

Explanatory note

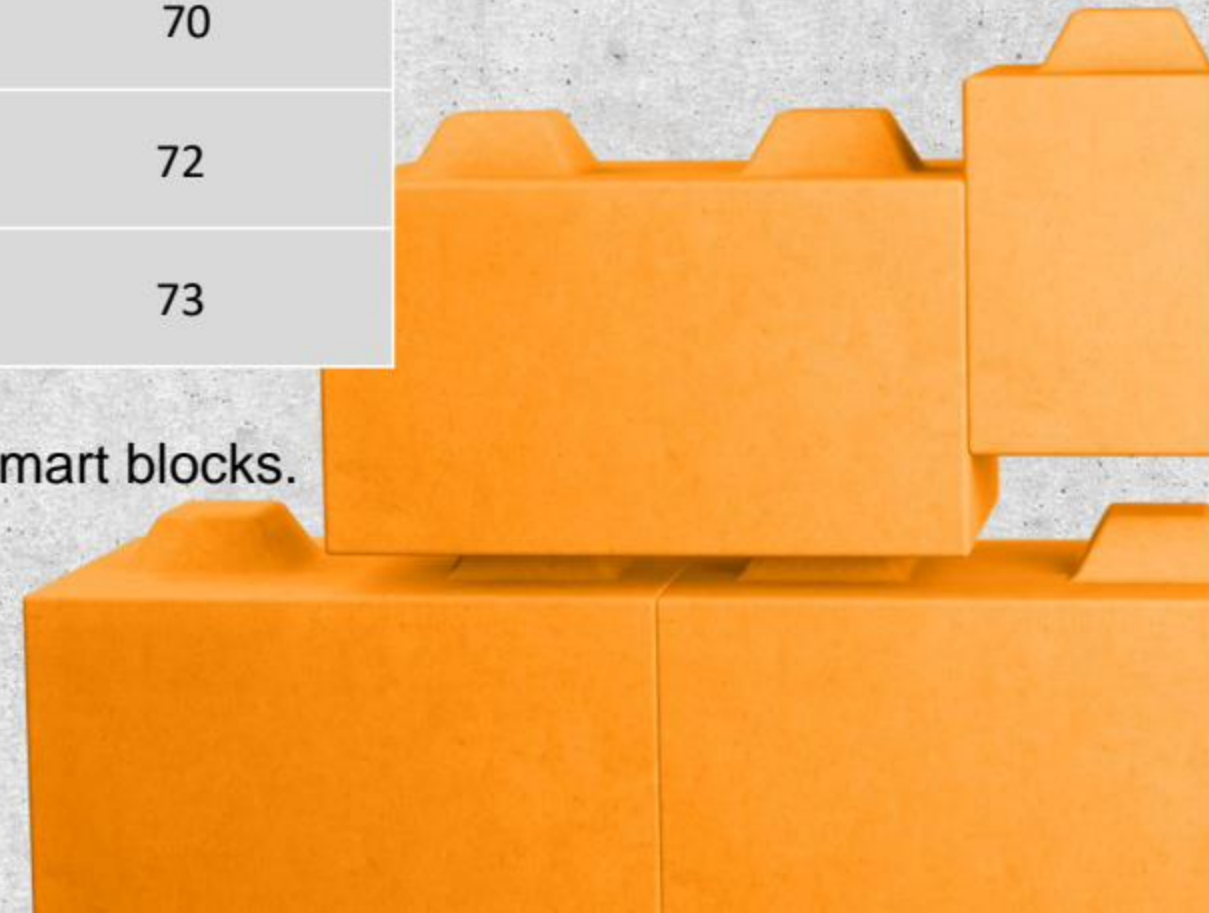
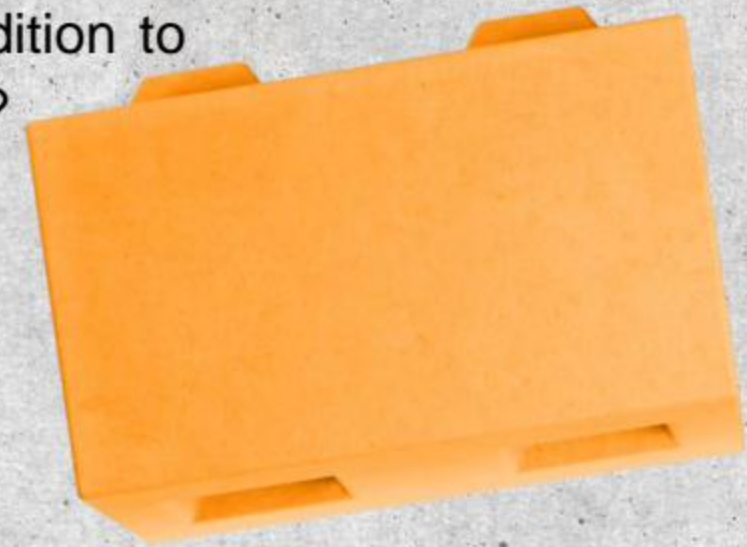
1. Structural Integrity: Smart blocks are generally lightweight, but do they have sufficient compressive strength to meet structural requirements? If yes, for how many floors the same system can be used?

