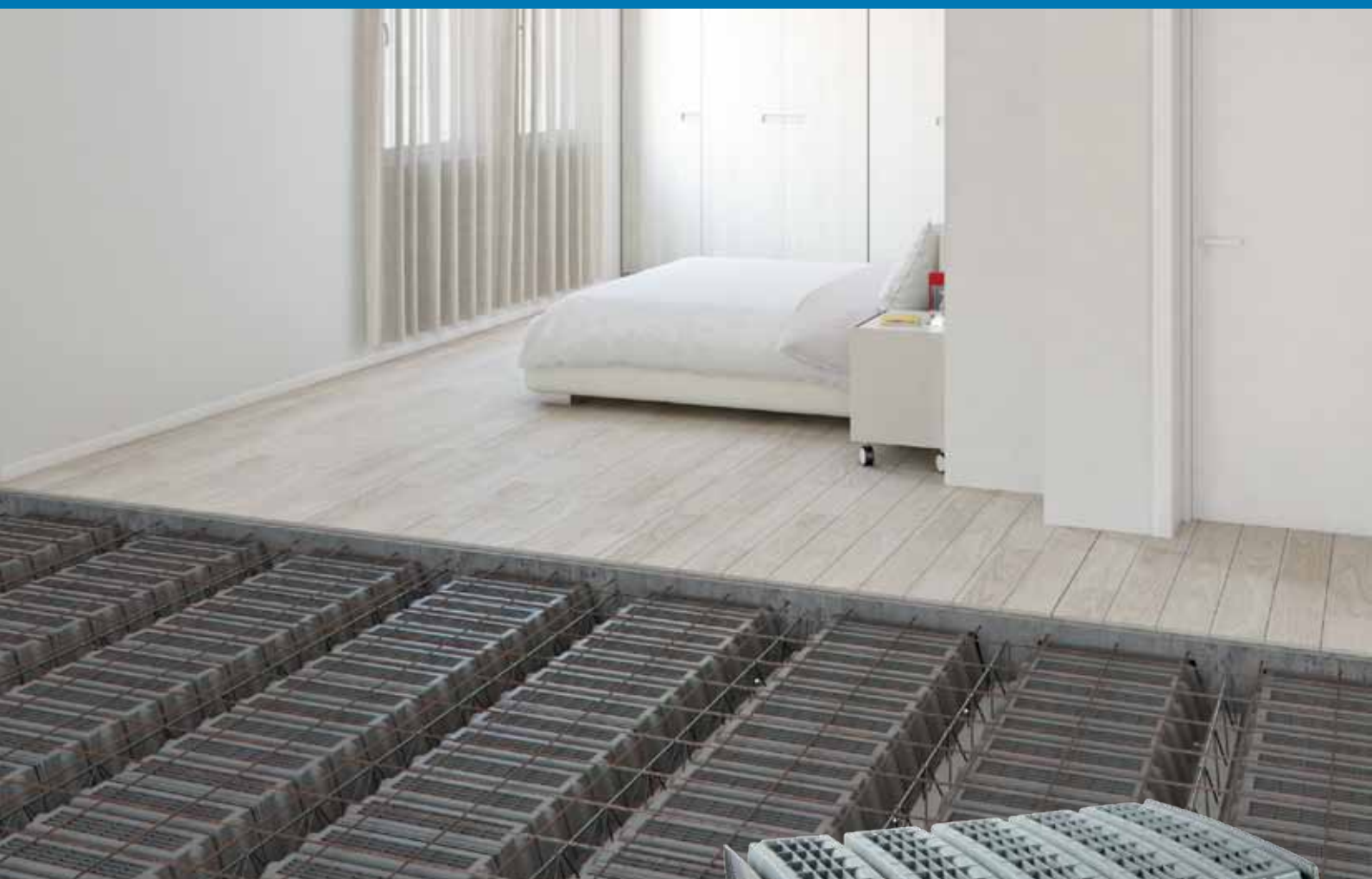




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**Formworks for
voided slabs mixed with
reinforced concrete**



dali*form*
GROUP
Building Innovation © Creatori dell'Iglù®

KEY:



