US Version

abs Disposable Formworks

NATIONAL TECHNICAL APPROVAL
NATIONAL TECHNICAL APPROVAL

DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS

LIGHT FAST EASY ECONOMICAL

Ref: Togg Gemlik Campus, Yapı Merkezi

GOLDEN PLUMB INTERNATIONAL BUILDING CATALOG AWARDS

"Innovative Structural Product"

FIXED

ABS LEVEL

ADJUSTABLE

ABS PLUS

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Innovative Structural Solutions

ABS DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS

ABS Plus

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 9 feet 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 Disposable Formworks 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. In addition, reinforced concrete raised floors created with disposable formworks can be used instead of modular raised floors by adding a grid of simple junction boxes to the system.

ABS Level

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 3'-3" (≈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 2' (precisely 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

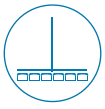
Any sort of covering application can be applied on the concrete surface very easily.

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

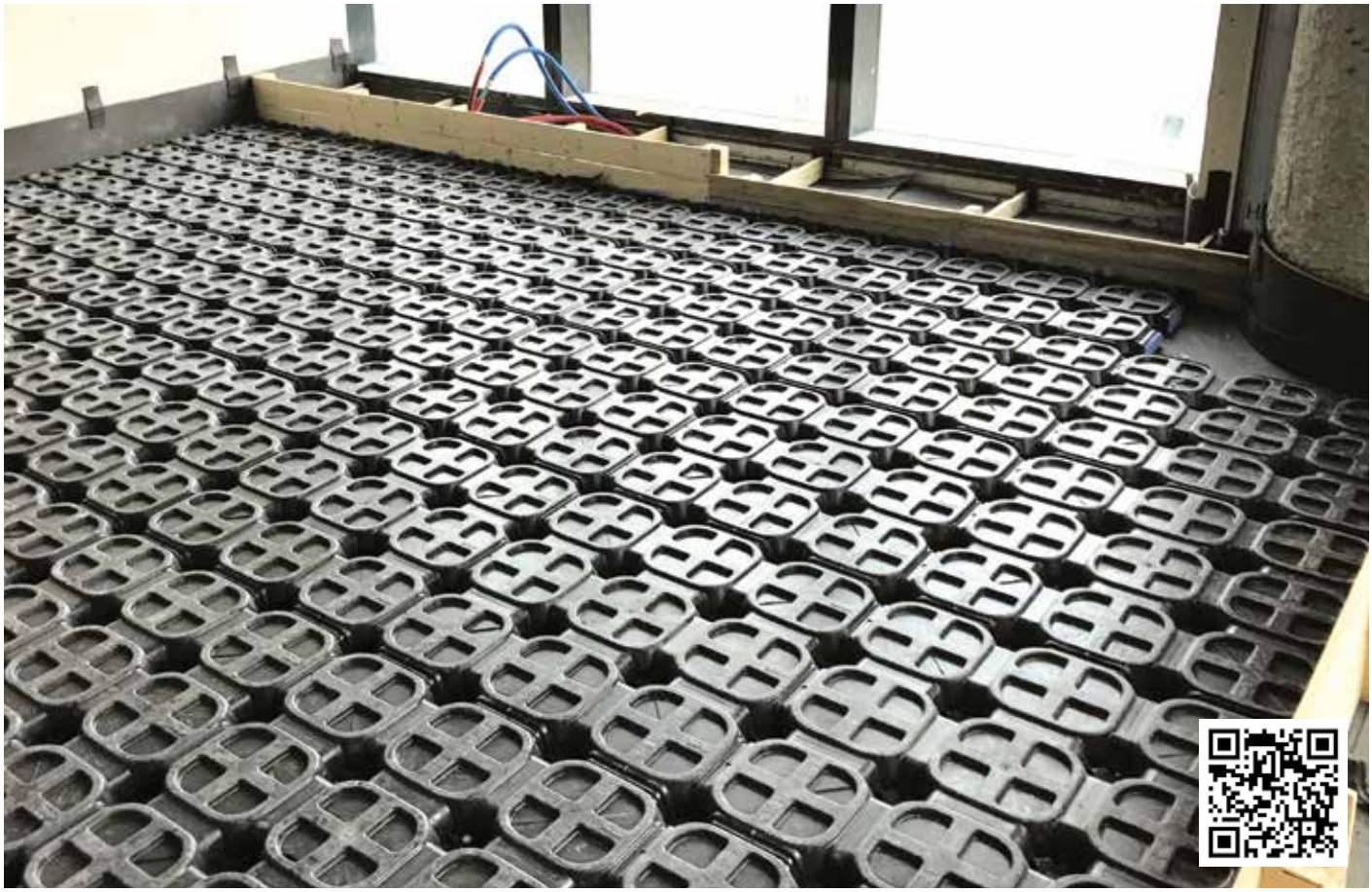
Because the disposable formworks are made of recycled PP, they help to gain considerable LEED certificate points.

