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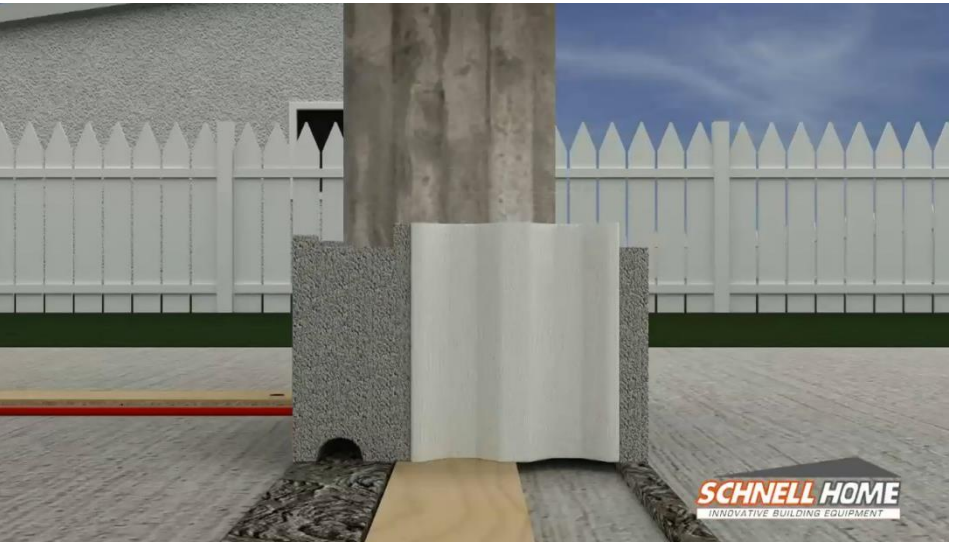
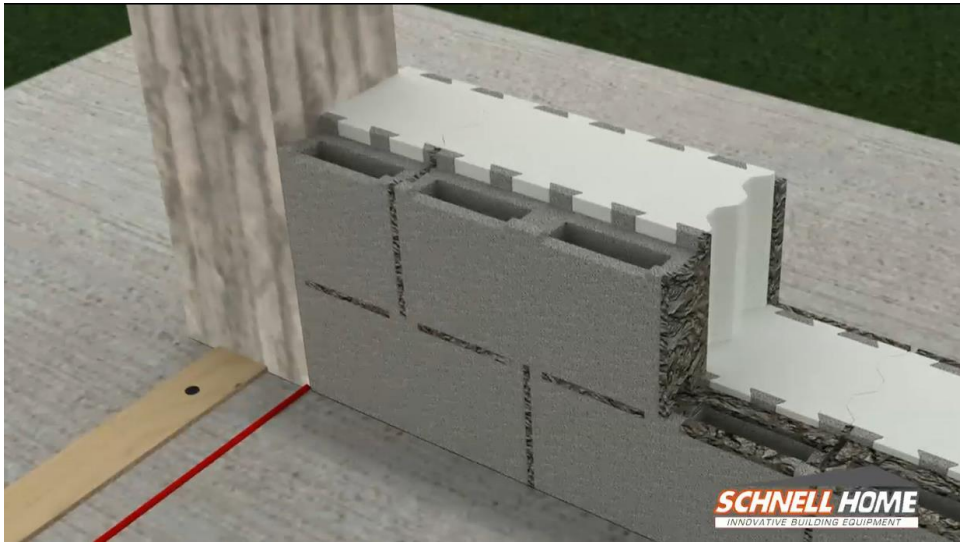
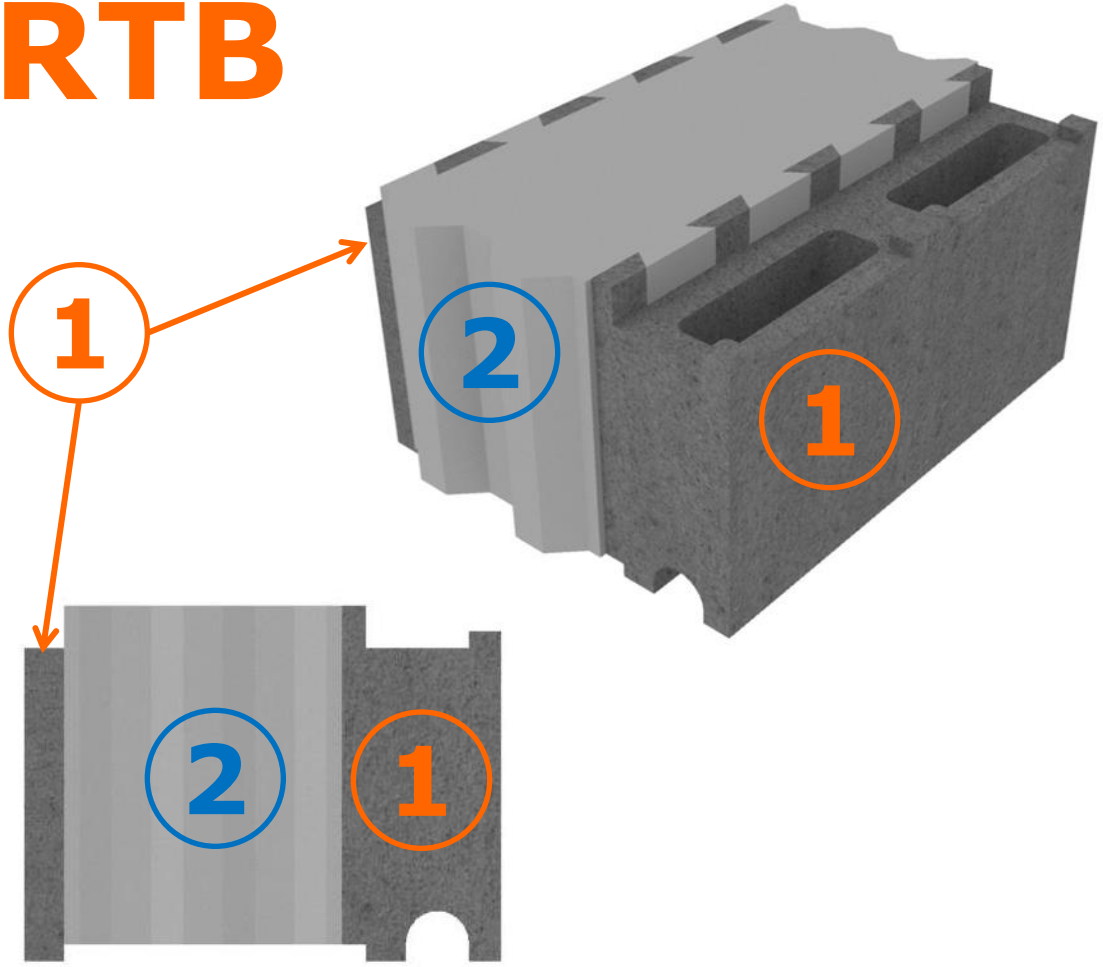
INNOVATIVE BUILDING EQUIPMENT