SWITCHBOARD

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FOREIGN COMMERCIAL SECRETARY OFFICE

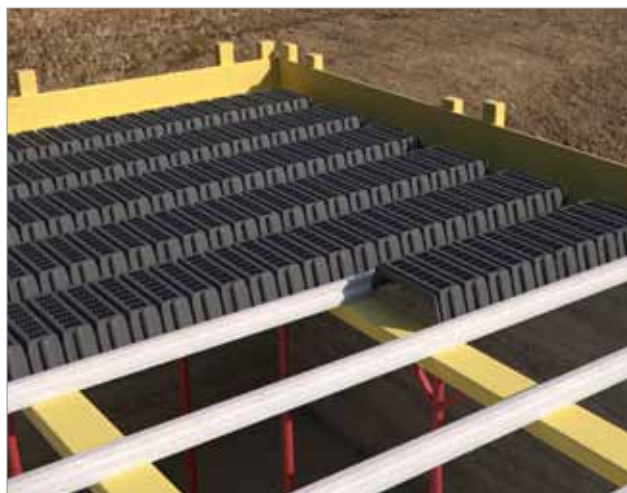
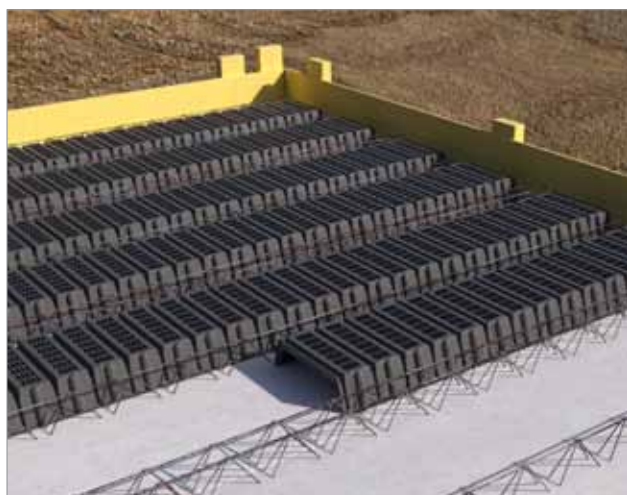
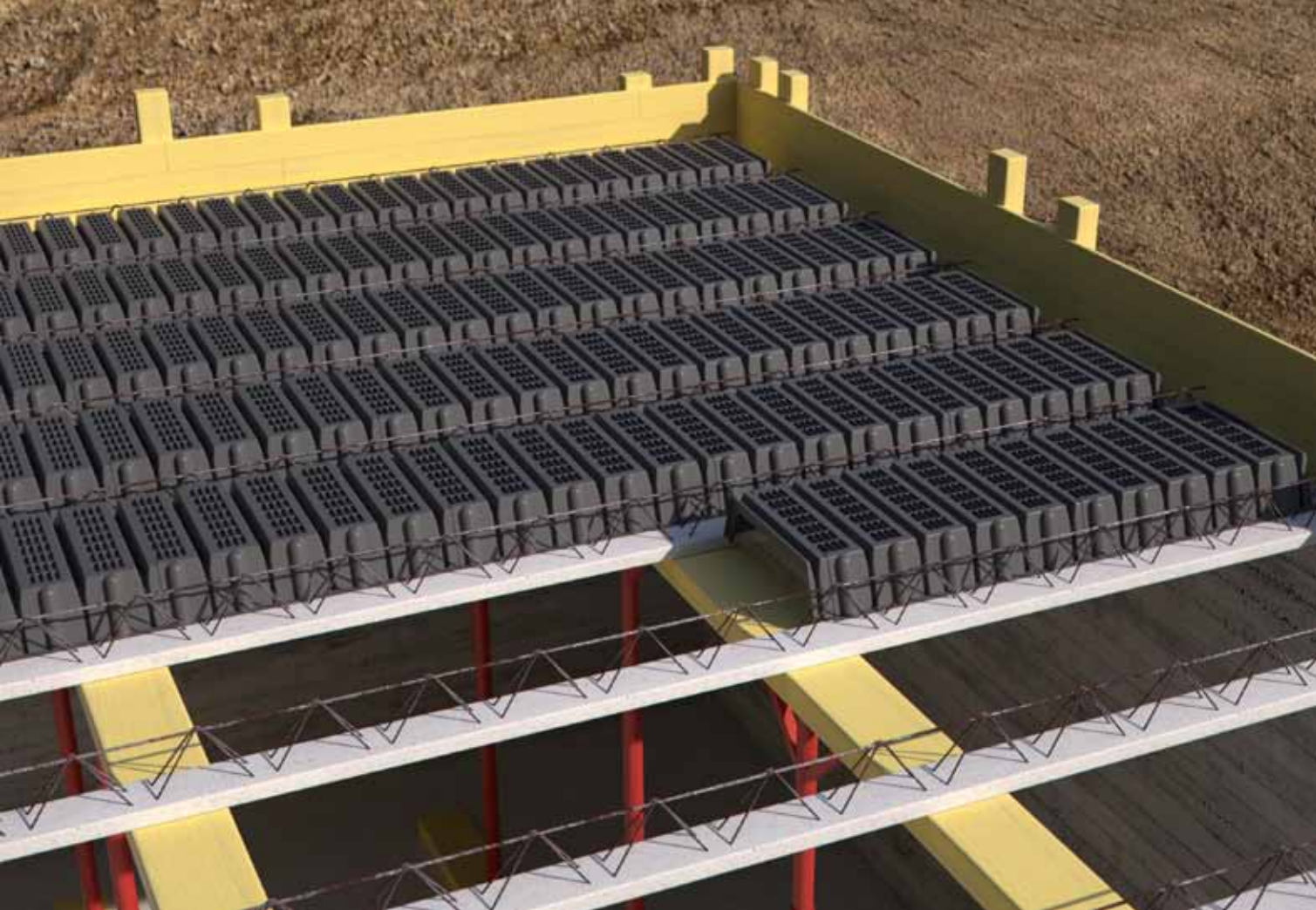
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TECHNICAL SECRETARY OFFICE

