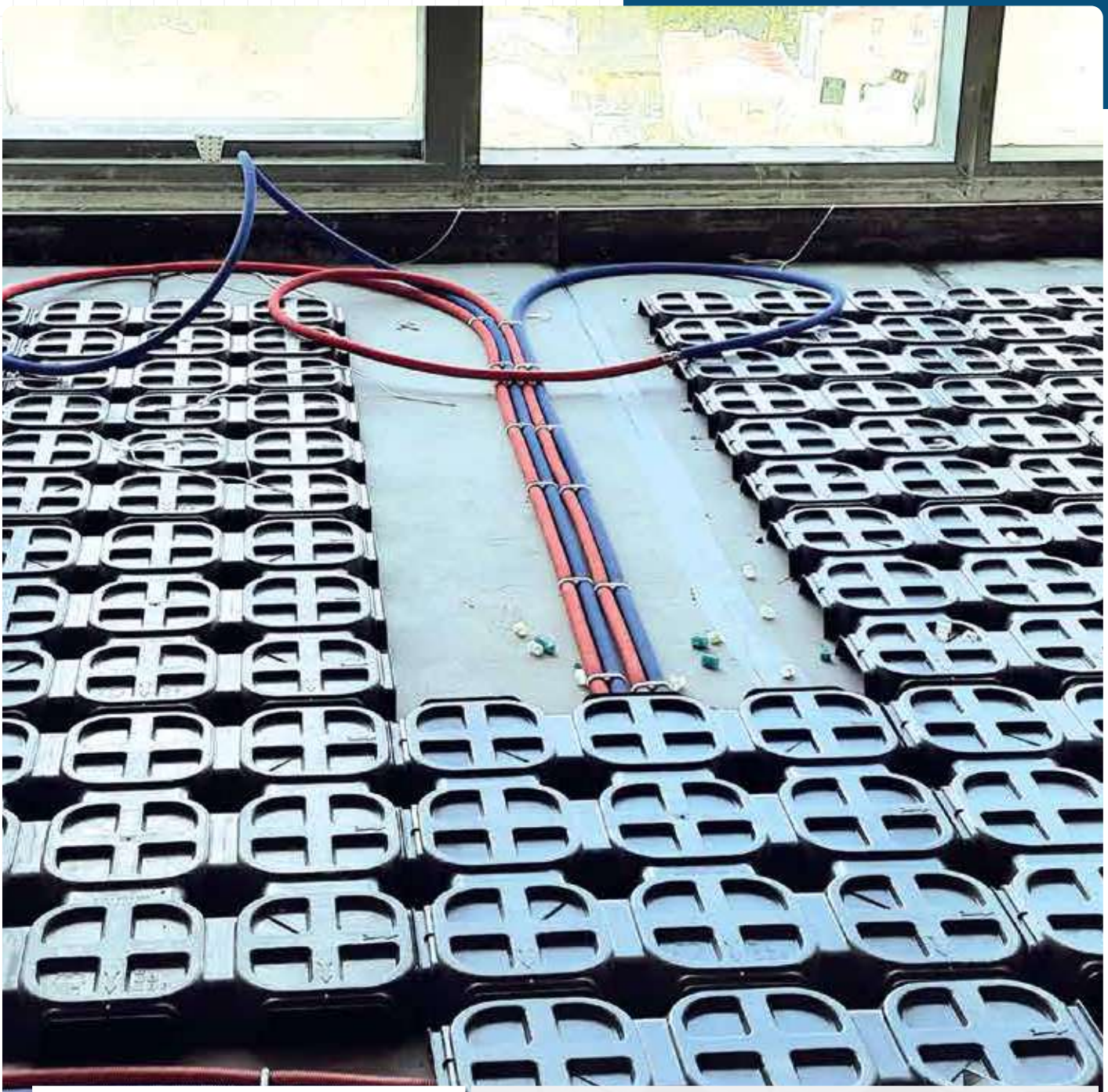
Limak Villas

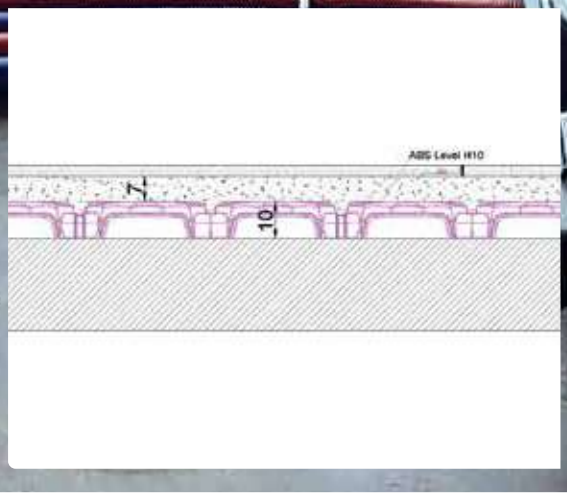
Istanbul, Turkey

ABS Disposable Formwork H15 cm

CONCRETE RAISED FLOORS







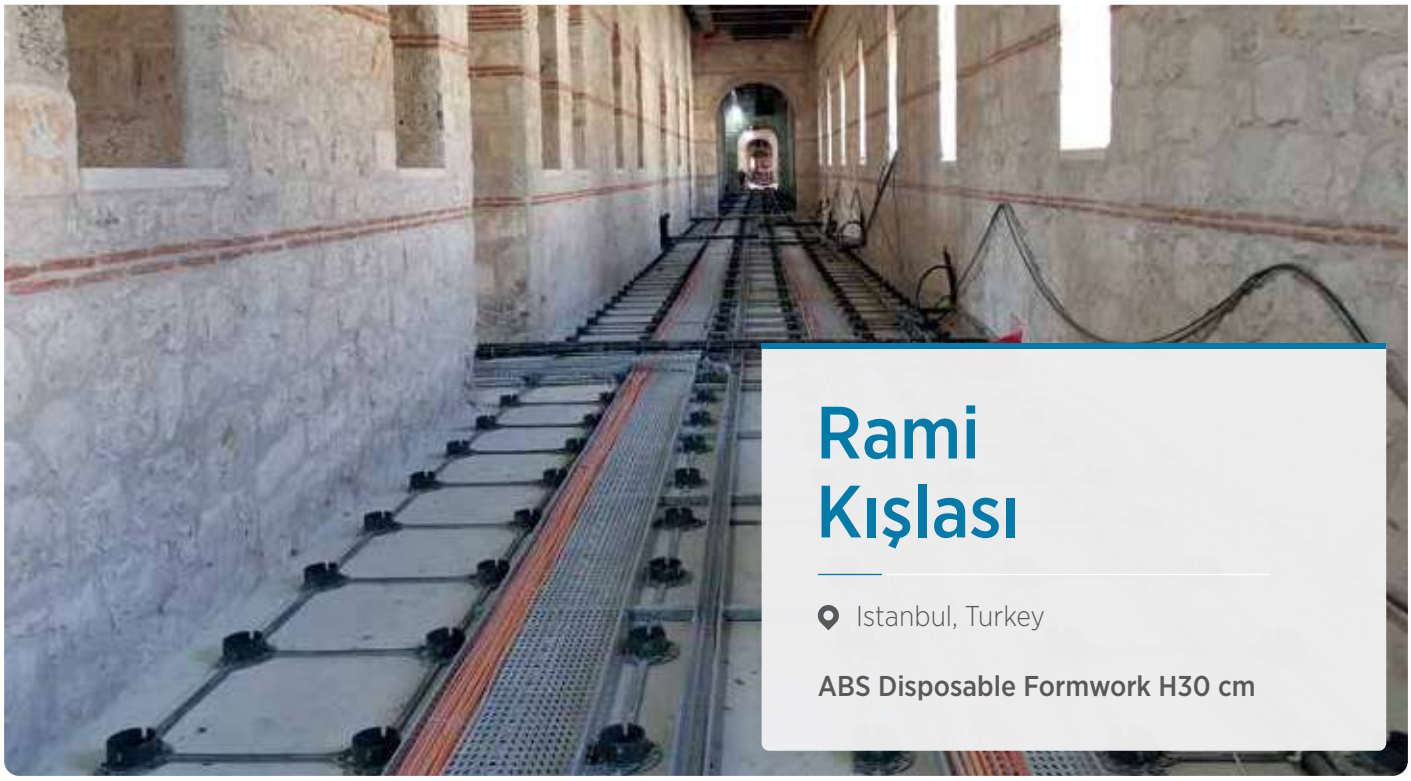
Reinforced concrete floors constructed using ABS Disposable Formworks are 95% empty, so the void space can be used for passing MEP (electrical, mechanical, plumbing) installations in a manner similar to that used for modular raised floors on steel pedestals. This system can be used as an alternative to all modular raised floor applications with metal pedestals. In addition, using ABS Level Disposable Formworks and junction boxes means that each commercial area to be filled with 8-10 cm of dry screed can be converted into a reinforced concrete raised floor. Volume that would normally have been lost can now be used for electrical and mechanical installations, thus increasing the total usage area of the building.