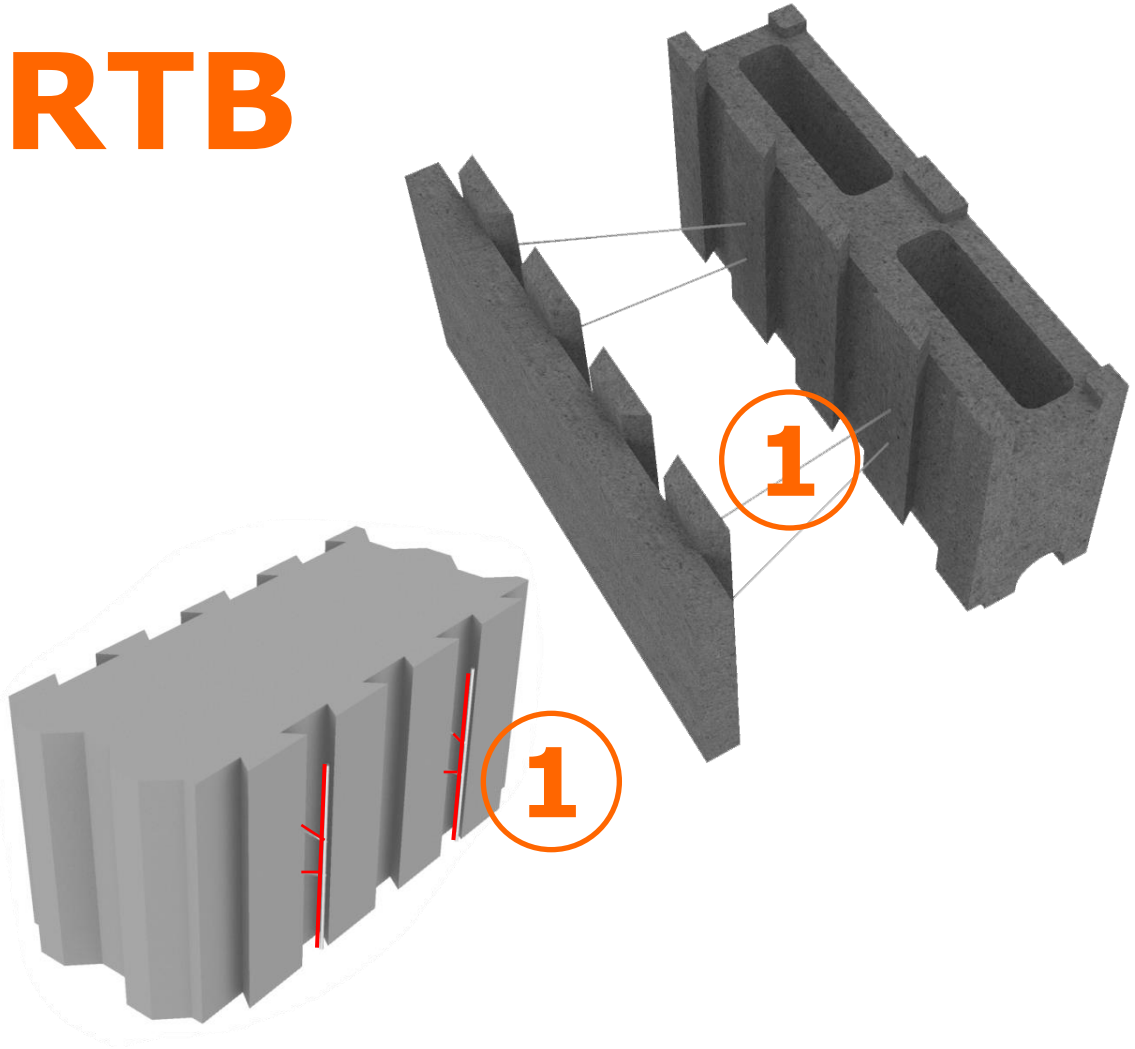
Reinforced Thermal Block

RTB



The “**Reinforced Thermal Block**” is a new concrete block composed of two sheets of vibro-pressed concrete **(1)** separated by a shaped polystyrene core **(2)** of variable thickness.

RTB



The concrete sheets are connected by four connectors **(1)** of galvanized steel of Ø 2-3 mm, which make the block a single body.

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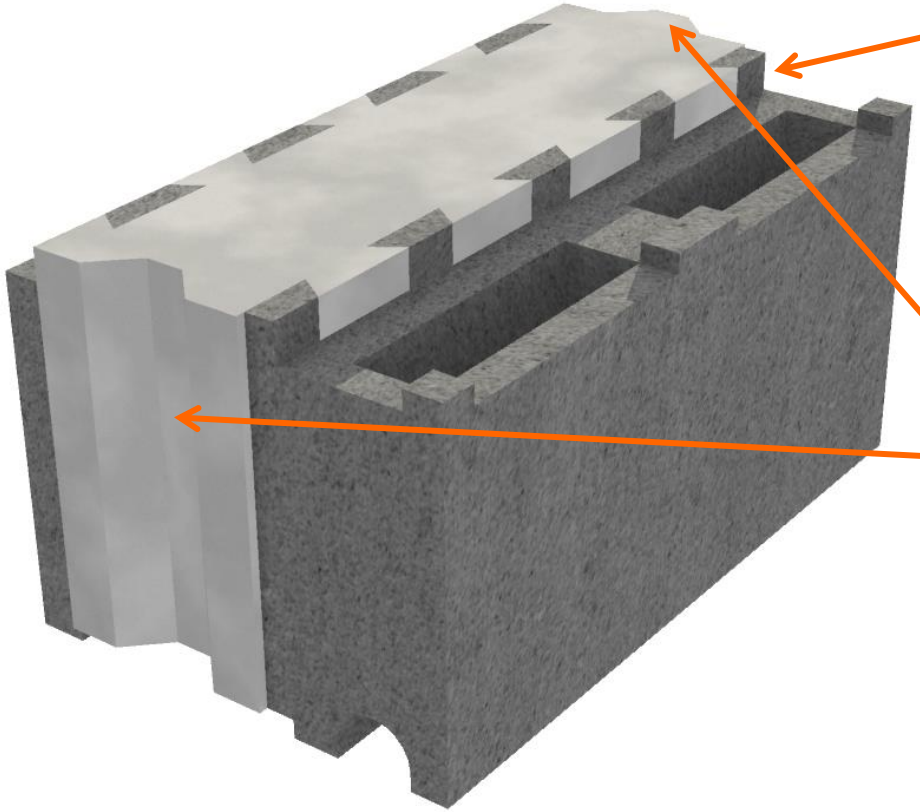
RTB - Features



(1) In the upper part the polystyrene sticks out of 2 cm to avoid the thermal bridge of the mortar and to facilitate the alignment during the installation phase.

(2) The polystyrene has been shaped laterally with the aim to facilitate the mutual joint, the correct laying and to avoid the thermal bridge of the side mortar.

