

# The beginning of a new era for foundations.

The Armadillo™ Foundation System is a construction technology that builds robust, cost effective, time effective and environmentally aware waffle slabs.

The Armadillo™ Foundation System is an excellent solution for construction on grounds with poor performance such as liquefiable, soft or expansive soils and it has been successfully used for the Christchurch post earthquake recovery program.

An efficient use of land is a paramount for modern cities, the Armadillo™ Foundation System is the ideal option for residential and commercial buildings up to four storey high.

By using components exclusively made of recycled polypropylene, the Armadillo™ Foundation System is also a sustainable alternative to foundations generating tonnes of polluting polystyrene from void former offcuts every year.

The Armadillo™ Foundation System is protected by international patents:  
NZ 625921, AU app:2014275575, EU app:14807425, CHINA app:201480044297, US  
app:14/895972, NZ Design Reg.: 421383, 421384, 421385, 421386, 421387



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## The Armadillo™ keystone

The keystones easily interlock with the pods and are equipped with built-in bar retainers.





## Emphasis on efficiency.

Efficiency is the key word for us because only by optimizing the resources it is possible to generate cost savings and sustainability. We have focused on the optimization of six key resources: **labour, time, concrete, steel reinforcing, transportation and storage.**

Labour intense activities are eliminated: The installers simply click pods, keystones and the steel into place without ties. The use of steel cages and stirrups is virtually eliminated.

Duration of construction is significantly reduced: The Armadillo™ Foundation System minimizes earthworks and ground improvement works. The easiness of the system allows a working team of 4 people to install 200 m² in a day.

The use of construction materials is optimized: The superior performance of the Armadillo™ design pattern allows savings with the use of concrete and reinforcing steel.



Freight and use of the site are minimized since all components stack neatly into and on top of each other. The components required to construct a building with a floor area of 500 m<sup>2</sup> can be delivered (and stored on site) using nothing larger than a standard two axis trailer. The equivalent material currently used in waffle floors would require a volume comparable to two 40ft containers.





## The best footprint under your building.

Just as your car needs good tyre tread to be safe on the road, your building needs a foundation with a good footprint to be safe on the ground.

The Armadillo™ Foundation System transfers the loads of your building onto the ground minimizing pressure peaks and the risk of settlement.

On the other hand the voided contact patch mitigates potential uplift forces of swelling soils beneath the slab resulting extraordinarily efficient on expansive clays.

Above: The pressure diffusion pattern of a conventional polystyrene waffle slab.

No group effect is achieved, the ribs perform as a grid of individual strip footings.

Below: The pressure diffusion pattern of the Armadillo™ Foundation System.

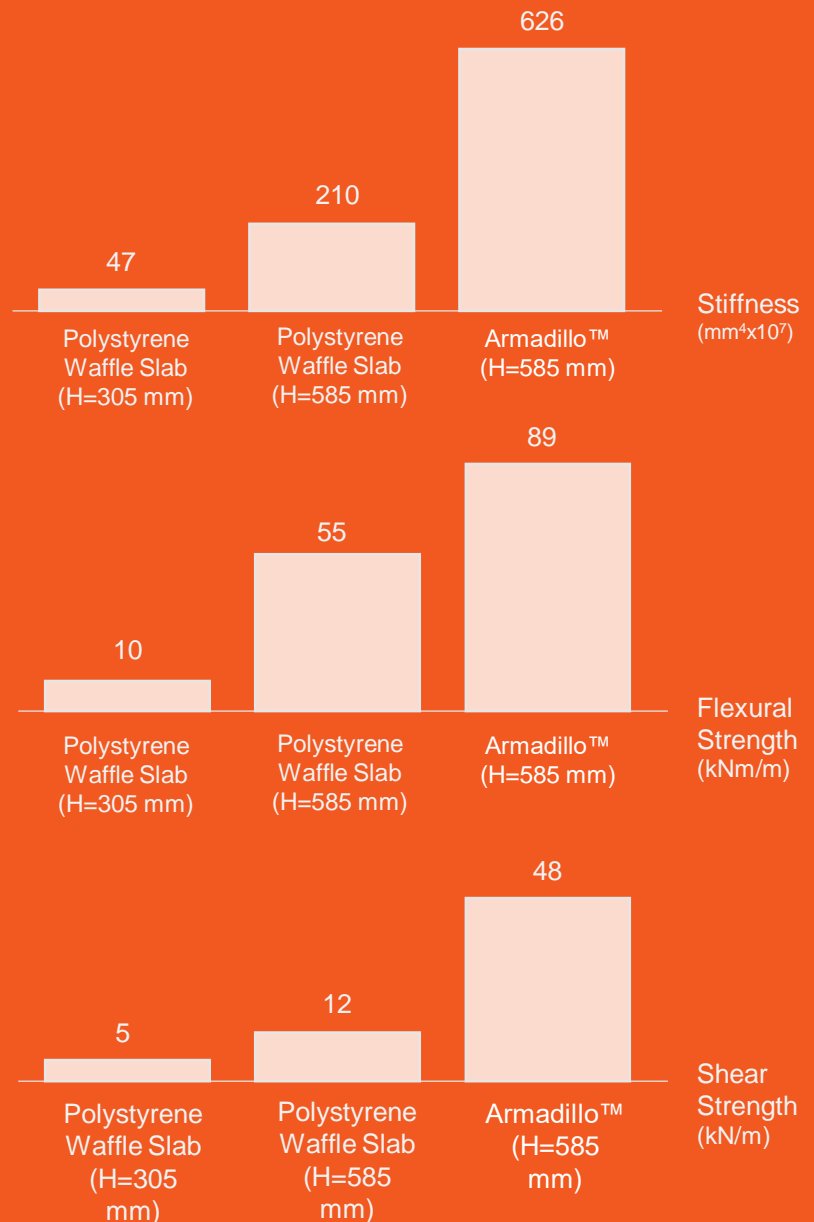
The spacing of the ribs is adequate to achieve a group effect and the foundation performs as a floating raft.