The Address Hotel Emaar Square

Istanbul, Turkey

ABS Disposable Formwork H5 cm

CONCRETE RAISED FLOORS REFERENCE APPLICATION

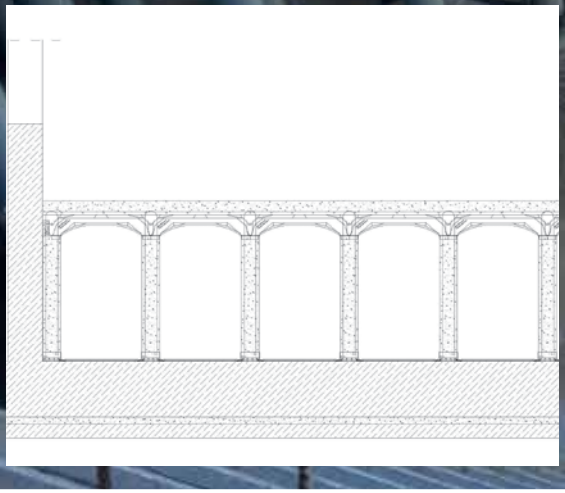


Rami Kışlası

Istanbul, Turkey

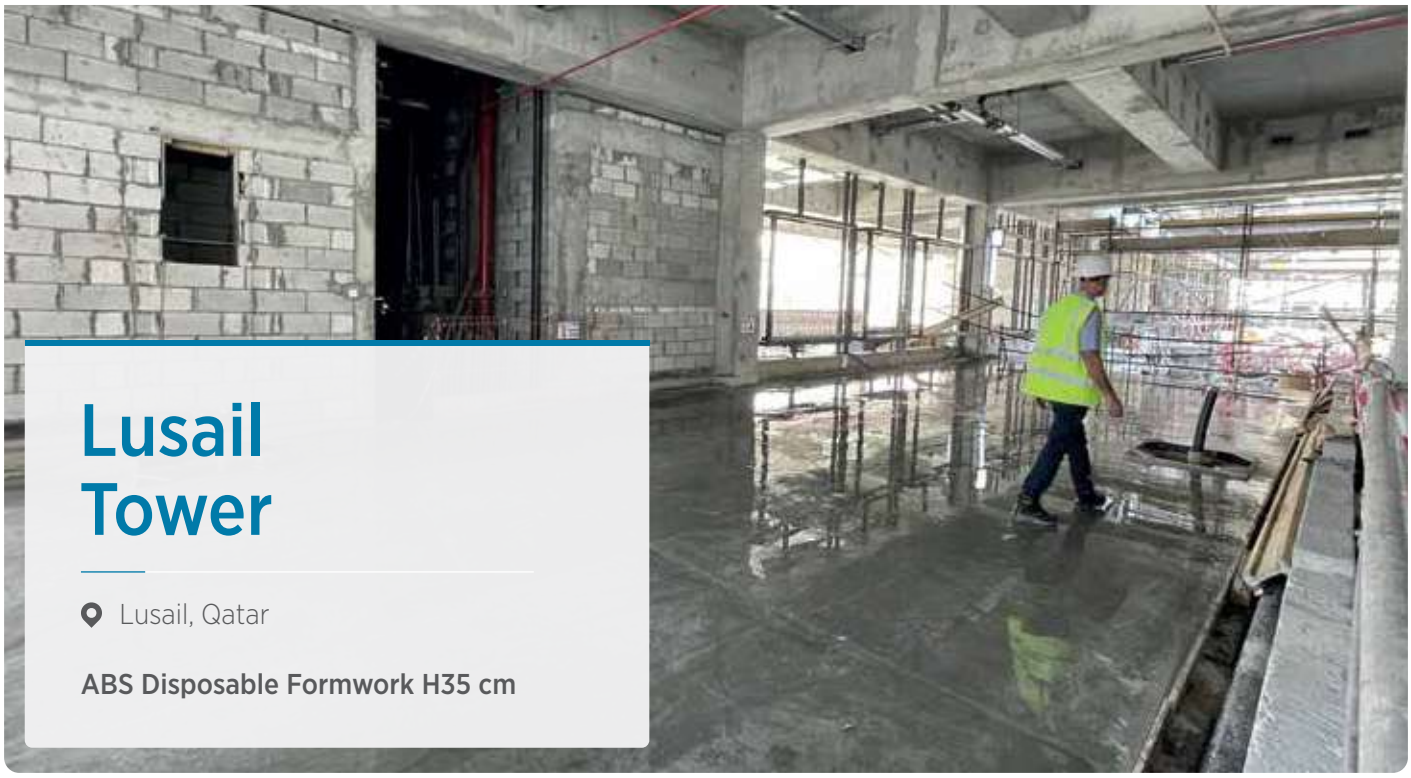
ABS Disposable Formwork H30 cm

OTHER LIGHTWEIGHT FILLING APPLICATIONS



Level variations between different usage areas in a building can be eliminated by using ABS Disposable Formworks to construct reinforced raised floors. The structure becomes only as heavy as the concrete in the legs and the topping concrete that covers the disposable formworks. The ABS Disposable Formwork is the lightest application that can be made on any floor of the structure.

OTHER LIGHTWEIGHT FILLING APPLICATIONS REFERENCE APPLICATION



Lusail Tower

Lusail, Qatar

ABS Disposable Formwork H35 cm