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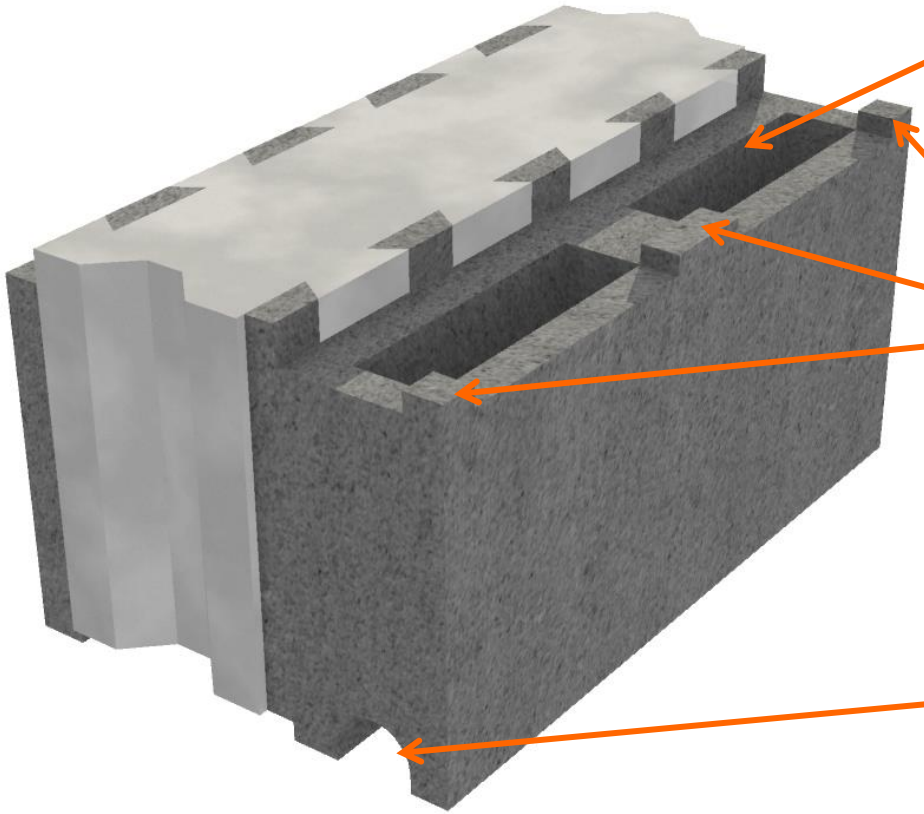

(3) Small courtyards for the vertical passage of the electrical systems

(4) Teeth of concrete – 1 cm thick - which have the function of regulating the quantity of mortar to lay.

(5) Horizontal courtyard for the passage of the electrical systems.

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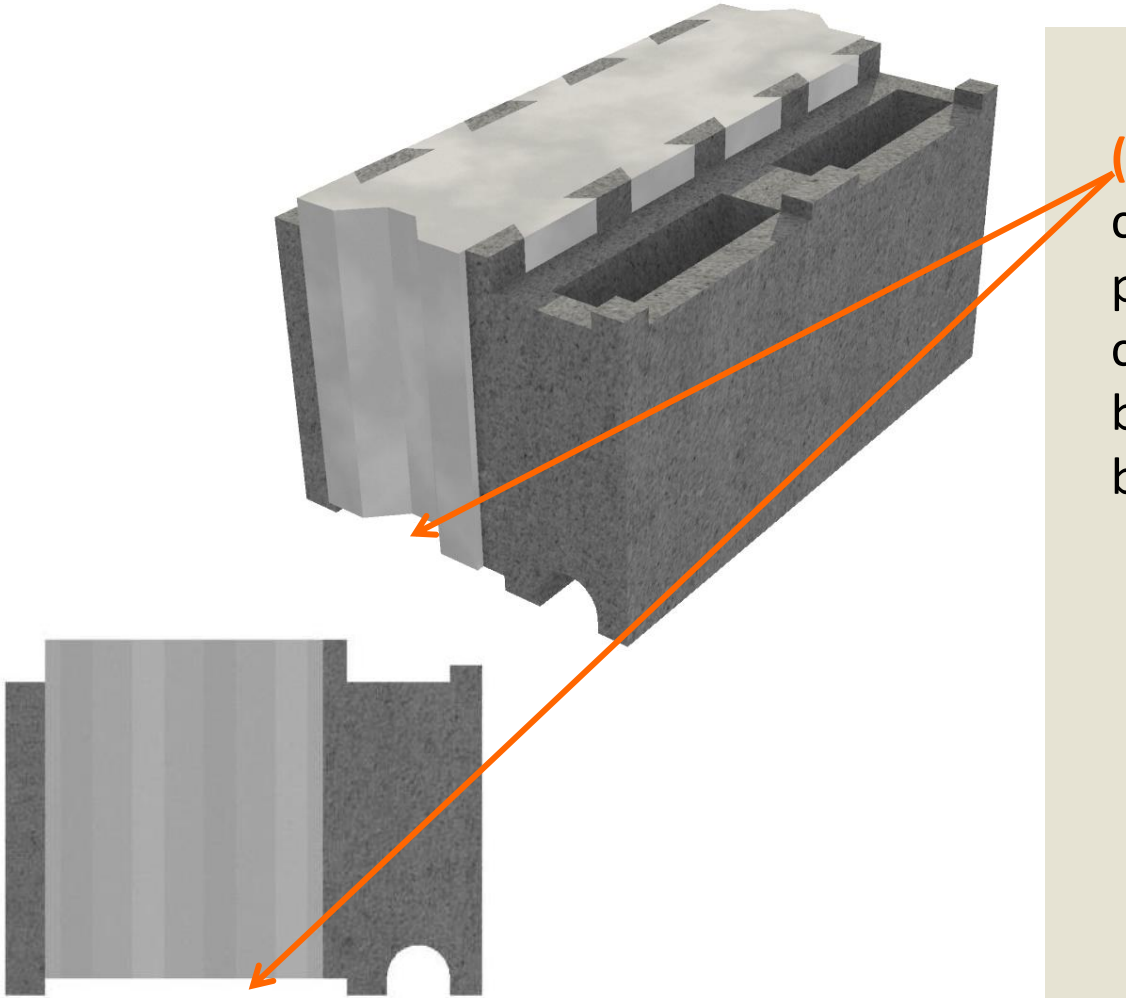

(6) In the lower part, on the contrary, there is a rise of polystyrene of 1 cm to get the continuity of the insulation between the various rows of blocks.

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RTB -
Advantages
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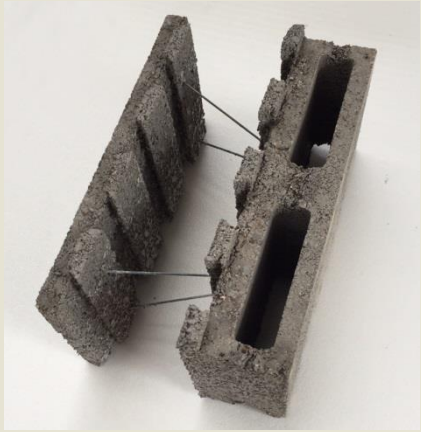
Efficient

Considering the possibility to change the thickness of the internal polystyrene core: a very high thermal insulation can be archieved.

Safe

The internal reinforcing, that makes the various sheets integral, allows (even in case of fire) a continuous connection between the two parts of the concrete and a greater resistance to the anchorage of the elements on the sides.



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Quick

The peculiarity of the three joints (upper, lower and lateral) facilitates the implementation during the phases of both horizontal and vertical alignment.