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Fit Slab is a formwork made of polypropylene; its principal function is lightening and, when used in conjunction with prefabricated beams made of pre-stressed reinforced concrete, or lattices or directly on prefabricated lattice slabs, it enables the construction of various types of voided slabs made of reinforced concrete, with extremely quick installation in both reconstructions and new buildings.

This construction technique is quick and practical and yields a higher-performance slab with a lower structural weight compared to that of floor slabs made using conventional methods such as hollow bricks or voided reinforced concrete.

The use of **Fit Slab** leads to a significant reduction in the loads on the framework and elevated load-bearing walls as well as foundations. In addition, seismic activity which the slab transmits to the elevated structures are reduced in proportion to the weight of the slab.

By taking advantage of the void below the **Fit Slab** modules, it is possible to install both transverse and longitudinal ducts, which are useful for the passage of electrical, water, heating installations.



Advantages

- Optimal mechanical strength properties;
- Reduction in costs for the construction of temporary retaining structures.
- Easily interlocking modules reduce laying time and cost. A team of three men can lay up to 200 square metres of slabs per day.
- Flexible implementation, practical and simple to scale down both lengthwise and width-wise.
- Reduction of seismic masses to enhance structural safety.
- Economical and practical in terms of transportation, handling and outside storage.
- Gives the slab the best fire resistance properties. For use in public buildings without false ceilings, it can be produced in the Class 1 and 0 versions by specific request.
- The void below the Fit Slab modules enables the passage of electrical, water and heating installations.
- Better site clean up and waste disposal compared to conventional lightening measures (hollow bricks and EPS).
- On-site safety. With the slab shored up at the beams, Fit Slab supports the weight of the workers and the reinforced concrete.
- Underfoot safety for workers. Eliminates risk of collapse or falls resulting from the fragility of the hollow brick.
- Option of covering floor plans with articulated forms.