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

UTO-TTO/19-1915

ABS LEVEL

FIXED-HEIGHT 2”, 4”, 6” (precisely 5, 10, 15 cm)

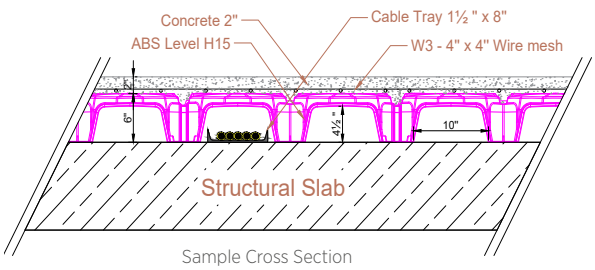


ABS LEVEL | FIXED-HEIGHT DISPOSABLE FORMWORKS FOR LIGHTWEIGHT FILLINGS 2”, 4”, 6” (precisely 5, 10, 15 cm)

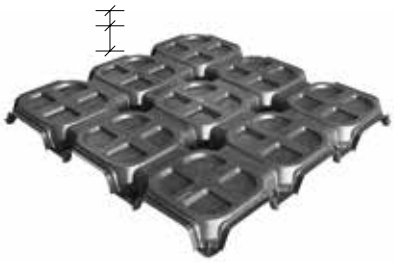
The ‘Level’ series of ABS Disposable Formworks offers fixed-heights of 2”, 4”, 6” (precisely 5, 10, 15 cm) in to create reinforced concrete raised floors in commercial or industrial structures quickly, easily and extremely economically. The formworks are made of recycled plastic and are specifically designed to enable cable trays and/or plumbing pipes to pass through.

The products can be used alternatively to modular raised floor applications with metal pedestals. Moreover, commercial areas there are conventionally filled with 3” to 4” dry screed to obtain as 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.

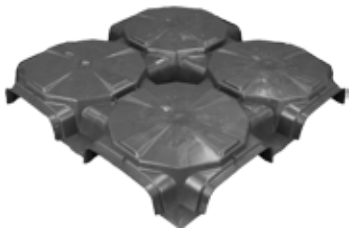
1) ABS Level - H5 (height 2”, area 1 pcs 5.4 ft²)
2) ABS Level - H10 (height 4”, area 1 pcs 5.4 ft²)
3) ABS Level - H15 (height 6”, area 1 pcs 5.4 ft²)



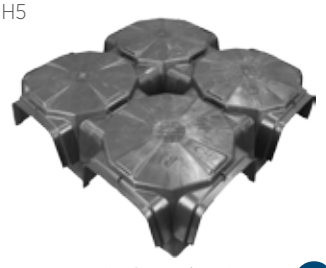
Sample Cross Section



ABS Level - H5



ABS Level - H10



ABS Level - H15

ABS PLUS

ADJUSTABLE-HEIGHT 8” - 10’ (20 - 300 cm)

ABS PLUS | ADJUSTABLE-HEIGHT DISPOSABLE FORMWORK SYSTEM FOR LIGHTWEIGHT FILLINGS 8” - 10’ (20 - 300 cm)

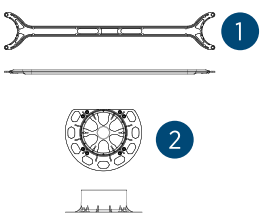
ABS Plus is an adjustable-height disposable concrete formwork system made of recycled plastic. The system creates

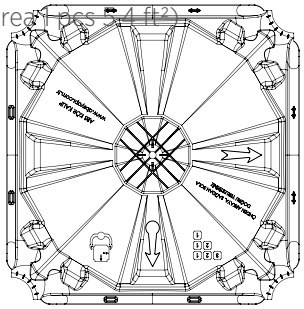
reinforced
concrete raised floors up to 9 feet, thus providing a light, fast, easy and economical filling in any structure.

To accommodate project-specific heights, the legs are cut to specification at the 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 ≈10 ft², which, in addition to all of its advantages, providing additional ease of application and significant cost saving on concrete and steel.

1) ABS Plus - Spacer
2) ABS Plus - Base
3) ABS Plus - Leg (cut to size required by the project)
4) ABS Plus - H15 Dome (area / pcs 3.4 ft²)

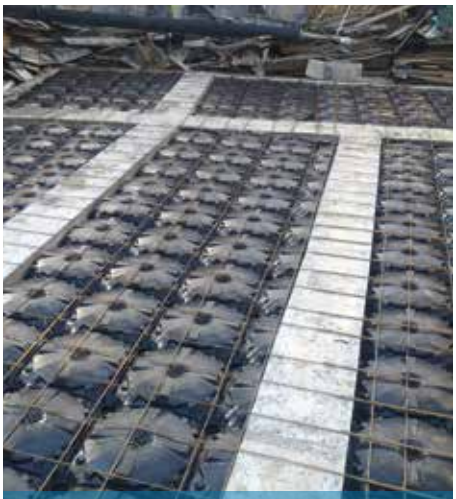




USAGE AREAS


Sunken Slab Filling


Landscape Filling


Inverted Beam Filling


Filling Between Foundation Footings


Car Park Ramp Construction


Pool Deck Slab Filling


Elevator/Staircase Hallway Filling


Crawl Space Construction


Reinforced Concrete Raised Floor

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REFERENCE APPLICATION

LIGHTWEIGHT FILLING ON FLOOR

PROJECT : AND Pastel
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus, variable heights
APPLICATION : Lightweight filling application above the carpark slab to construct a concrete surface