Brand by average density Kg/m ³	Compression strength class (grade)	Average compressive strength R, MPa= kg/cm ²	Bending tensile strength, MPa	Frost resistance brand	Coefficient of thermal conductivity λ_0 , W/(m·°C)
D400	B1,5	1.45= 14.78	0,65	F ₁ 150	0.085
D450	B1,5	2.16= 22.02	0,68	F ₁ 200	0.095
D500	B2	2.9 = 29.57	0,70	F ₁ 200	0.105
D550	B2.5	3.6 = 36.70	0,74	F ₁ 250	0.115
D600	B3.0	4.1 = 41.81	0,76	F ₁ 300	0.125

2. U-Value: What is U-value of smart blocks, and how does it compare to other building materials in terms of insulation performance? In addition to the same, do smart blocks contribute to green building certifications?

Brand by average density Kg/m3	Noise insulation index (DB) with a wall thickness of 300mm Aerated concrete	Noise insulation index (DB) with a wall thickness of 300mm SMART BLOCK
D400	50	70
D500	53	72
D600	55	73

Food grade polystyrene is used for production of smart blocks.



3. Sealing for Protection: Do smart blocks need to be sealed to protect them from dampness, mold growth, or potential loss of thermal insulation over time.

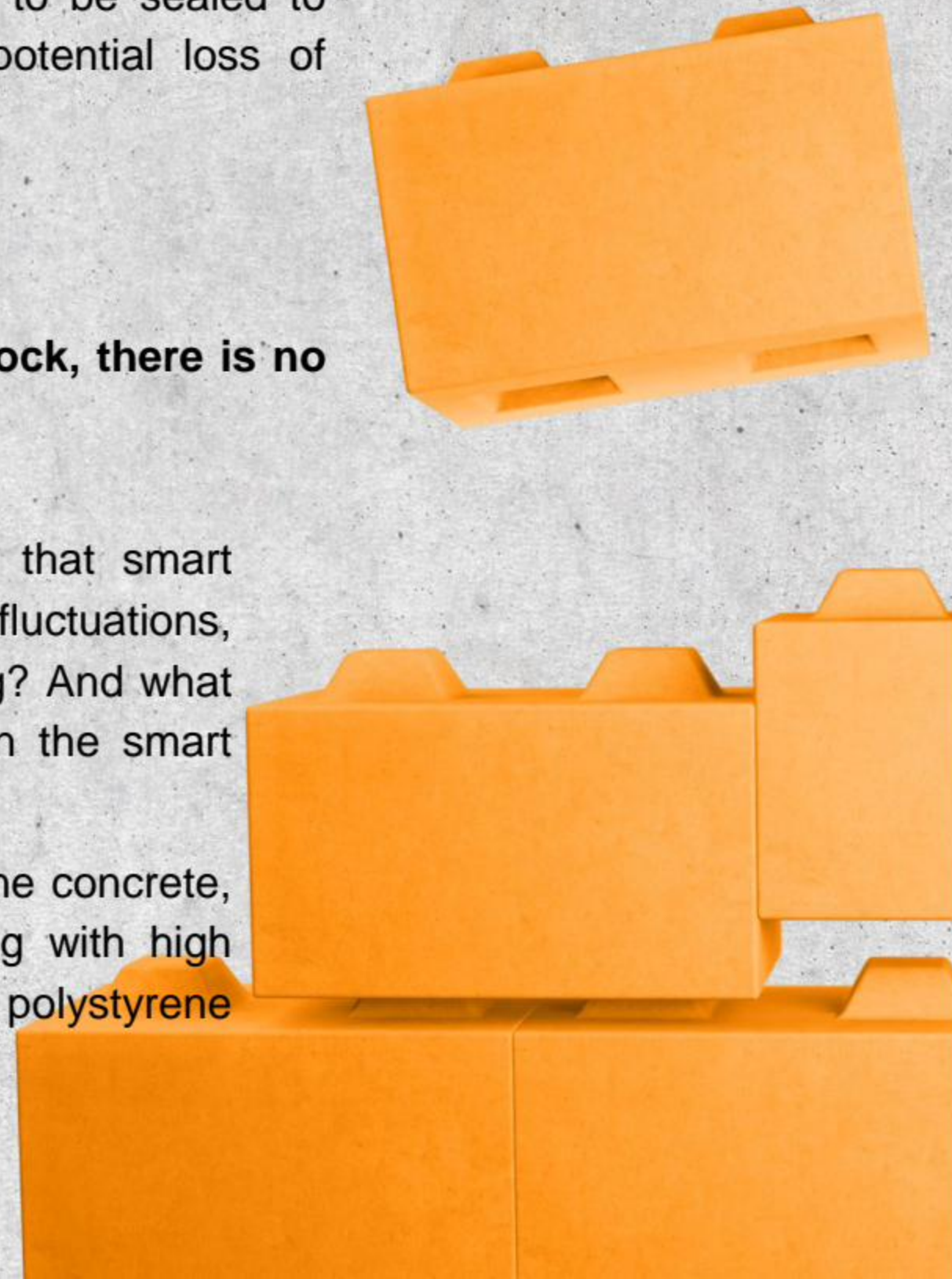
Water absorption SMART BLOCK 4%

Water absorption Aerated concrete 25-35%

Due to the low water absorption of the smart block, there is no environment for mold development.

4. Thermal Expansion and Contraction: Given that smart blocks may expand and contract with temperature fluctuations, are there specific joints required to prevent cracking? And what is the maximum range of temperature change can the smart block withstand?

The relatively low shrinkage of monolithic polystyrene concrete, the values of which are shown in the table, along with high tensile strength reduce the risk of cracking of polystyrene concrete in the exterior walls of buildings.



Brand by average density Kg/m ³	Shrinkage, mm/m
D400	0,40-0,50
D450	0,35-0,45
D500	0,30-0,40
D550	0,25-0,35
D600	0,20-0,25

Since the Smart block has high elasticity, it does not crack.

The SMART BLOCK can be operated at temperatures of -60 to +70 degrees Celsius.

5. Plaster Compatibility: Can traditional plaster work with smart blocks, or are special considerations or materials needed for a proper finish?

SMART BLOCK has high adhesion to all types of plaster.