Applications

Fit Slab facilitates the implementation of:

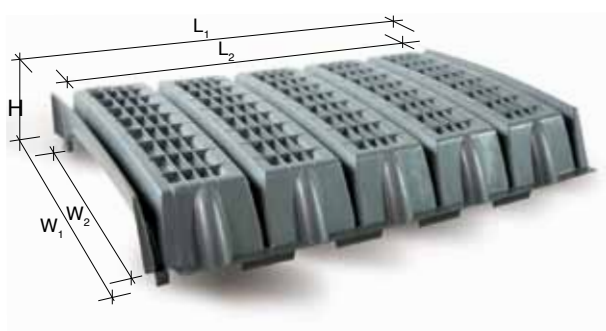
- Voids slabs with prefabricated beams made of pre-stressed reinforced concrete or lattices (Bausta);
- Voids slabs with plates made of reinforced concrete (prefabricated lattice slabs);
- Voids slabs made of reinforced concrete cast in situ with parallel or cross-hatched ribbing;

For both for reconstruction and new buildings, in both civil and in industrial environments.

Fit Slab can also be used in seismic risk areas; in fact, the upper reinforced-concrete finishing slab can serve the purpose of a "plane diaphragm", ensuring the complete transmission of horizontal forces to the primary anti-seismic system.

Technical data

Fit Slab has excellent mechanical strength and solidity properties and is designed so that the formworks interlock with each other. Fit Slab is designed so that, if necessary, it can easily be cut lengthwise or width-wise.



"ABUTMENT" closure accessory

Placed at the beginning and at the end of each row, acts as a "closing gable" and facilitates the casting of the upper cap of concrete without it overflowing and pouring out of the formworks.



	H cm ▶	9	14
Length L ₁	cm	79,7	79,7
Length L ₂	cm	77,5	77,5
Width W ₁	cm	56	56
Width W ₂	cm	52	52
Weight of the piece	kg	1,95	2,25
Volume of the piece	m ³	0,0326	0,05
Pallet dimensions	cm	120 x 80 x 230	120 x 80 x 230
Pallet units	pcs/PAL	200	200
Pallet weight	kg/PAL	402	462

	H cm ▶	9	14
Weight of "abutment" pcs.	kg/ pcs	0,365	0,398
Box dimensions	cm	60 x 40 x 41	60 x 40 x 41
Pieces per box	-	24	18
Box weight	kg	9,71	8,20

Table comparing *Fit Slab* with conventional slabs

The method for calculating the various types of slab is based on current Italian legislation:

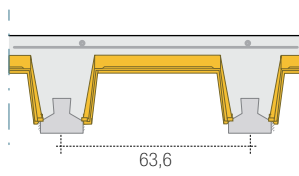
- Law 05.11.1971 no. 1086 and Ministerial Decree 04.01.1993: "Standards for the Implementation of Works in Normal and Pre-stressed Concrete and Metal Structures";
- Ministerial Decree 14/01/2008 – "Technical Standards for Buildings";
- CIRCULAR of 2 February 2009, n. 617 C.S.LL.PP.: "Instructions for the Application of the" New Technical Standards for Buildings" as per Ministerial Decree of 14 January 2008".
- Eurocode 2 - Design of Concrete Structures

The tables show the weights of some of the most commonly used types of slabs in the construction industry for the construction of buildings with reinforced concrete structures or load-bearing walls. The differences between the weights of slabs made with the use of Fit Slab as a lightening module and those using other conventional products are highlighted therein.

For the sake of comparison, equal structural heights, and equal utilisation of concrete and structural elements (beams, pylons, prefabricated lattice slabs) were assumed.