REFERENCE APPLICATION

LIGHTWEIGHT FILLING ON FLOOR

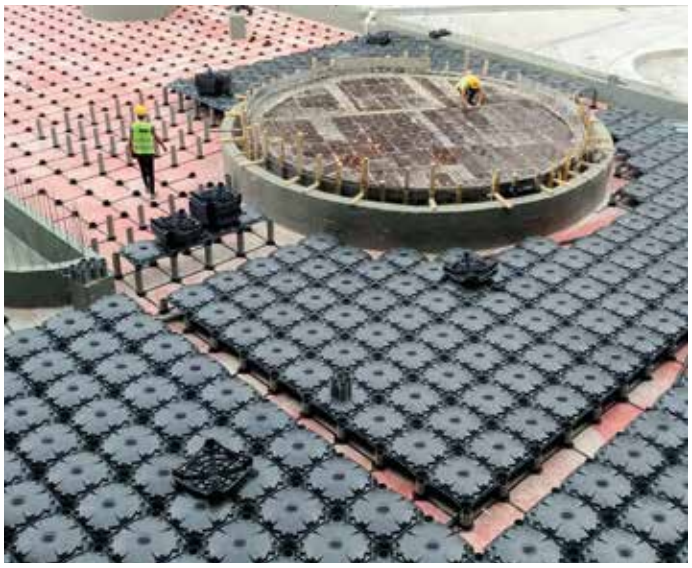
PROJECT : Şaşkınbakkal Residence
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus H 7'-9"
APPLICATION : Lightweight filling application above the carpark slab to construct a concrete surface

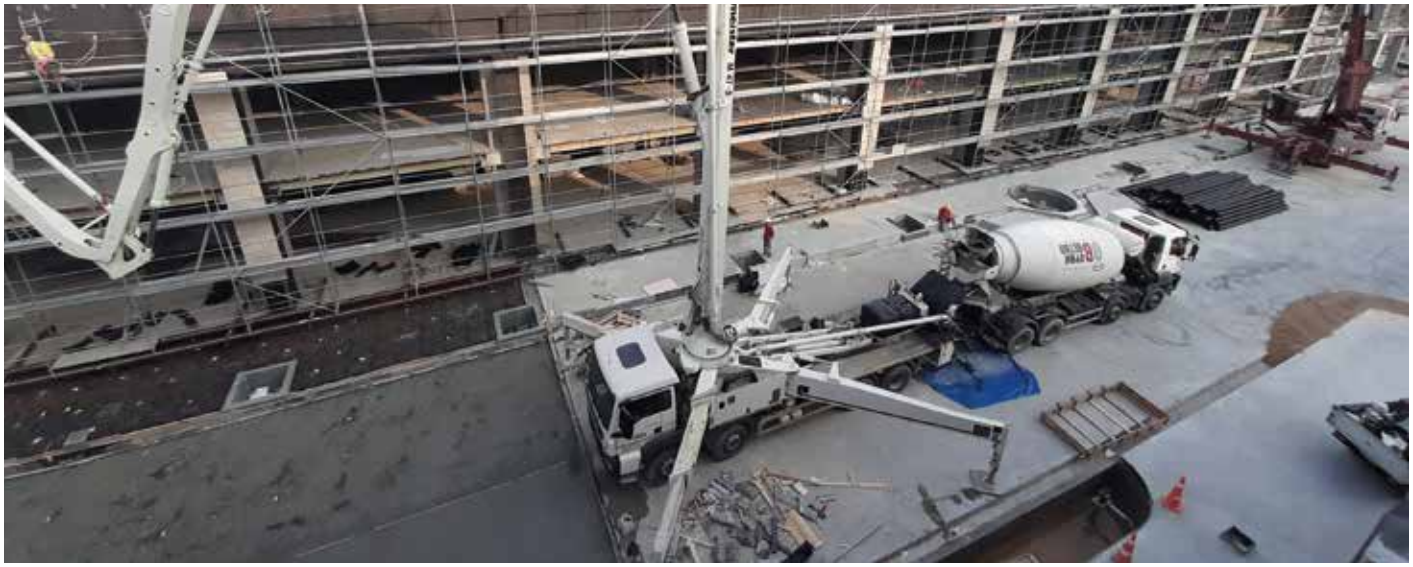
abs Disposable Formworks

REFERENCE APPLICATION

LIGHTWEIGHT FILLING ON FLOOR

PROJECT : IstinyePark Izmir
LOCATION : Izmir, Turkey
PRODUCT : ABS Plus various and graded heights
APPLICATION : Lightweight filling application on the main arcade and podium areas of the shopping mall





REFERENCE APPLICATION

SUNKEN SLAB FILLING

PROJECT : Multistory Residential Project
LOCATION : Far East
PRODUCT : ABS Plus H 12”
APPLICATION : 12” sunken slab filling application for wet areas on each floor, dense installation passages

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REFERENCE APPLICATION

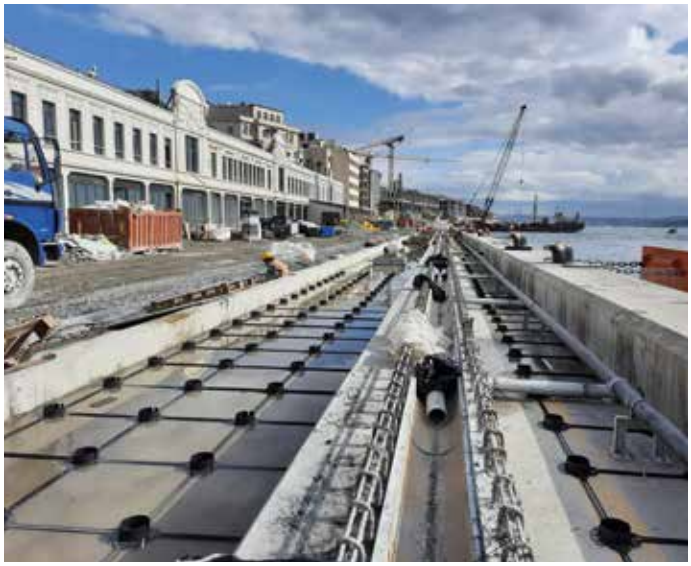
LANDSCAPE FILLING

PROJECT : Istanbul Financial Center
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus Disposable Formwork H 1'-2"
APPLICATION : Construction of hardscape surfaces between building blocks on the podium area