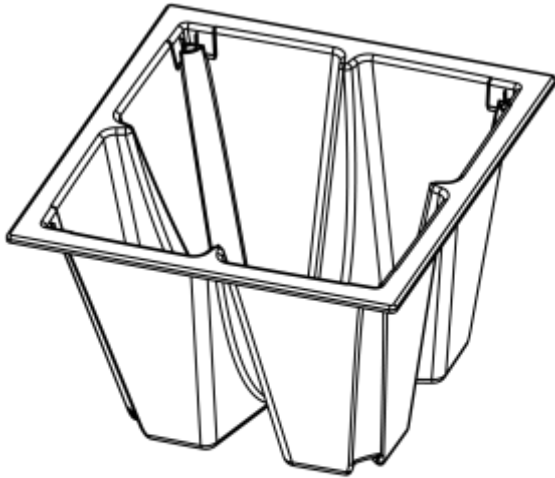
## Superior performance across the board.

A stiff foundation designed to perform as a floating raft is able to spread the load of the building on a large footprint and provides protection against deformations induced by ground movements.

Since stiffness and stresses are related, stiffness must always be accompanied with an adequate robustness.

In the Armadillo™ Foundation System the perfect balance of stiffness and strength is achieved by a unique interweaving pattern of the structure.





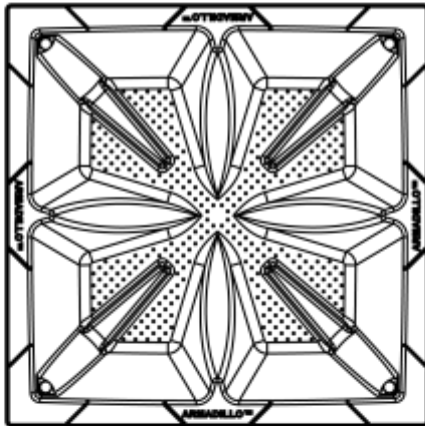
## Armadillo™ 500 pod

The Armadillo™ 500 pod is a sacrificial void former.

The patented design of the Armadillo™ 500 pod shapes the concrete with a unique interweaving pattern of ribs and arcs delivering extraordinary structural performance to the foundation.

The Armadillo™ 500 pod is designed to reduce slab curling and shrinkage cracks, while providing higher quality to the concrete surface.

The Armadillo™ 500 pods are also an effective capillary barrier against moisture across the foundation.