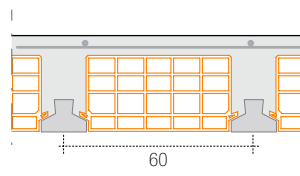
Slabs with pre-stressed, reinforced

Slab height (cm)	In-situ weight of slab (kN/m ²)		
	A	B	C
20,5	2,23	2,43	2,93
22,5	2,73	2,93	3,43



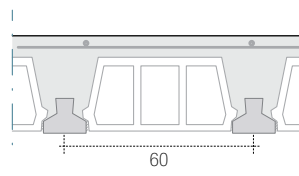
A

with Fit Slab h 14 cm



B

with brick blocks

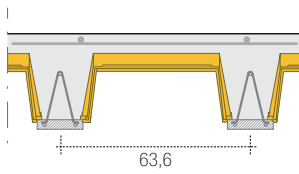


C

with cement and clay blocks

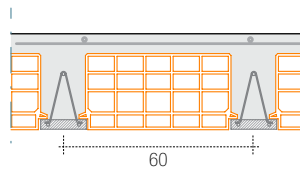
Slabs with prefabricated lattice beams and/or solid slab

Slab height (cm)	In-situ weight of slab (kN/m ²)		
	A	B	C
20,5	2,23	2,43	5,125
22,5	2,73	2,93	5,625



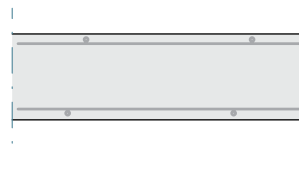
A

with Fit Slab h 14 cm



B

with brick blocks

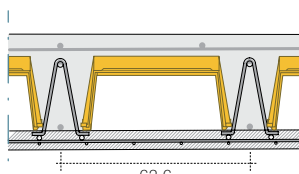


C

made of reinforced

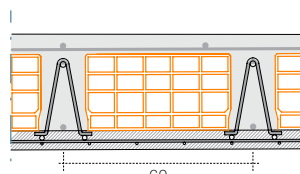
Slabs with plates made of prefabricated reinforced

Slab height (cm)	In-situ weight of slab (kN/m ²)		
	A	B	C
23 (5+14+4)	3,05	3,49	2,95
24 (5+14+5)	3,30	3,74	3,20