Economic

The insulated thermal block reduces the cost of the installation of other materials needed to achieve the high levels of thermal insulation required.

Light

Thanks to the internal reinforcement, the thickness of the concrete parts can be reduced and therefore the block is lighter.

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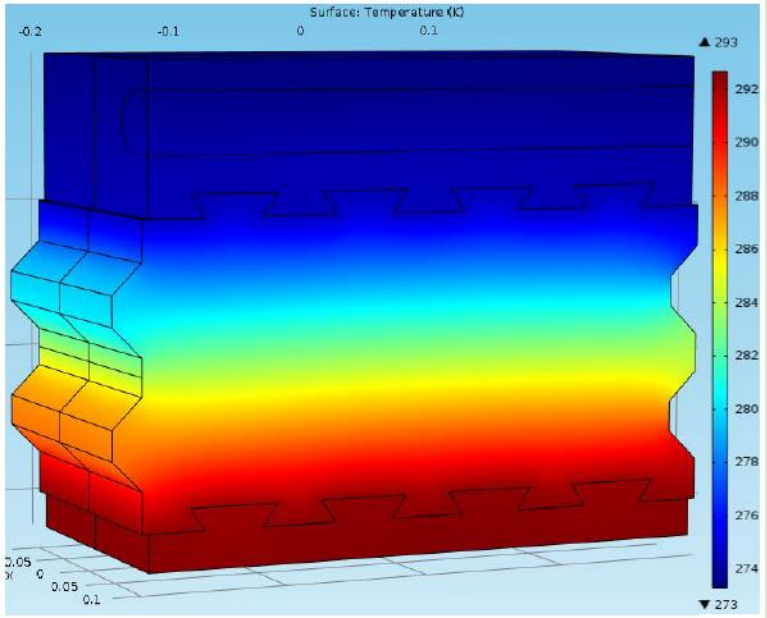
Thermal Performance

	EPS Thickness	Thermal transmittance	Thermal Resistance
		$U_T \left(\frac{W}{m^2 \cdot K}\right)$	$R_t \left(\frac{m^2 \cdot K}{W}\right)$
1	75mm	0,537	1,692
2	100mm	0,425	2,184
3	125mm	0,346	2,723
4	150mm	0,293	3,245
5	175mm	0,255	3,757
6	200mm	0,225	4,27
7	225mm	0,202	4,786
8	250mm	0,183	5,3
9	275mm	0,167	5,81
10	300mm	0,154	6,317
11	325mm	0,143	6,836
12	350mm	0,133	7,34
13	375mm	0,125	7,849
14	400mm	0,117	8,366



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REINFORCEMENT

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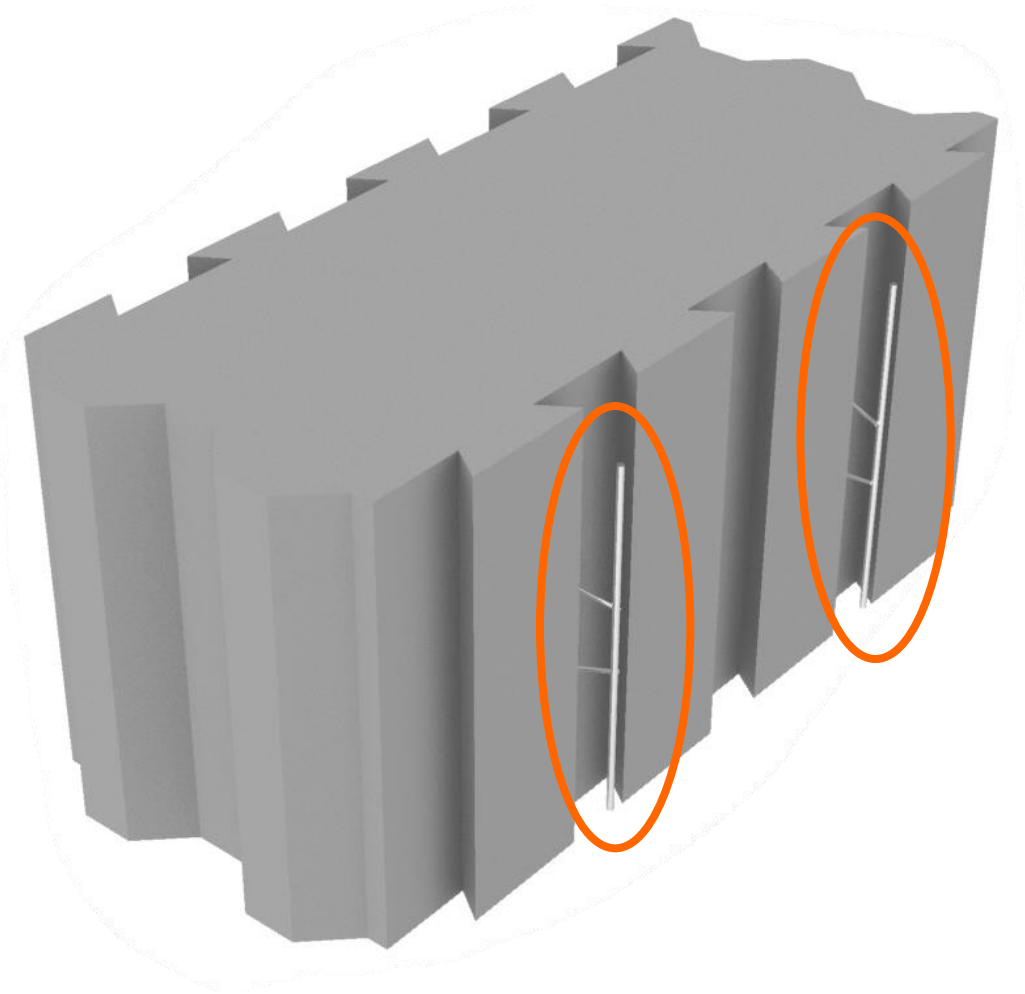

The big difference with the traditional blocks is the presence of **reinforced wires.**

These wires allow:

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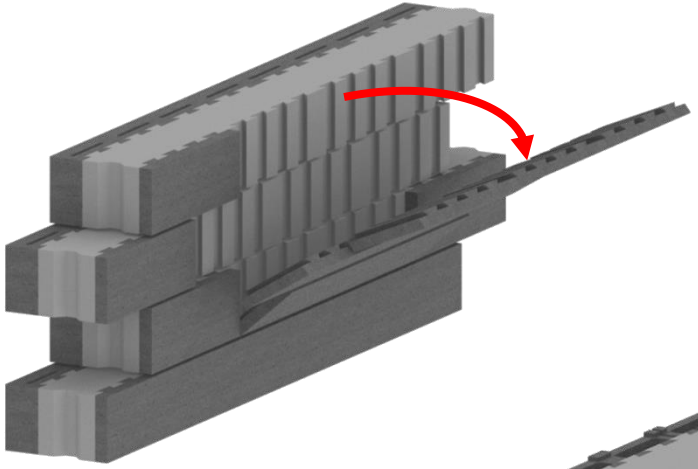