REFERENCE APPLICATION

LANDSCAPE FILLING

PROJECT : Galataport
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus H 2'
APPLICATION : Landscape filling application on the seaside of the Galataport project



REFERENCE APPLICATION

LANDSCAPE FILLING

PROJECT	:	Gaziantep Iconova
LOCATION	:	Gaziantep, Turkey
PRODUCT	:	ABS Plus H 1'-8"
APPLICATION	:	Lightweight landscape filling application above podium floor to construct a concrete surface

REFERENCE APPLICATION

FILLING BETWEEN FOUNDATION FOOTINGS

PROJECT : İzmir Hilltown
LOCATION : Izmir, Turkey
PRODUCT : ABS Disposable Formwork H 2'-8"
APPLICATION : Filling application between the foundation footings above the raft foundation

REFERENCE APPLICATION

FILLING BETWEEN FOUNDATION FOOTINGS

PROJECT : Portonovi Hotel
LOCATION : Herseg Novi, Montenegro
PRODUCT : ABS Plus H 4'-5"
APPLICATION : Filling application between the foundation footings above the raft foundation with many installation passages

REFERENCE APPLICATION

FILLING BETWEEN FOUNDATIONS FOOTINGS

PROJECT : TOGG Gemlik Campus
LOCATION : Bursa, Turkey
PRODUCT : ABS Disposable Formwork H 8'-3"
APPLICATION : Filling application between the foundation footings above the raft foundation

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REFERENCE APPLICATION

REFERENCE APPLICATION

FILLING BETWEEN FOUNDATION FOOTINGS

PROJECT : Kurkcuoglu Factory
LOCATION : Izmit, Turkey
PRODUCT : ABS Plus H 3'-3"
APPLICATION : Filling application between the foundation footings above the raft foundation

REFERENCE APPLICATION

RAMP CONSTRUCTION

PROJECT : Sabah Al-Salem University
LOCATION : Kuwait City, Kuwait
PRODUCT : ABS Plus, variable heights
APPLICATION : Ramp construction so that steps can be constructed later on between the floors of the stadium

REFERENCE APPLICATION

CAR PARK RAMP

PROJECT : Emaar Square Shopping Mall
LOCATION : Istanbul, Turkey
PRODUCT : Disposable Formwork, variable heights
APPLICATION : Car park ramp construction above cascaded floor slab

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REFERENCE APPLICATION

POOL DECK SLAB FILLING

PROJECT : Tekinalp Residence
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus H 1'-7"
APPLICATION : Lightweight filling application above the car park slab and around the swimming pool to construct a concrete surface

REFERENCE APPLICATION

POOL DECK SLAB FILLING

PROJECT : IstinyePark Izmir
LOCATION : Izmir, Turkey
PRODUCT : ABS Plus various and graded heights
APPLICATION : Lightweight filling application on the main arcade and podium areas of the shopping mall

REFERENCE APPLICATION

POOL DECK SLAB FILLING

PROJECT : Rumeli Villas
LOCATION : Istanbul, Turkey
PRODUCT : ABS Plus H 5'-10"
APPLICATION : Lightweight filling application and construction of a concrete surface around a swimming pool that was constructed above an indoor floor.

REFERENCE APPLICATION

POOL FILLING

PROJECT : Marsa Arabia
LOCATION : Qatar City, Qatar
PRODUCT : ABS Disposable Formwork H 3'-1"
APPLICATION : Outdoor swimming pool filling