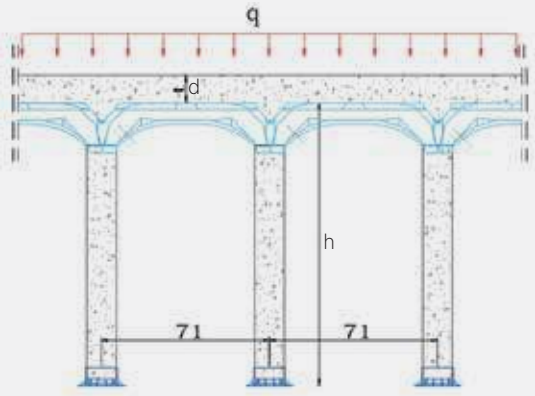
OTHER LIGHTWEIGHT FILLING APPLICATIONS REFERENCE APPLICATION

Istanbul Finance Center

Istanbul, Turkey

ABS Disposable Formwork H110 cm

DESIGN DATA SHEET



TYPICAL SECTION

ABS PLUS

The design calculation of reinforced concrete raised floors is made based on a simple structure consisting of columns and a slab, as in other reinforced concrete structures. The configuration is just like the column-beam-floor structure of any building. The intended use of the structure is considered when determining the live and dead (fixed) design loads.

The transfer of loads from the slab to the columns takes place through the arches of the domes. However, to stay on the safe side, the load design of the domes and arches is not considered, only the slab and column calculations are made.