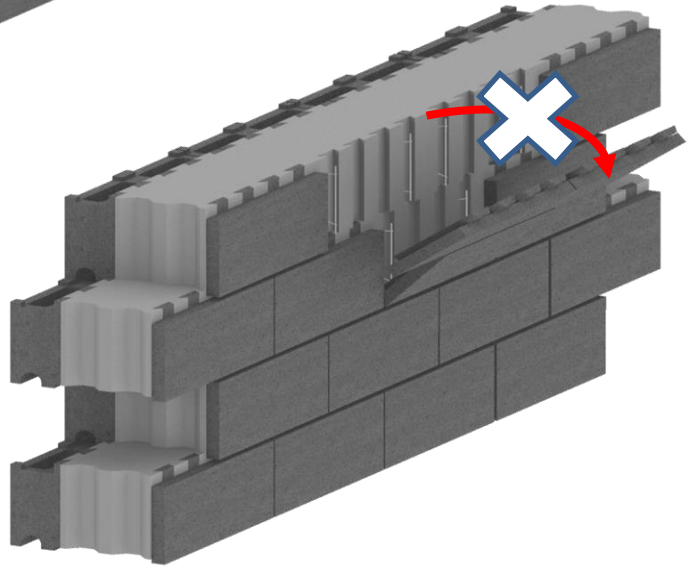

1.

Thanks to the inner reinforcement you avoid possible detachments of the external wall even with fire and the risk of collapse in case of external loads on the walls

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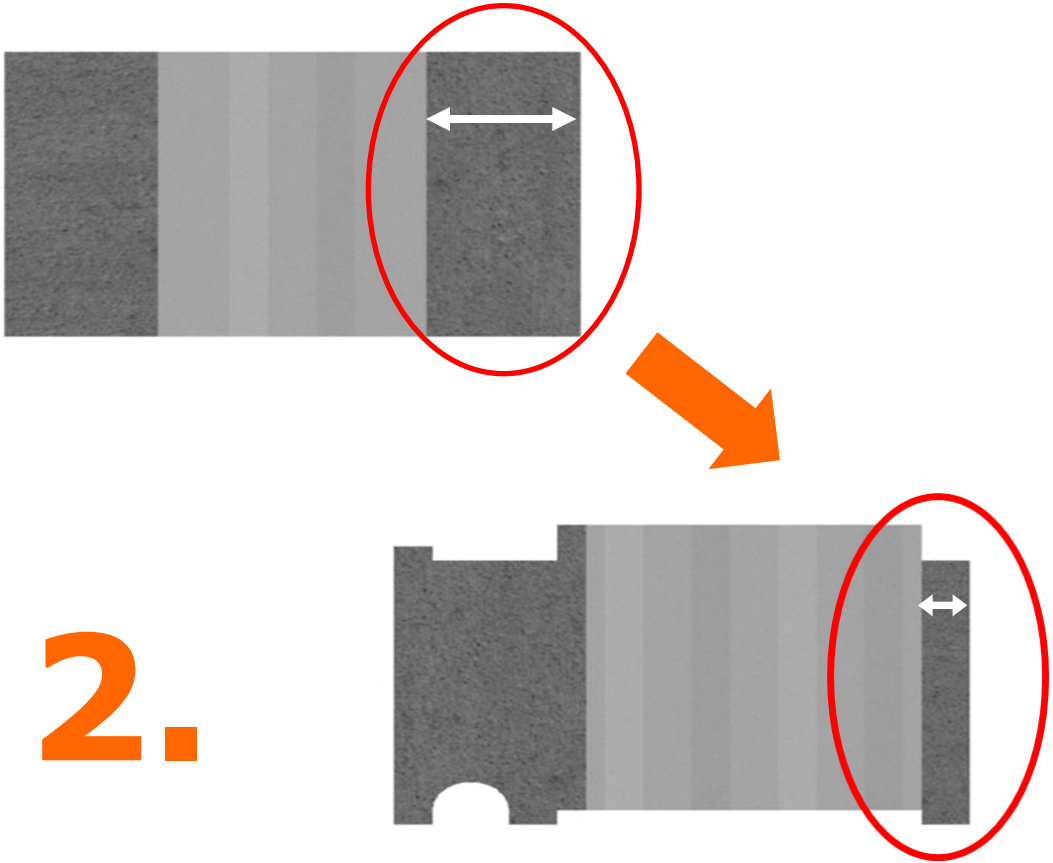

2.

Reduction of the external thickness of the concrete with economic savings in the production.

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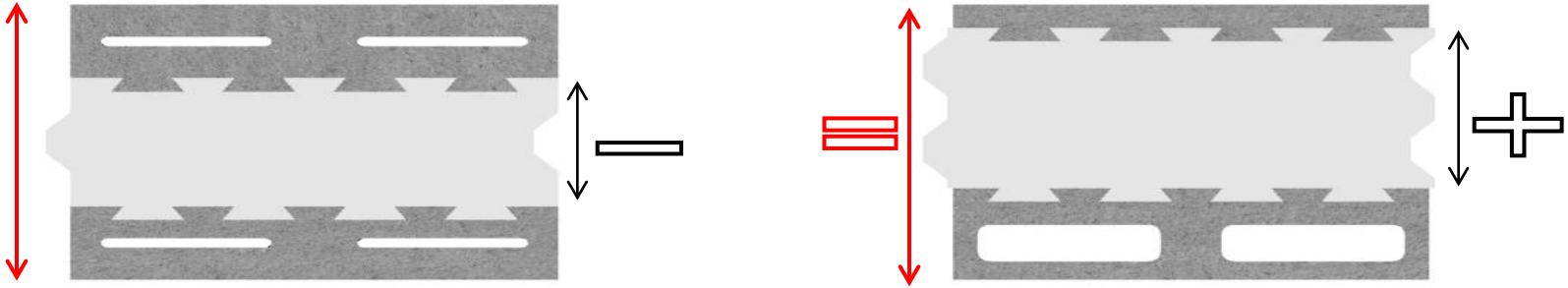
3.

For any given thickness, the wall made with the Reinforced Thermal Block is more insulated compared to a similar one without reinforcement