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REFERENCE APPLICATION

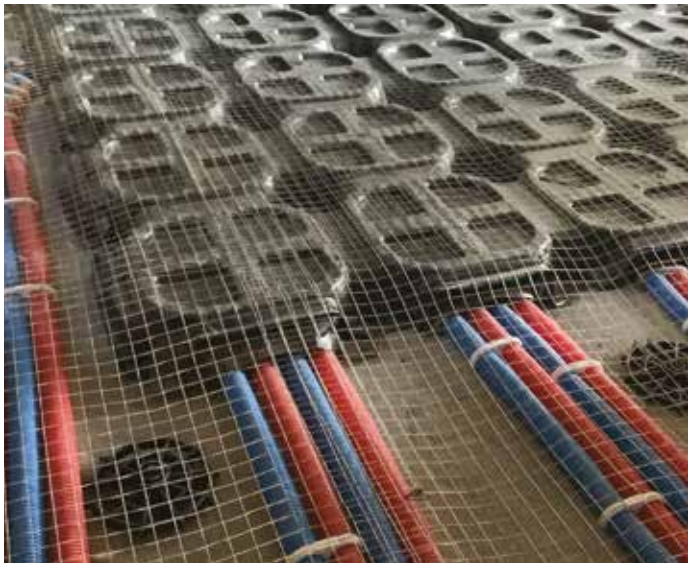
CRAWL SPACE CONSTRUCTION

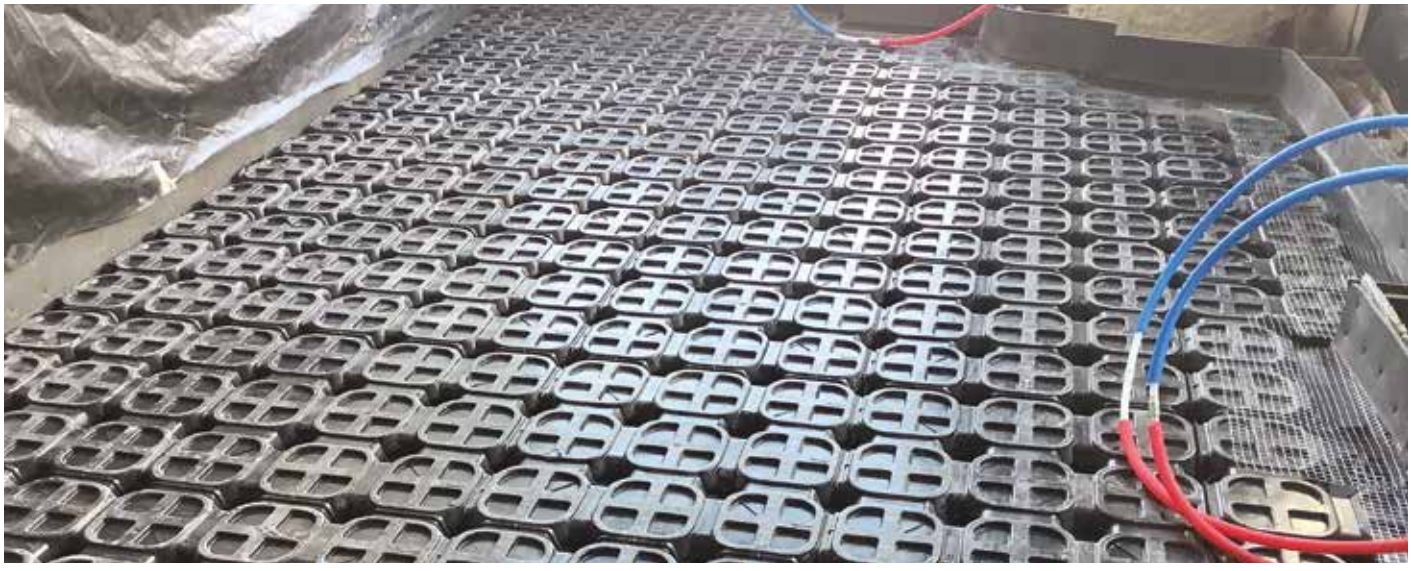
PROJECT : Manavgat Villas
LOCATION : Antalya, Turkey
PRODUCT : ABS Plus Disposable Formwork H 2'-5"
APPLICATION : Construction of crawl space above house foundation

REFERENCE APPLICATION

REINFORCED CONCRETE RAISED FLOORS

PROJECT : Emaar Square Shopping Mall
LOCATION : Istanbul, Turkey
PRODUCT : ABS Level Disposable Formwork H2”
APPLICATION : Reinforced concrete raised floor application on the high floors of the building, which allows cable trays to pass under it



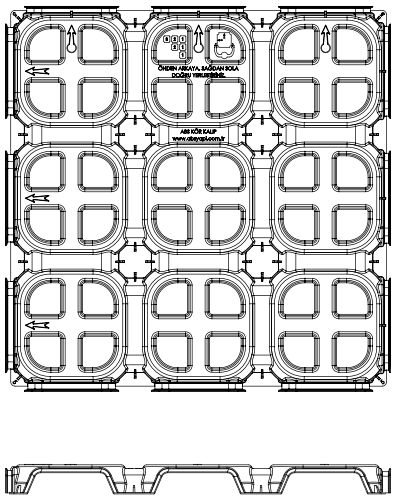
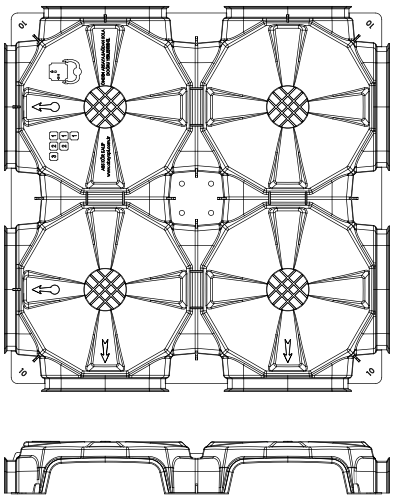
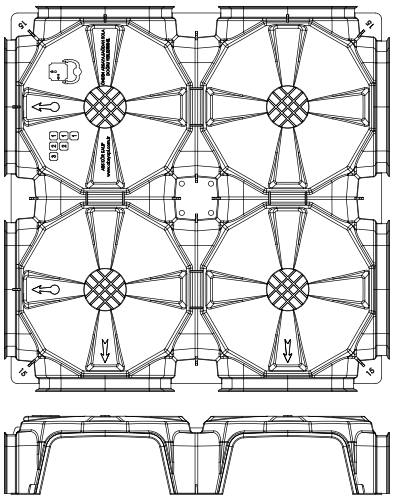
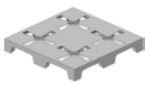
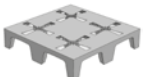