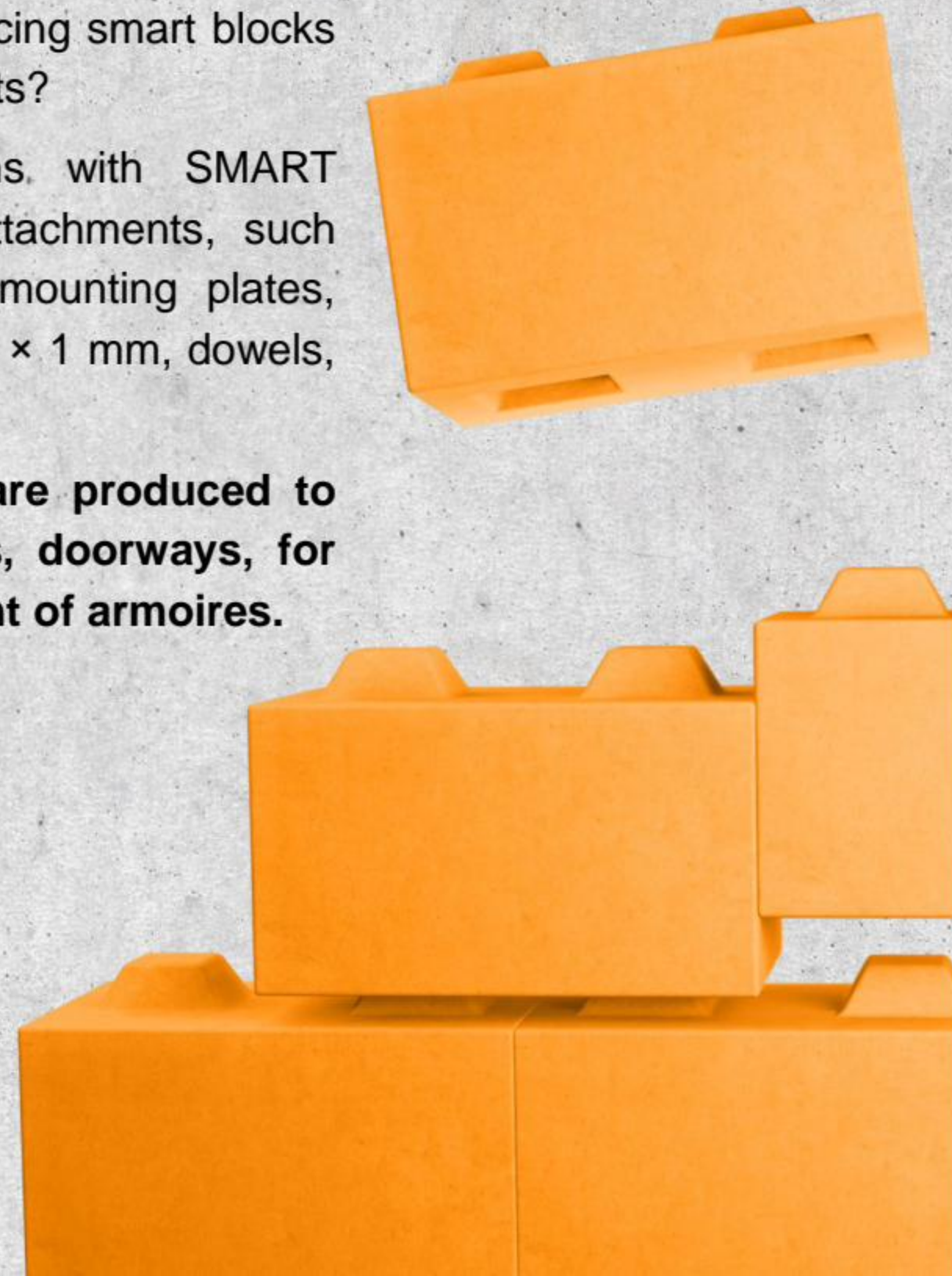
* See video bellow



6. Interface with Structural Elements: Are there specific accessories or techniques required when interfacing smart blocks with columns, ceilings, or other structural elements?

To connect load-bearing walls and columns with SMART BLOCKS, to fix window (door) blocks and attachments, such connection and mounting elements as steel mounting plates, perforated steel tapes with a cross section of 26×1 mm, dowels, washers and screws should be used.

Several special types of SMART BLOCKS are produced to replace monolithic sections above windows, doorways, for the installation of ceilings and the replacement of armoires.



7. Interface with decorative elements: are there specific requirement to have different type of finishes with smart block (like GRC frames, pergolas, etc.)



Finishing of SMART BLOCK can be carried out by various types of materials and technologies.

8. Adhesion Issues: Are there any common adhesion problems when using smart blocks? Is there any specific Adhesive

The installation of SMART BLOCKS is carried out on glue foam from various manufacturers.