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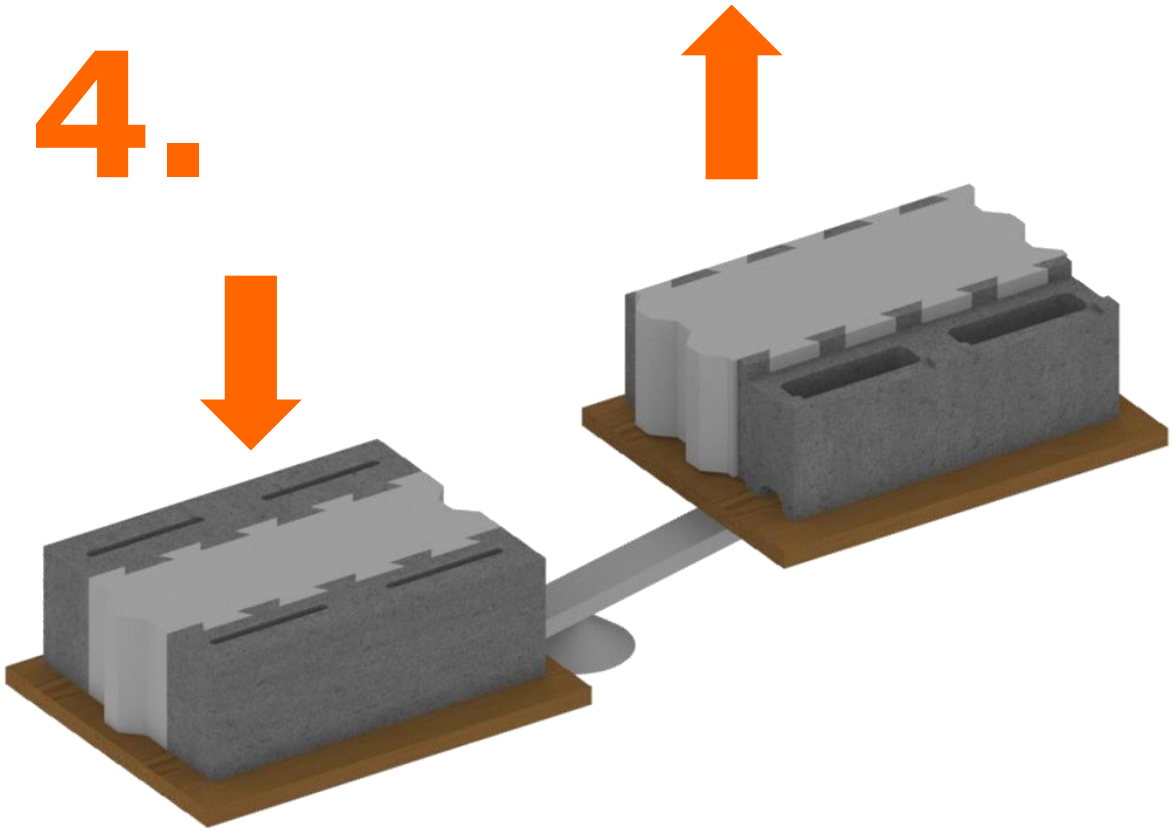
4.



The Reinforced Thermal Block is lighter than a traditional insulated block

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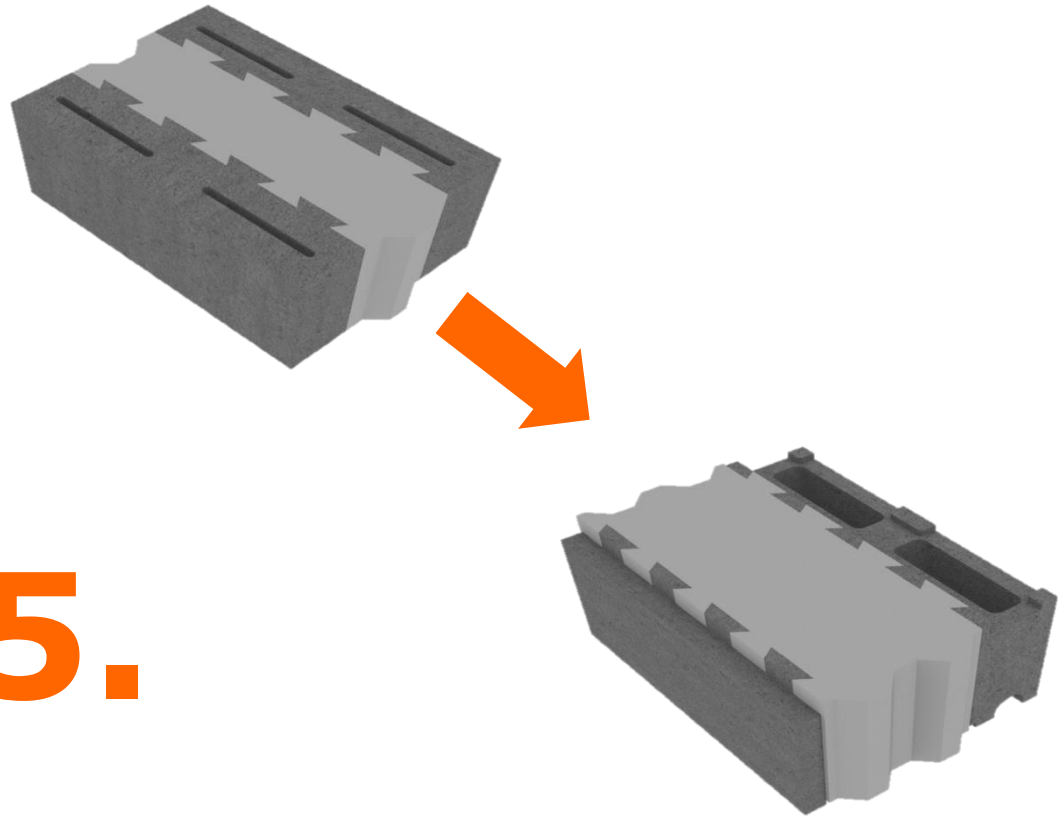

5.

Reduction of the production costs since, due to the reinforcements, you can decrease the density of the polystyrene used and the amount of concrete

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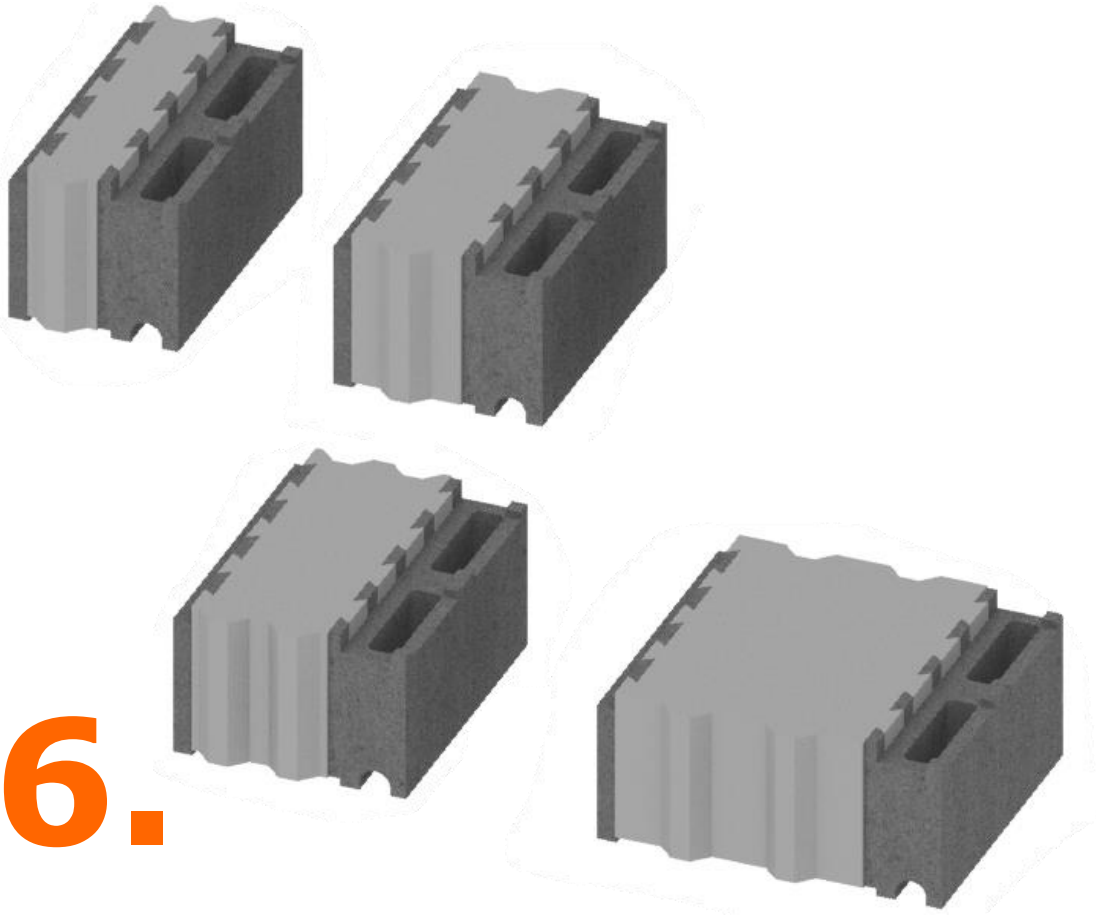