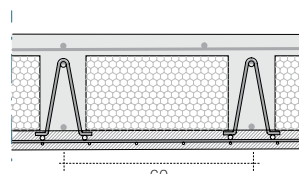
A

with Fit Slab h 14 cm



B

with brick blocks



C

with EPS blocks

Fit Slab - Slab Performance

Fit Slab H 9 cm

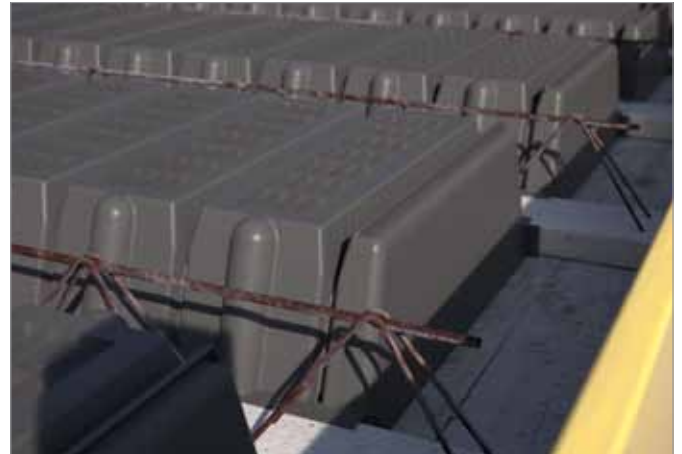
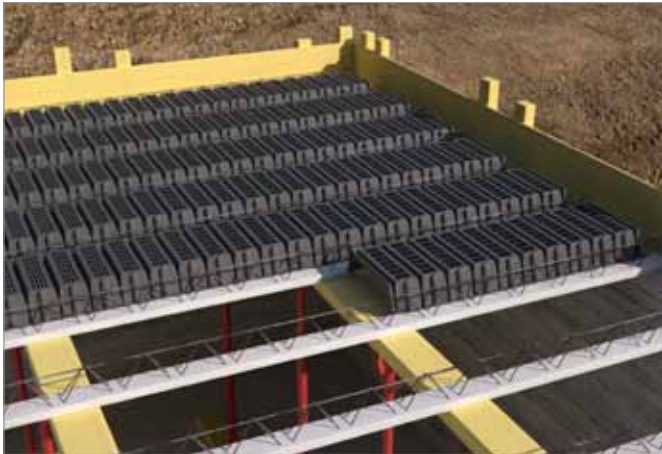
REGULATORY CATEGORY	Description of Category	Actual span (net tie-to-tie distance)	Beam spacing	Total height of structural slab	Thickness of beam bottom	H cap	Weight of slab	G (permanent loads)	Q (accidental loads)	Total load on beam (typical value)
		cm	cm	cm	cm	cm	kN/m ²	kN/m ²	kN/m ²	kN/m
CAT. 1	Spaces for residential use. This category includes living quarters and related facilities as well as hotels (except for areas susceptible to crowding).	≤ 357	63,6	15,5	2,5	4	1,88	2,00	2,00	3,74
		from 358 to 381	63,6	15,5	2,5	4	1,88	2,00	2,00	3,74
		from 382 to 405	63,6	15,5	2,5	4	1,88	2,00	2,00	3,74
		from 382 to 405	63,6	17,5	2,5	6	2,38	2,00	2,00	4,05
		from 406 to 429	63,6	17,5	2,5	6	2,38	2,00	2,00	4,05
		from 430 to 453	63,6	17,5	2,5	6	2,38	2,00	2,00	4,05
CAT. 2	Offices. Cat. B2 Offices open to the public. Spaces susceptible to crowding. Cat. C1 Hospitals, restaurants, cafés, banks, and schools.	≤ 357	63,6	15,5	2,5	4	1,88	2,00	3,00	4,37
		from 358 to 381	63,6	15,5	2,5	4	1,88	2,00	3,00	4,37
		from 358 to 381	63,6	17,5	2,5	6	2,38	2,00	3,00	4,69
		from 382 to 405	63,6	17,5	2,5	6	2,38	2,00	3,00	4,69
		from 406 to 429	63,6	17,5	2,5	6	2,38	2,00	3,00	4,69
CAT. 3	Spaces susceptible to crowding. Cat. C2 Balconies and common staircases, conference rooms, cinemas, theatres, churches, and grandstands with fixed seats.	≤ 357	63,6	15,5	2,5	4	1,88	2,00	4,00	5,01
		≤ 357	63,6	17,5	2,5	6	2,38	2,00	4,00	5,33
		from 358 to 381	63,6	17,5	2,5	6	2,38	2,00	4,00	5,33