Table: Maximum Allowable Live Load - q_{max} (kN/m²) — İstanbul Technical University, Product Report 2018

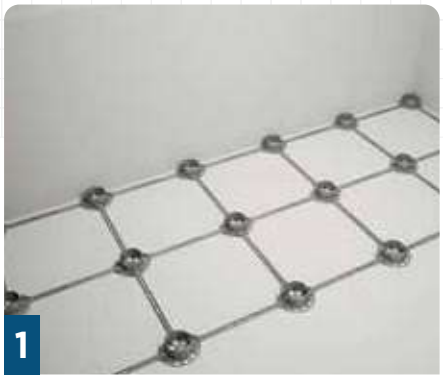
Disposable Formwork Height, H (cm)		Column Reinforcement																	
	250	4 x Ø10	-	-	-	-	-	-	-	-	-	-	-	55	55	55	55	55	55
		4 x Ø8	-	-	-	-	-	-	-	-	-	-	-	55	55	55	55	55	55
		2 x Ø10	-	-	-	-	-	-	-	-	-	-	-	55	55	55	55	55	55
		2 x Ø8	-	-	-	-	-	-	-	-	-	-	-	55	55	55	55	55	55
	200	2 x Ø10	29	50	55	78	78	78	78	78	78	78	78	76	76	76	76	76	76
		2 x Ø8	29	50	55	78	78	78	78	78	78	78	78	76	76	76	76	76	76
		Ø10	29	50	55	76	76	76	76	76	76	76	76	76	76	76	76	76	76
		Ø8	29	50	55	76	76	76	76	76	76	76	76	76	76	76	76	76	76
	150	2 x Ø10	29	50	55	79	83	92	92	92	92	92	92	92	92	92	92	92	92
		2 x Ø8	29	50	55	79	83	92	92	92	92	92	92	92	92	92	92	92	92
		Ø10	29	50	55	79	83	86	86	86	86	86	86	86	86	86	86	86	86
		Ø8	29	50	55	79	83	86	86	86	86	86	86	86	86	86	86	86	86
	100	2 x Ø10	29	50	55	79	83	104	104	104	104	104	104	104	104	104	104	104	104
		2 x Ø8	29	50	55	79	83	102	102	102	102	102	102	102	102	102	102	102	102
		Ø10	29	50	55	79	83	98	98	98	98	98	98	98	98	98	98	98	98
		Ø8	29	50	55	79	83	98	98	98	98	98	98	98	98	98	98	98	98
	50	2 x Ø10	29	50	55	79	83	106	106	106	106	106	106	110	110	110	110	110	110
		2 x Ø8	29	50	55	79	83	104	104	104	104	104	104	108	108	108	108	108	108
		Ø10	29	50	55	79	83	98	98	98	98	98	98	102	102	102	102	102	102
		Ø8	29	50	55	79	83	98	98	98	98	98	98	102	102	102	102	102	102
		w/o rebar	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Applies to both C25 and C30 concrete classes		Slab Reinforcement (mm)	Ø6 / 150 x 150	Ø8 / 150 x 150	Ø8,5 / 150 x 150	Ø6 / 150 x 150	2 x Ø6 / 150 x 150	Ø8 / 150 x 150	2 x Ø8 / 150 x 150	Ø8,5 / 150 x 150	2 x Ø8,5 / 150 x 150	Ø10 / 150 x 150	2 x Ø10 / 150 x 150	2 x Ø8 / 150 x 150	2 x Ø8,5 / 150 x 150	2 x Ø10 / 150 x 150	2 x Ø8 / 150 x 150	2 x Ø8,5 / 150 x 150	2 x Ø10 / 150 x 150
		Slab Thickness, t (cm)	**5**			**10**								**15**			**20**		

Laboratory Test Results

Please visit our website at disposableformwork.com/documents for all and more precise data tables.

Istanbul Technical University, Load Test Report 2018, 2021					
Type	ABS Plus System Height (cm)	Slab Concrete Thickness (cm)	Rebar in Legs	Total Slab Thickness (cm)	Maximum Load Record (kN)
H250	250	20	Yes (4xΦ 10)	270	570,2
H250	250	15	Yes (4xΦ 10)	265	484,2
H100	100	10	Yes (2xΦ 10)	110	278,6
H50	50	10	Yes (2xΦ 10)	60	283,2
H50	50	10	No	60	238,5
H50	50	5	No	55	125,9

Istanbul Technical University, Formwork Resistance Report 2018					
Sample No	Sample Type	Sample Size	Comp. Surface	Maximum Load	Maximum Load Record (kN)
1A	ABS PLUS	710x710x300	Φ245	1,3462	8,6