6.

Possibility of having big insulation thicknesses

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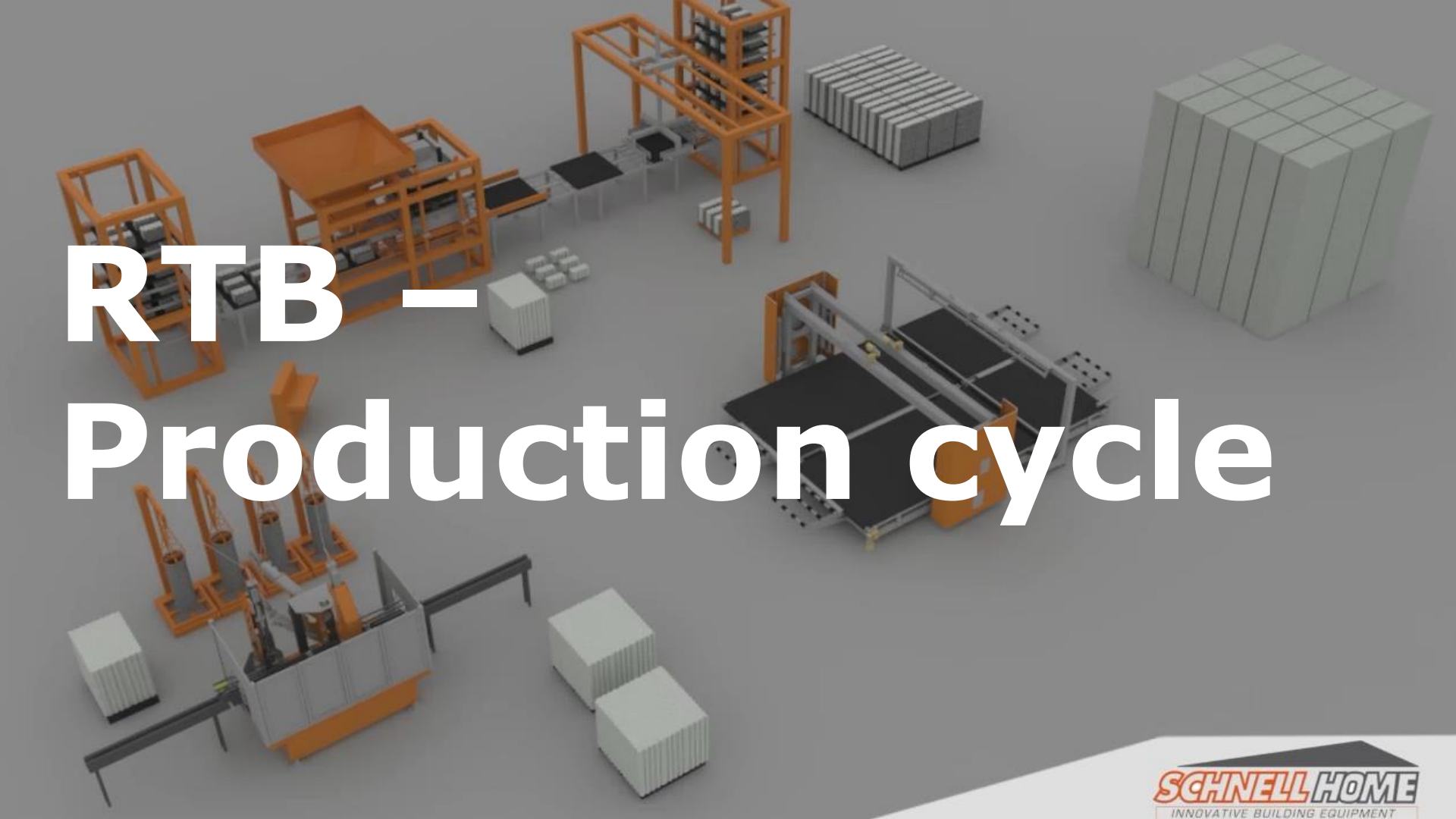
RTB –
Production cycle
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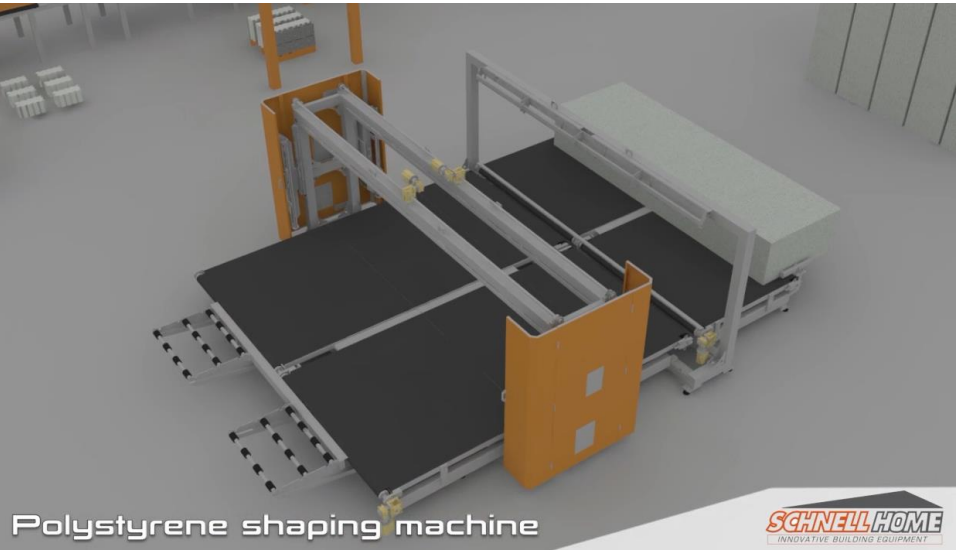
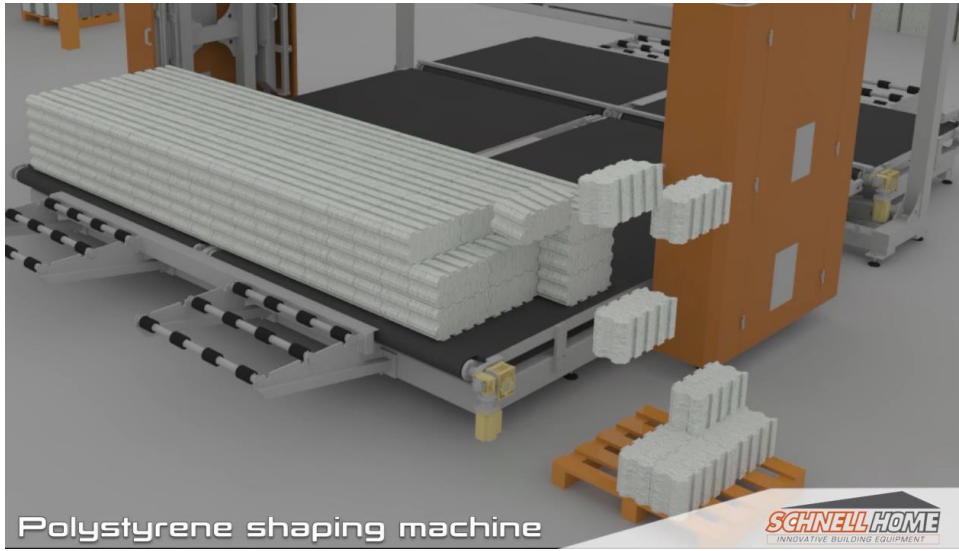
PTB 400D