Fit Slab H 14 cm

REGULATORY CATEGORY	Description of Category	Actual span (net tie-to-tie distance)	Beam spacing	Total height of structural slab	Thickness of beam bottom	H cap	Weight of slab	G (permanent loads)	Q (accidental loads)	Total load on beam (typical value)
		cm	cm	cm	cm	cm	kN/m ²	kN/m ²	kN/m ²	kN/m
CAT. 1	Spaces for residential use. This category includes living quarters and related facilities as well as hotels (except for areas susceptible to crowding).	from 430 to 453	63,6	20,5	2,5	4	2,23	2,00	2,00	3,96
		from 454 to 477	63,6	20,5	2,5	4	2,23	2,00	2,00	3,96
		from 478 to 501	63,6	20,5	2,5	4	2,23	2,00	2,00	3,96
		from 526 to 549	63,6	20,5	2,5	4	2,23	2,00	2,00	3,96
		from 550 to 573	63,6	20,5	2,5	4	2,23	2,00	2,00	3,96
		from 550 to 573	63,6	22,5	2,5	6	2,73	2,00	2,00	4,28
		from 574 to 597	63,6	22,5	2,5	6	2,73	2,00	2,00	4,28
CAT. 2	Offices. Cat. B2 Offices open to the public. Spaces susceptible to crowding. Cat. C1 Hospitals, restaurants, cafés, banks, and schools.	from 406 to 429	63,6	20,5	2,5	4	2,23	2,00	3,00	4,60
		from 430 to 453	63,6	20,5	2,5	4	2,23	2,00	3,00	4,60
		from 454 to 477	63,6	20,5	2,5	4	2,23	2,00	3,00	4,60
		from 478 to 501	63,6	20,5	2,5	4	2,23	2,00	3,00	4,60
		from 478 to 501	63,6	22,5	2,5	6	2,73	2,00	3,00	4,91
		from 502 to 525	63,6	22,5	2,5	6	2,73	2,00	3,00	4,91
CAT. 3	Spaces susceptible to crowding. Cat. C2 Balconies and common staircases, conference rooms, cinemas, theatres, churches, and grandstands with fixed seats.	from 358 to 381	63,6	20,5	2,5	4	2,23	2,00	4,00	5,23
		from 382 to 405	63,6	20,5	2,5	4	2,23	2,00	4,00	5,23
		from 406 to 429	63,6	20,5	2,5	4	2,23	2,00	4,00	5,23
		from 430 to 453	63,6	20,5	2,5	4	2,23	2,00	4,00	5,23
		from 430 to 453	63,6	22,5	2,5	6	2,73	2,00	4,00	5,55
		from 454 to 477	63,6	22,5	2,5	6	2,73	2,00	4,00	5,55

The tables are indicative and generic and, therefore, do not take special cases into account; for every operation not covered there, please consult with the Daliform Group in order to evaluate the most suitable solution. Structural calculations assume a lattice beam with a width of 12 cm, bottom thickness of 2.5 cm, reinforced concrete of Resistance Class C25/30, steel B450 C and a 20 x 20 cm electro-welded mesh in the upper cap with $\phi = 5$.

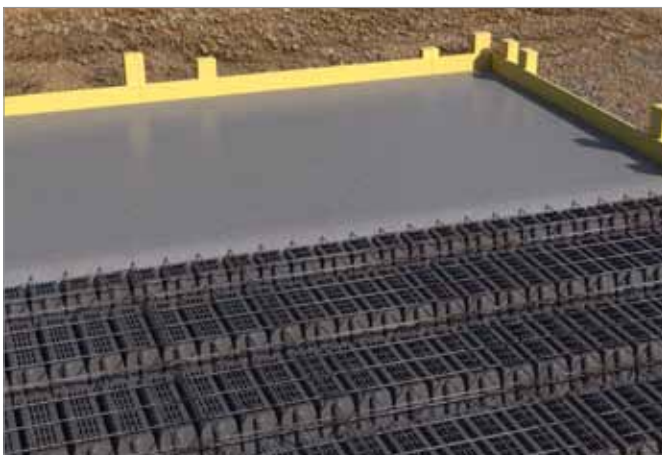
Installation of *Fit Slab* slab on lattice beams



- 1** Prepare the props to support the beams and position the lattice beams according to the plan. At first, the beams must be distanced from each other by placing Fit Slab modules at the two ends in order to achieve the correct degree of parallelism between them.
- 2** Once the beams are in place, the operator, positioned at one of the ends, gradually inserts the Fit Slab modules, interlocking them with each other, one after the other, sliding them in until the row is finished.
The Fit Slab module can be easily adapted to smaller measurements by cutting it both lengthwise and width-wise, until the surface is completed.
- 3** Close the two ends of each row by inserting the "abutment" closure element to prevent the overflow of concrete during the casting phase.
- 4** After installing the modules, one on top of the other, put a suitable electro-welded mesh in place. If required by the project, both thermal and acoustic insulating materials can be inserted into the stratigraphy of the slab.
- 5** Proceed with the casting of the reinforced concrete cap. Unlike bricks, the Fit Slab formworks do not need to be wetted before casting; as they are waterproof, they do not absorb the mix water for the reinforced concrete.
Begin casting by first filling the beams, the full fascia and the kerbs and continuing with the ribbing and upper slab, avoiding any interruption of the casting.
The class and consistency of the reinforced concrete used must fulfill the technical specifications established in the design and must be adequately vibrated.