* See video bellow



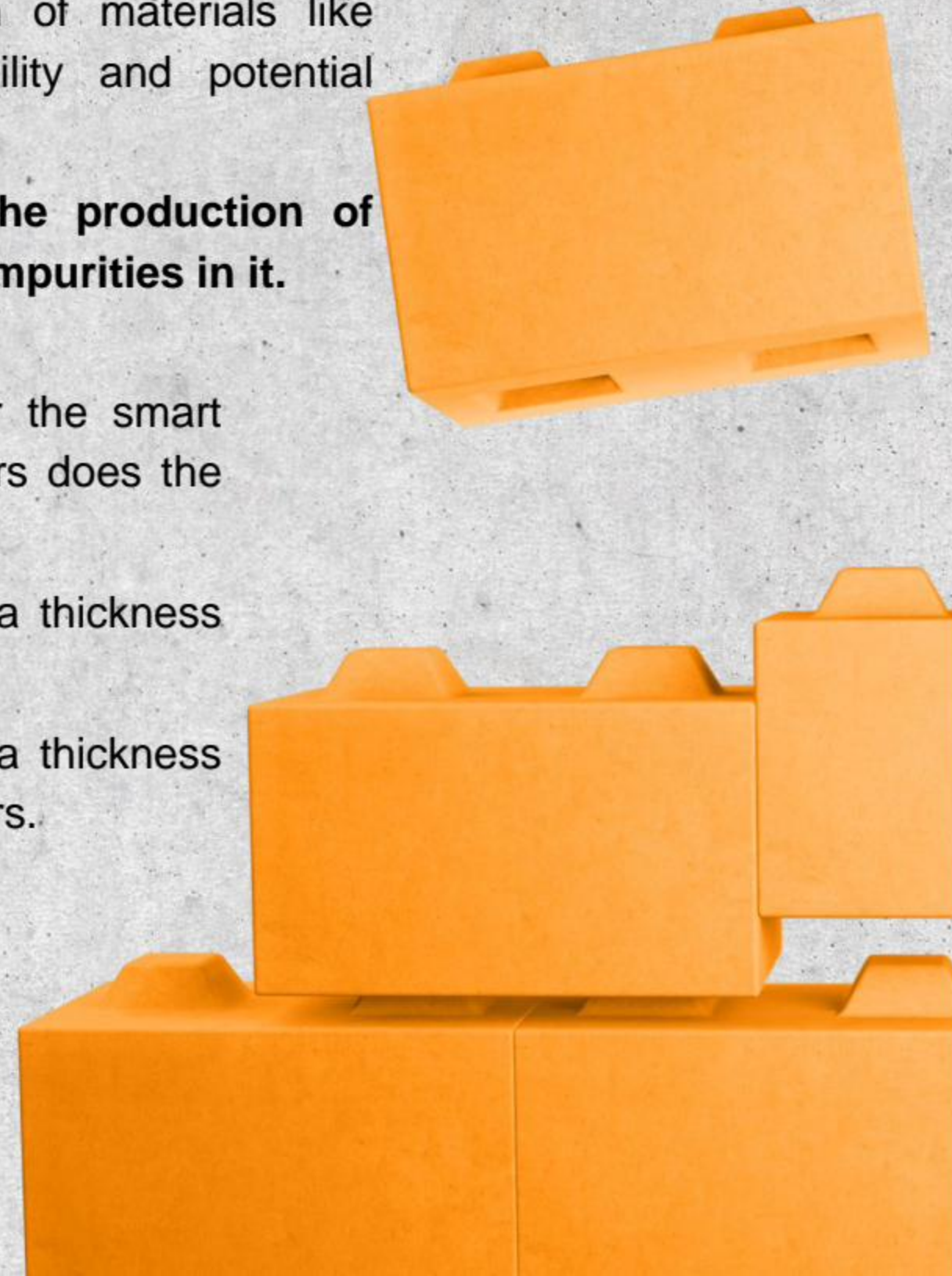
9. Sustainability Concerns: While polystyrene-based smart blocks are considered sustainable, does the inclusion of materials like polystyrene raise concerns regarding recyclability and potential microplastic pollution?

Since food grade polystyrene is used for the production of SMART BLOCKS, there are no secretions and impurities in it.

10. Fire resistance: is there any fire rating for the smart Block, if yes, can you specify for how many hours does the smart block resist fire?

Polystyrene CONCRETE SMART BLOCKS with a thickness of 10 cm have a fire resistance of 2 hours.

Polystyrene CONCRETE SMART BLOCKS with a thickness of 15 cm have a fire resistance of more than 3 hours.



When testing wall SMART BLOCKS with a thickness of 30 cm after 3 hours of exposure to fire at a temperature of more than 1100 C on one side, the temperature on the other side was 64C, and the fire resistance was more than 7.5 hours.

Polystyrene concrete is made using PVC obtained from granules of self-extinguishing polystyrene, respectively, SMART BLOCKS according to the flammability class have GOST "NON-COMBUSTIBLE".