REFERENCE APPLICATION

REINFORCED CONCRETE RAISED FLOORS

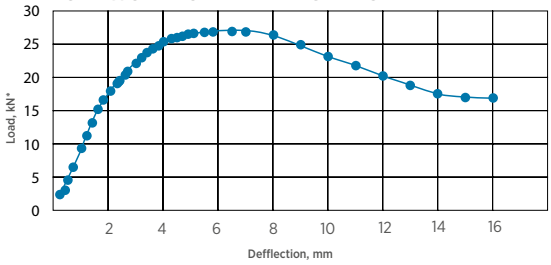
PROJECT : Ankara Space and Aviation Organized Industrial Zone
LOCATION : Ankara, Turkey
PRODUCT : ABS Plus H 2'-8"
APPLICATION : Construction of reinforced concrete raised floor on top of the raft foundation

ABS LEVEL TECHNICAL DATA SHEET

ABS Level - H 2" (precisely 5 cm)	ABS Level - H 4" (precisely 10 cm)	ABS Level - H 6" (precisely 15 cm)
		
Dimensions		
28" x 28" x 2" area 1 pcs 5.4 ft² 3.92 lbs/pcs (precisely 71 x 71 x 5 cm) (precisely 2 pcs 1 m²) (1.78 kg/pcs)	28" x 28" x 4" area 1 pcs 5.4 ft² 4.32 lbs/pcs (precisely 71 x 71 x 10 cm) (precisely 2 pcs 1 m²) (1.96 kg/pcs)	28" x 28" x 6" area 1 pcs 5.4 ft² 4.76 lbs/pcs (precisely 71 x 71 x 15 cm) (precisely 2 pcs 1 m²) (2.16 kg/pcs)
Net arch clearance		
width 6" height 1½" (precisely 16 cm) (precisely 4 cm)	width 9" height 2½" (precisely 23 cm) (precisely 6 cm)	width 10" height 4½" (precisely 25 cm) (precisely 11 cm)
Concrete consumption w/o concrete topping		
0.032 ft³/ft²  (0.010 m³/m²)	0.071 ft³/ft²  (0.022 m³/m²)	0.083 ft³/ft²  (0.025 m³/m²)
Pallet dimensions		
2'-5½" x 4'-11" x 8'-6½" (75 x 150 x 260 cm)	2'-5½" x 4'-11" x 8'-6½" (precisely 75 x 150 x 260 cm)	2'-5½" x 4'-11" x 8'-6½" (precisely 75 x 150 x 260 cm)
Pieces per pallet and area covered		
300 pcs 1620 ft² (precisely 150 m²)	250 pcs 1350 ft² (125 m²)	250 pcs 1350 ft² (125 m²)
Pallet weight		
1202 lbs (545 kg)	1102 lbs (500 kg)	1213 lbs (550 kg)

Material: recycled PP
Application speed: ≈1000 ft² (100 m²) man-hour on a rectangular area

FORMWORK LOAD BEARING REPORT



Sample No	Sample Type	Sample Size	Plate Size	(lbs)	(lbs/ft²)
1	ABS Level H 2"	28" x 28" x 2"	18" x 18"	6059 lbs	2780 lbs/ft²
1	ABS Level H5	710x710x50 mm	450x450 mm	26.950 kN	133.1 kN/m²

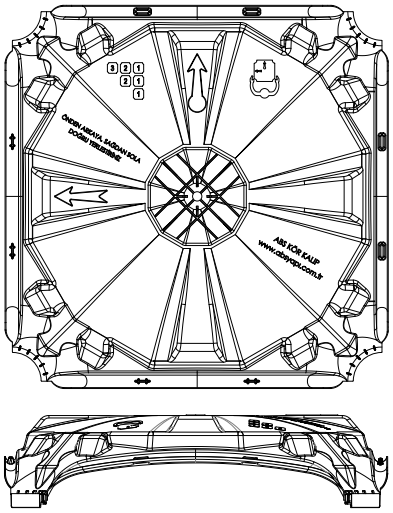
- Please contact us for more detailed information.

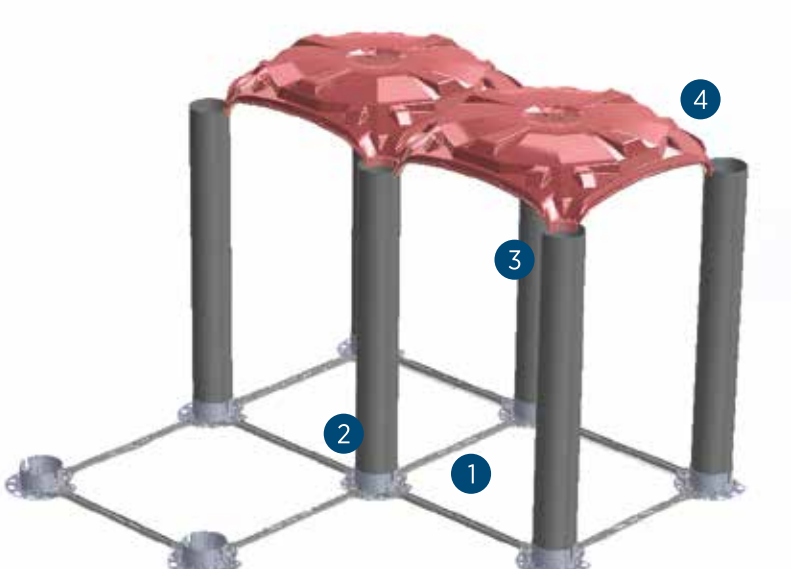
*Conversion factor 1 kN=224.8 lbf

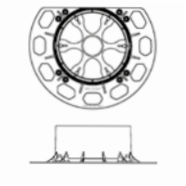
abs Disposable Formworks

ABS PLUS TECHNICAL DATA SHEET

ABS Plus H 8” - 10′ (20 - 300 cm)