The production starts from the block cutting process (EPS) through a dedicated Polystyrene Blocks Cutting Machine that will shape the core.

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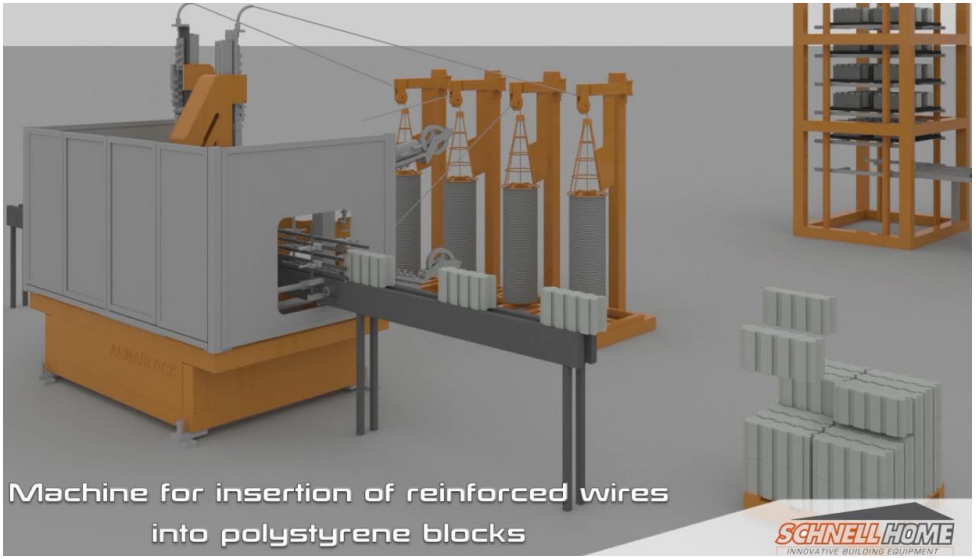
ARB



In a second phase, the core of polystyrene will be reinforced through an automated process of insertion of the connectors.

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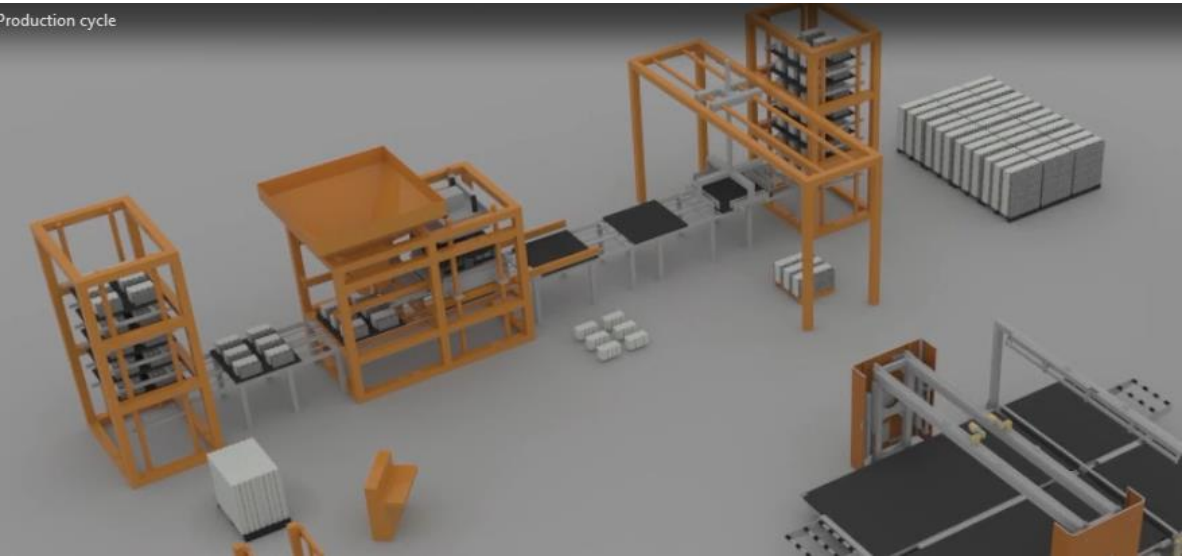
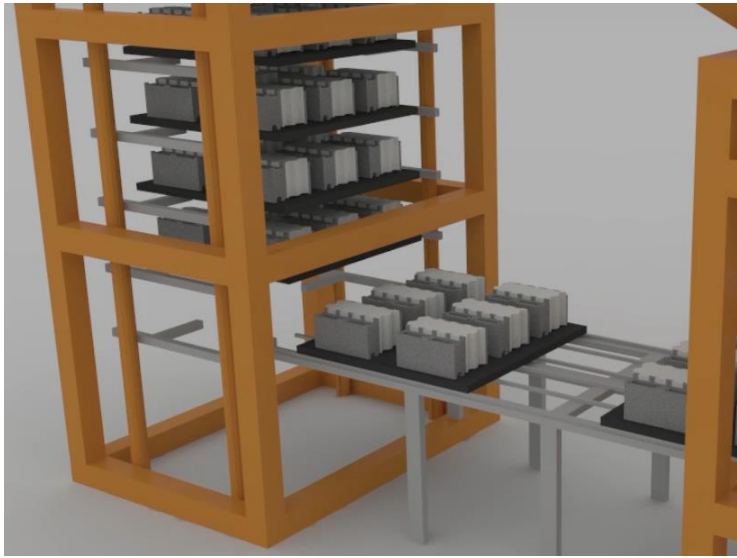
VIBRO-PRESS





Subsequently, the core will be inserted in the vibro-press to get the finished product. This last part of the system can be fix or mobile.

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The **productivity** of these plants could vary depending on the thickness of the reinforced block, that could change from a **minimum of 3000** to a **maximum of 5000** blocks per shift.

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