 **CAUTION!** The waiting times vary as a function of the type of reinforced concrete and the weather conditions under which the work is done.

- 6** After the appropriate curing time for the reinforced concrete has passed, the support structure can be disarmed. The intrados of the slab should be closed after the technological systems have been passed through.
Closure can be performed with a suspended plasterboard ceiling or with other types.



Specifications

Execution of flat or sloping reinforced concrete voided slab, height $H = \text{_____} + \text{_____}$ cm, mixed structure consisting of beams made of normal or pre-stressed reinforced concrete (or on prefabricated lattice slab) and recycled plastic lightening, such as "Fit Slab" by the Daliform Group.

- Position the lattice beams at intervals of cm _____ and shore the slab.
- Position and interlock the "Fit Slab" recycled plastic lightening from the Daliform Group onto the beams (or prefabricated lattice slabs).
- Place the "abutment" module at the ends of the rows and in the places where the formwork has been cut lengthwise.
- Supply and in situ installation of 20 x 20 cm electro-welded mesh, $\phi = 6$ mm including the swarf and the overlap, directly over the formworks.
- Execute casting (minimum Resistance Class C25/30, Consistency Class S5 and diameter of the aggregates sufficient to avoid phenomena of "segregation") filling first the beams, then the full fascia, the kerbs, and continuing with the ribbing and upper slab, avoiding any interruptions of the casting.

The Fit Slab modules produced in ALAPLEN® CV30, should have a dry resistance of 150 kg at the weakest point on an 8 x 8 cm square footprint, must not release pollutants, must be provided with a Certificate of Environmental Compliance, and must be produced by a company with the Integrated Management System (ISO 9001, ISO 14001, OHSAS 18001, SA 8000).

The manufacturer must provide the product data sheet and product safety sheet as well as the granulate used "ALAPLEN® CV30", must be constructively reported to the designer and Director of Works at the time of provision and before the construction of the slab, adapting the product to the executive design, and integrating it as necessary; the product certificate approved by an EOTA (European Organisation for Technical Approvals) member agency must also be displayed.

Cost euros/sqm. _____

Technical office Daliform Group



The technical consultancy is only valid for the Daliform Group construction systems.

FEASIBILITY STUDY

Predimensioning and optimisation of the structures, comparative and/or revised proposals, material and manpower estimates, cost analysis.

Evaluation of forced ventilation in the case of cold rooms.

CALCULATION REPORT

Reports certifying the execution of Daliform Group constructive systems.

SUPPORT FOR THE EXECUTIVE DESIGN

Support by design professionals. Upon request, the formwork positioning plan can be supplied with a list of the products required to carry out the work and the relative accessories.

ON-SITE SUPPORT




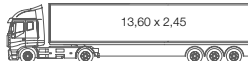


If necessary, our technical staff can be present on-site to help the construction company during the operational phase.



To contact the technical office: Tel. +39 0422 208350 - tecnico@daliform.com

To obtain updated technical cards, support material, new photos and case studies, go to www.daliform.com

Logistics - pallet capacity

MEANS OF TRANSPORT	NO. OF PALLETS	
Tractor (8.20/9.60x2.45)	20/23	
Trailer (6.20x2.45)	15	
Tractor+ Trailer type "BIG"	19 + 16	
(8.40+7.20x2.45)	33	
Semi-trailer (13.60x2.45)	11*	
20 feet container 40 feet container	24*	

* The m² per pallet can vary based on the type of container.

The information contained in this catalogue could be changed. Before placing an order, request a confirmation or updated information from the DALIFORM GROUP, which reserves the right to make changes at any moment without notice. In consideration of recycled material, it is specified that there are tolerance margins caused by environmental factors.



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DG_FTSL - Rev.01-09/17

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Partner of
GBC Italy

Rating di legalità: ★★+