* See video bellow



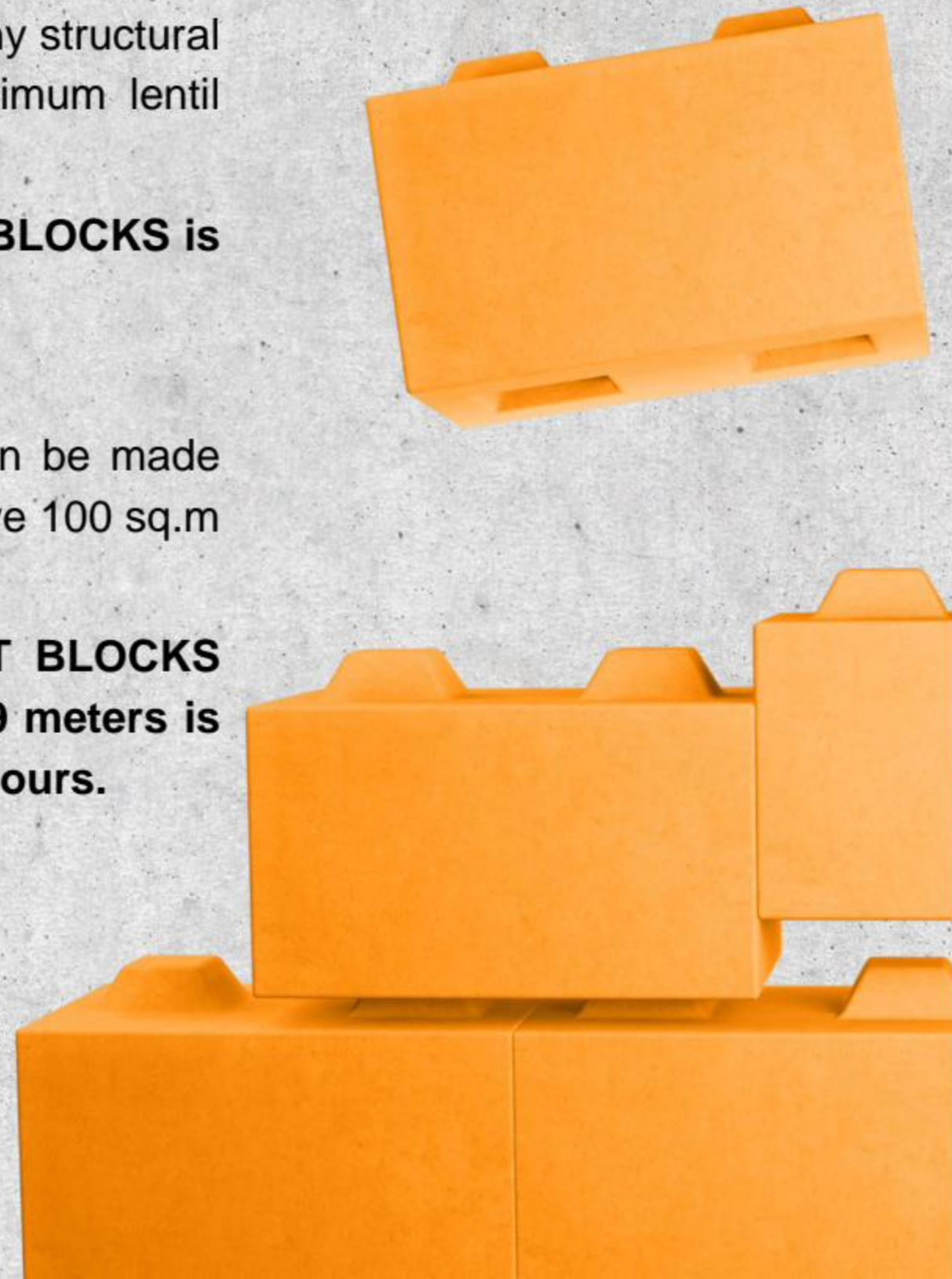
11. Structural spans lengths: what is the largest span can be made using smart block without the need of any structural element?? In addition to that, what is the maximum lentil span can be used with smart blocks.

Today, the maximum size (jumper) of SMART BLOCKS is 4000 mm.

12. Workability: maximum number of layers can be made per day and how many cranes are required to have 100 sq.m installed in 8 hours?

The installation of a house made of SMART BLOCKS with an area of 100 m² and a height of 3.6-3.9 meters is carried out by one crane and 4 workers in 16 hours.