1) ABS Plus - Spacer
2) ABS Plus - Base
3) ABS Plus - Leg (cut to size required by the project)
4) ABS Plus - H15 Dome (area 1 pcs 5.4 ft²)

Dimensions

Dome size	28″ x 28″	(precisely 71 x 71 cm)
Dome height	6″ net height w/o leg connections	(precisely 15 cm)
Net arch clearance	width 24″, height 2½″	(precisely 59 cm, 5.9 cm)
Base height	1″	(2.5 cm)
Leg diameter	Ø 5″	(precisely Ø 12.5 cm)
Leg height	variable heights, depending on requirement	
Number of spacers needed	max 4 pcs per 10 ft²; lower than 20″ heights may not require use of spacers, however all spacers are need for heights for more than 3′	

Pallet dimensions

Pallet dimensions (dome)	2′-5½″ x 4′-11″ x 8′-4½″	(75 x 150 x 255)
Pieces per pallet (dome)	170 pcs	
Area covered per pallet (dome)	915 ft²	(85 m²)
Pallet weight (dome)	772 lbs	(350 kg)

Material: dome, base and spacer recycled PP, leg recycled PVC
Application speed: 200 ft² (≈20 m²)**/man-hour on a rectangular area**

Formulas

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

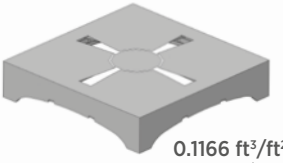
Total concrete consumption ft³/ft²
= topping concrete (d/12) + dome concrete (0.1166) + leg concrete [0.26419 x ((h - 6″)/12)]

m³/m² = d + 0.03554 + [0.02454 x (h - 0.15)]

Leg height in inches = h - dome height (6″) - base height (1″)

m = h - 0.15 - 0.025

Dome Concrete Consumption



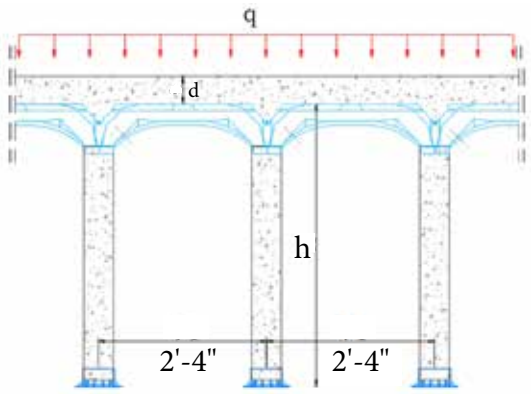
0.1166 ft³/ft²
(0.0355 m³/m²)

DESIGN DATA SHEET

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.



Typical Section

Table: Maximum Allowable Live Load - rounded q_{max} (lbs/ft²) | İstanbul Technical University, Product Report 2018

Maximum Allowable Live Load- qmax (lbs/ft²)														
Disposable Formwork Height H (inch)		Column Reinforcement												
100		4 x #4	-	-	-	-	-	-	-	-	-	1100	-	1100
		4 x #3	-	-	-	-	-	-	-	-	-	1100	-	1100
		2 x #4	-	-	-	-	-	-	-	-	-	1100	-	1100
		2 x #3	-	-	-	-	-	-	-	-	-	1100	-	1100
		#4	-	-	-	-	-	-	-	-	-	1100	-	1100
		#3	-	-	-	-	-	-	-	-	-	1100	-	1100
80		2 x #4	600	1100	1600	1600	1600	1600	1600	1600	1550	1550	1550	1550
		2 x #3	600	1100	1600	1600	1600	1600	1600	1600	1550	1550	1550	1550
		#4	600	1100	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
		#3	600	1100	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
60		2 x #4	600	1100	1600	1700	1900	1900	1900	1900	1900	1900	1900	1900
		2 x #3	600	1100	1600	1700	1900	1900	1900	1900	1900	1900	1900	1900
		#4	600	1100	1600	1700	1700	1700	1700	1700	1700	1700	1700	1700
		#3	600	1100	1600	1700	1700	1700	1700	1700	1700	1700	1700	1700
40		2 x #4	600	1100	1600	1700	2100	2100	2100	2100	2100	2100	2100	2100
		2 x #3	600	1100	1600	1700	2100	2100	2100	2100	2100	2100	2100	2100
		#4	600	1100	1600	1700	2000	2000	2000	2000	2000	2000	2000	2000
		#3	600	1100	1600	1700	2000	2000	2000	2000	2000	2000	2000	2000
20		2 x #4	600	1100	1600	1700	2200	2200	2200	2200	2250	2250	2250	2250
		2 x #3	600	1100	1600	1700	2100	2100	2100	2100	2250	2250	2250	2250
		#4	600	1100	1600	1700	2000	2000	2000	2000	2100	2100	2100	2100
		#3	600	1100	1600	1700	2000	2000	2000	2000	2100	2100	2100	2100
		w/o rebar	400	400	400	400	400	400	400	400	400	400	400	400
Applies to both 3500 psi and 4500 psi concrete classes.		Slab Reinforcement Structural Steel Mesh	W3 - 4"x4"	W6 - 4"x4"	W3 - 4"x4"	2 x W3 - 4"x4"	W6 - 4"x4"	2 x W6 - 4"x4"	W10 - 4"x4"	2 x W10 - 4"x4"	W6 - 4"x4"	2 x W6 - 4"x4"	W10 - 4"x4"	2 x W10 - 4"x4"
		Slab Thickness t (inch)	2		4						6			