### Technical data:

Material = Re-milled Black Polypropylene

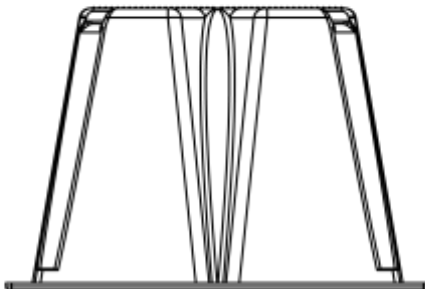
L x L x Height = 750 x 750 x 500 mm

Volume ≈ 150 litres

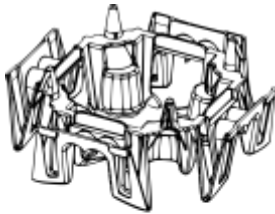
Weight ≈ 4,5 kg

Consumption of concrete = 0,32 m<sup>3</sup>/m<sup>2</sup>

Product Made in New Zealand







## Armadillo™ keystone

The Armadillo™ keystones engage the Armadillo™ pods forming a stable array.

The Armadillo™ keystones also retain the reinforcing steel bars providing adequate concrete cover.

The Armadillo™ keystone has been designed to be perfectly ergonomic and stackable for easy handling and installation.

### Technical data:

L x L x Height = 220 x 220 x 120 mm

Weight ≈ 120 g

Material = Re-milled Black Polypropylene

Maximum number of bars = 2 in each way

Maximum diameter of bars = 20 mm

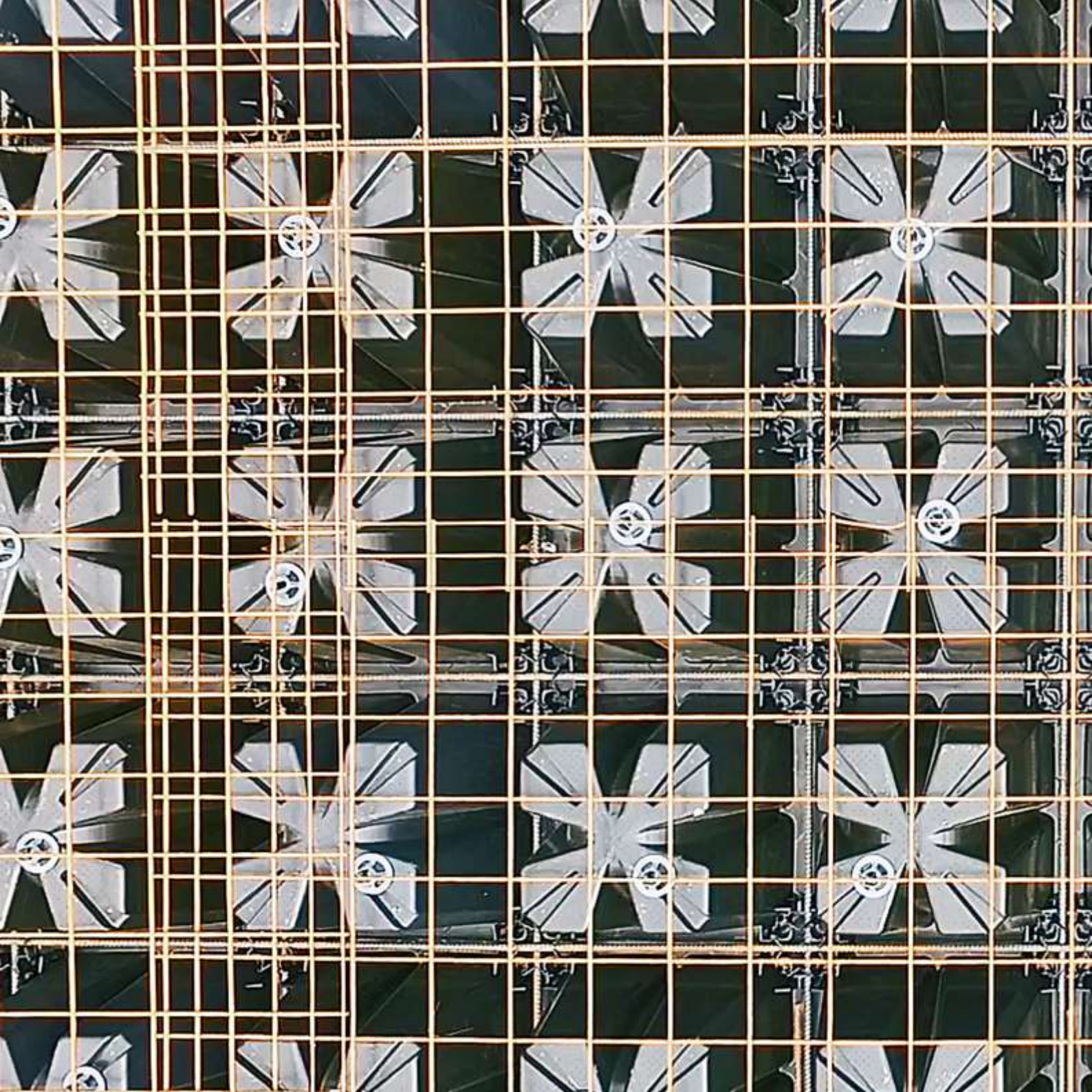
Minimum diameter of bars = 12 mm

Bottom spacing for cover = 50 mm

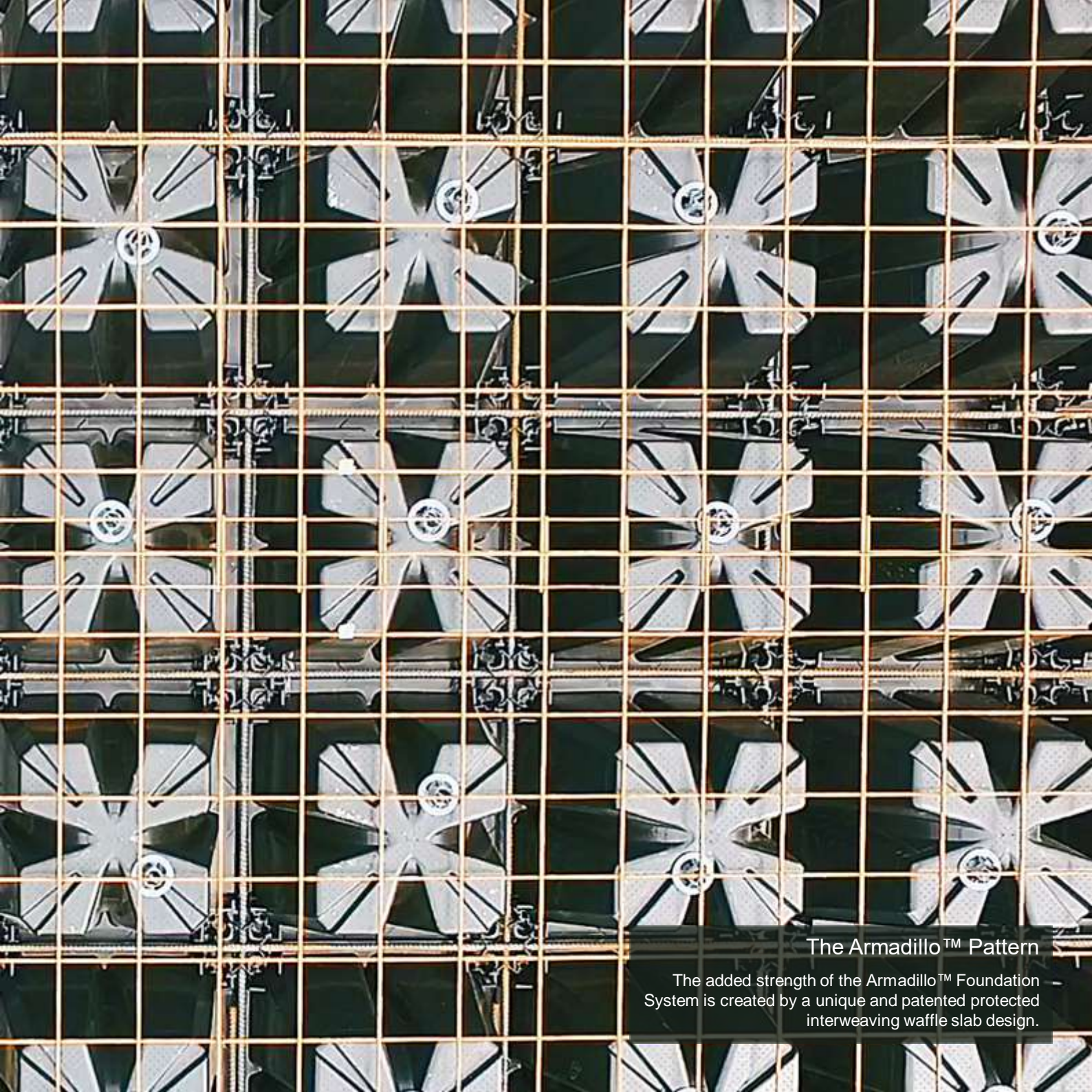
Lateral spacing for cover = 35 mm



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## The Armadillo™ Pattern

The added strength of the Armadillo™ Foundation System is created by a unique and patented protected interweaving waffle slab design.

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