* See video bellow

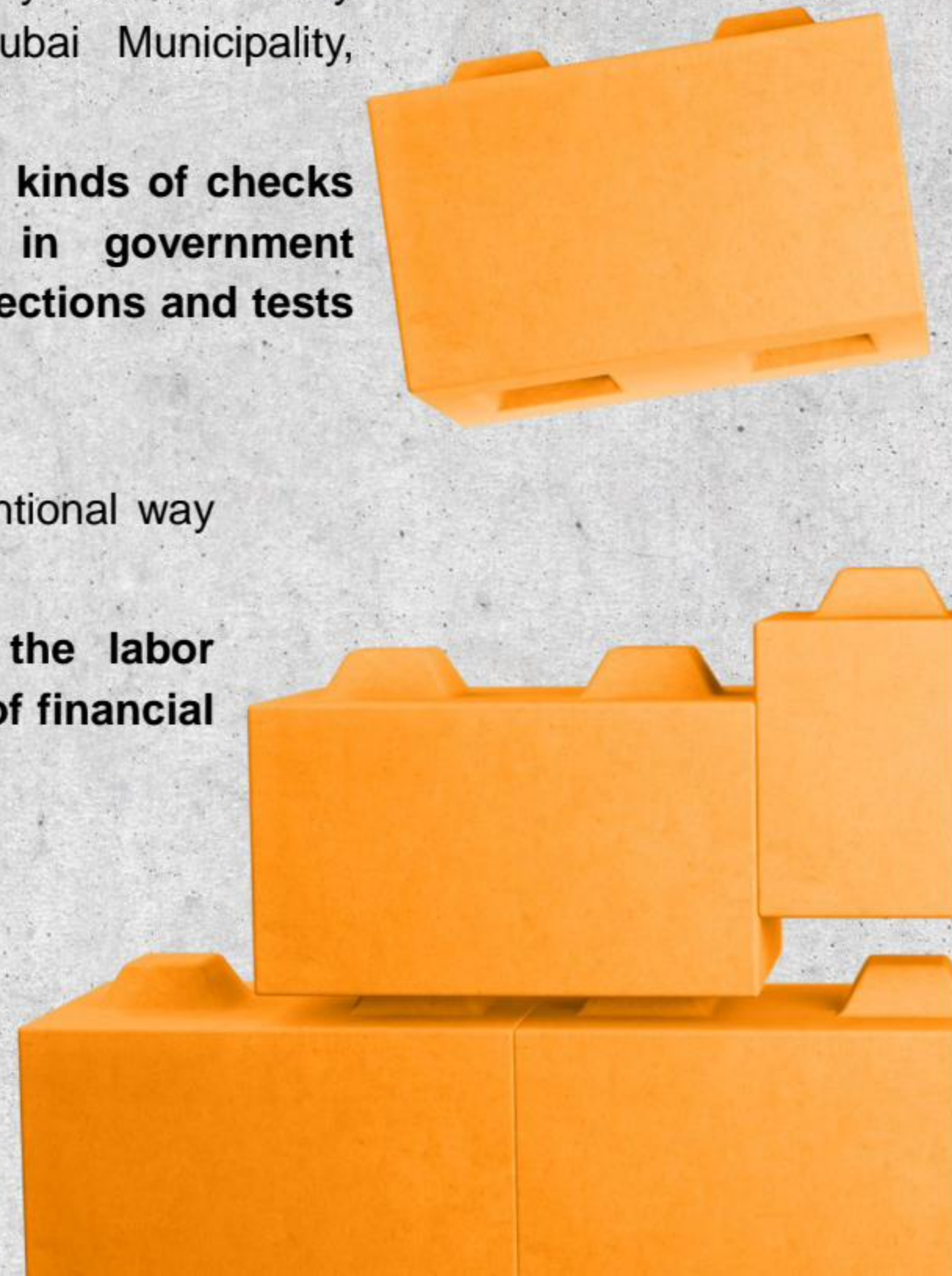


13. Authorities approvals: Do smart block system have any approval from local authorities such as Dubai Municipality, Tarakhees, DDA, Dubai Civil Defence, ...etc.?

In Russia, SMART BLOCKS have passed all kinds of checks and tests and are approved for use in government construction programs. At the moment, inspections and tests have not been carried out in Dubai.

14. Cost: cost comparison between the conventional way of construction and usage of smart block.

When using SMART BLOCK technology, the labor intensity is reduced by 10 times. Reduction of financial costs by 2 times.