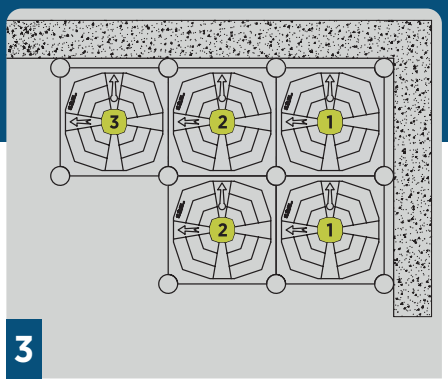


1

Place the bases using the spacers so that the base's flat side is adjacent to the wall. Cut the base creating a second edge so that it fits into a corner.

2

Press the legs that have been cut according to the project firmly into the base slots.



3

Place the domes on the legs, from right to left and from top to bottom, checking that the domes fit over each other and on the legs firmly. The arrows on the domes should always indicate the direction in which the installation operator looks.

4

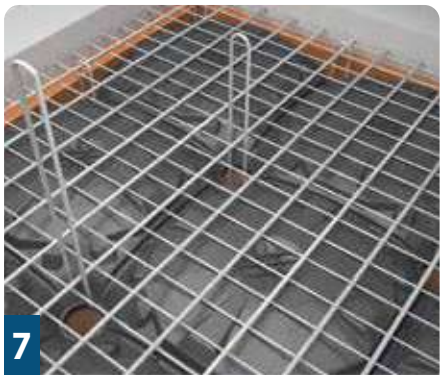
Inserting the last row of ABS Plus domes: Example 1; full dome on the wooden console attached to the wall.

5

Inserting the last row of ABS Plus domes: Example 2; Placing a cut dome on the wooden console attached to the wall.

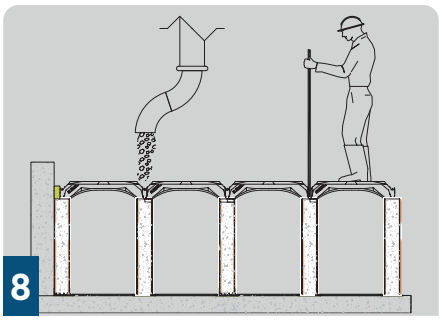
6

In the case of full-dome wall finishes where the PVC pipes legs are adjacent to the walls, place ABS Plus dome side closer or 5x10 wooden wedges on the pipes and close the cavities against concrete leaks.



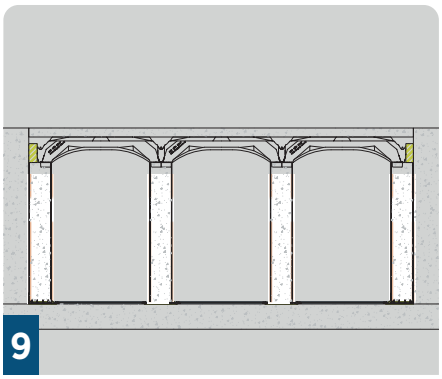
7

Place project specific welded steel mesh on the concrete-sealed disposable formworks and place vertical steel rebars into the legs.



8

First, fill the pipes with at least C25 class and at least S4 viscose concrete. The mouth of the pump hose should be kept up to 20 cm above the domes. Every legs should be stabbed with a steel rod to release the air trapped in the leg. Fill the domes and topping concrete after filling the pipes.



9

Use a vibrator when pouring the concrete of the domes and topping slab. Depending on the ambient conditions, the concrete should be moistened sufficiently.

INSTALLATION VIDEO
dipsosableformwork.com/videos

SCAN ME

SCAN TO WATCH

INSTALLATION GUIDE
dipsosableformwork.com/documents

SCAN TO REACH

absyapi.com.tr absyapi absyapi.com.tr

absyapi

INNOVATIVE STRUCTURAL SOLUTIONS

Centrum Plaza, Aydınevler Mh. Sanayi Cd. No:3
A Blok Z03 34854 Maltepe, İstanbul / Türkiye

f: +90 216 518 02 57 **t:** +90 216 518 02 55