Laboratory Test Results

Istanbul Technical University, Load Test Report 2018, 2021

Type	ABS Plus System Height (in)	Slab Concrete Thickness (in)	Rebar in Legs	Total Height (in)	Maximum Load Record (lbs)
H 100"	100"	8"	4 x #3	108"	128,180
H 100"	100"	6"	4 x #3	106"	108,850
H 40"	40"	4"	2 x #3	44"	62,630
H 20"	20"	4"	2 x #3	24"	63,660
H 20"	20"	4"	n/a	24"	53,610
H 20"	20"	2"	n/a	22"	28,300

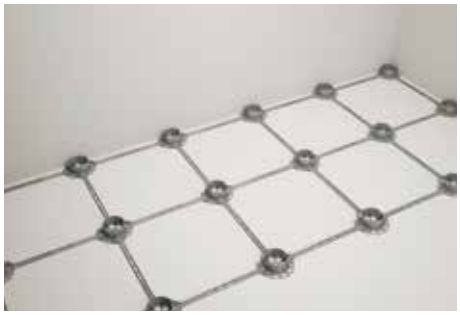
Istanbul Technical University, Formwork Resistance Report 2018

Sample No	Sample Type	Sample Size	Compression Surface	Maximum Load	
				(lbs)	(lbs/ft²)
1A	ABS PLUS	28" x 28" x 1'	Ø ≈10"	300	180

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

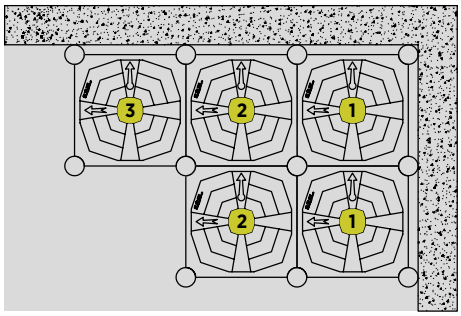
abs Disposable Formworks

ABS PLUS INSTALLATION GUIDE



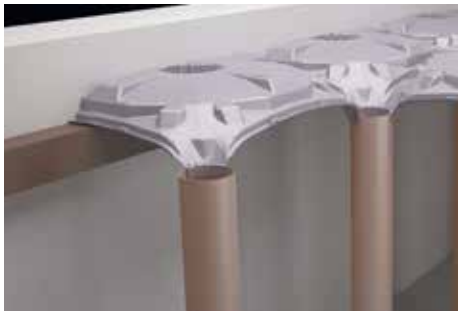
1. Place the bases using the spacers so that the base's flat side is adjacent to the wall. Cut the base creating a second edge so that it fits into a corner.

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



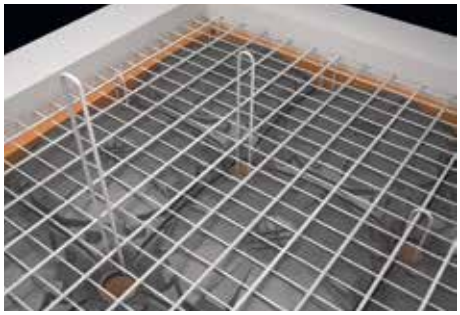
3. Place the domes on the legs, from right to left and from top to bottom, checking that the domes fit over each other and on the legs firmly. The arrows on the domes should always indicate the direction in which the installation operator looks.

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

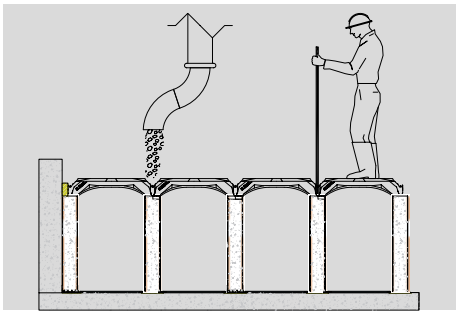


5. Inserting the last row of ABS Plus domes: Example 2; Placing a cut dome on the wooden console attached to the wall.

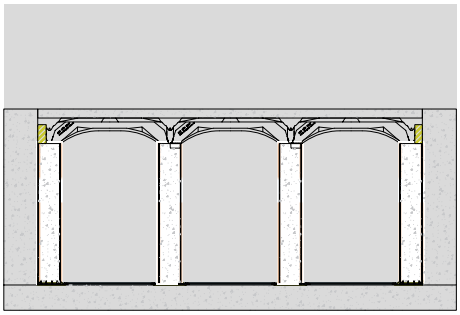
6. In the case of full-dome wall finishes where legs are adjacent to the walls, place ABS Plus dome side closer or 2" x 4" wooden wedges on the pipes and close the cavities against concrete leaks.



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 3500 psi class and at least S4 viscose concrete. The mouth of the pump hose should be kept up to 8" above the domes. Every leg should be stabbed with a steel rod to release the air trapped in the leg. Fill the domes and topping concrete after filling the legs.



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.

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