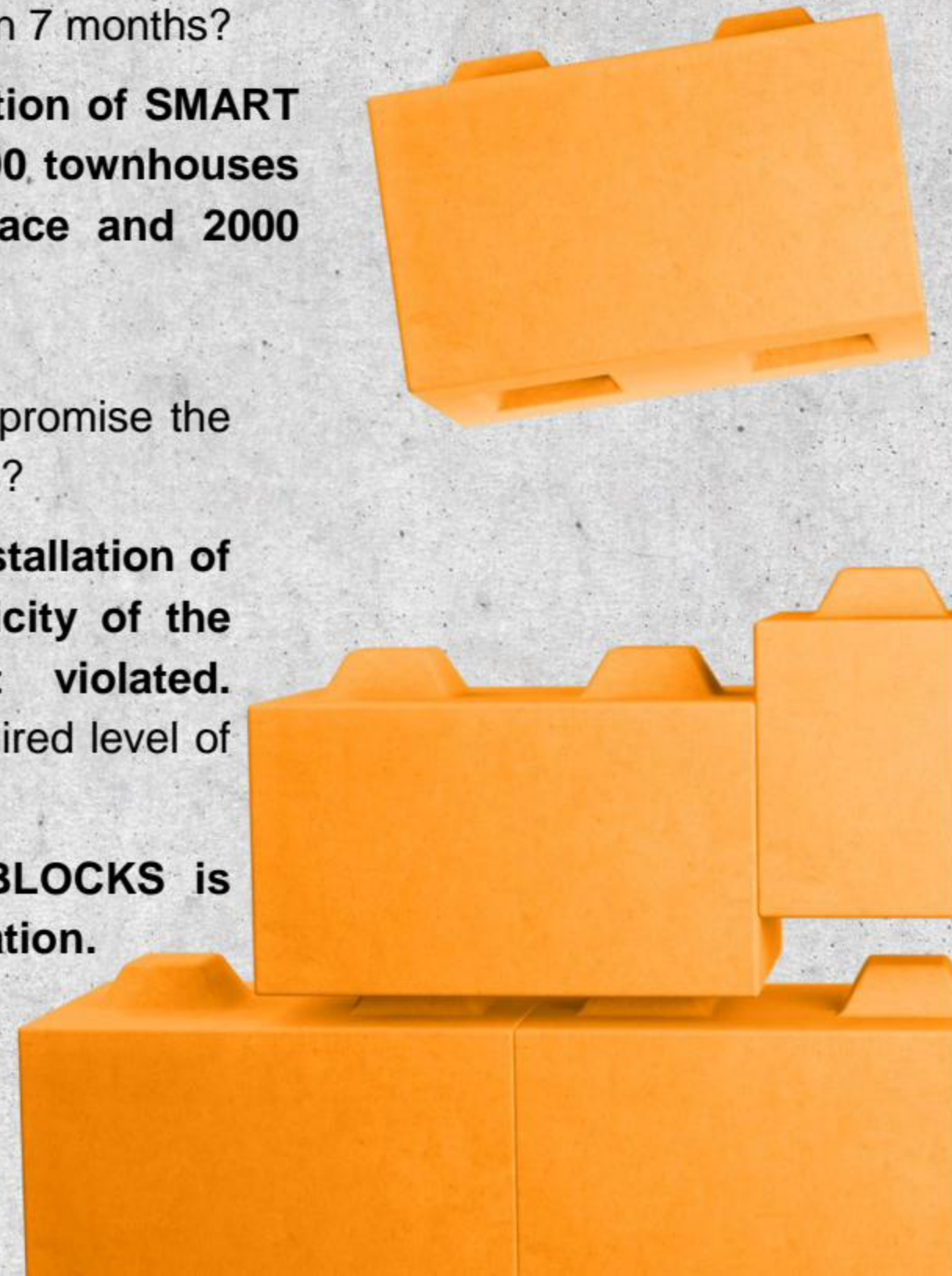
15. Factory capacity for production: what is the size of factory required to provide materials for 500 townhouses in 7 months?

The size of the production site for the production of SMART BLOCKS necessary for the construction of 500 townhouses in 7 months is 500 meters of enclosed space and 2000 meters of outdoor accommodation.

16. MEP : a. Cutting for MEP pathways can compromise the block's structural integrity and insulation properties?

In SMART BLOCKS, it is easy to cut for the installation of communications and, due to the good elasticity of the material, the structural integrity is not violated.
b. MEP engineering with the system and the required level of coordination.

Installation of communications in SMART BLOCKS is carried out according to the project documentation.



c. The methods of installing MEP services and MEP risers with smart blocks.

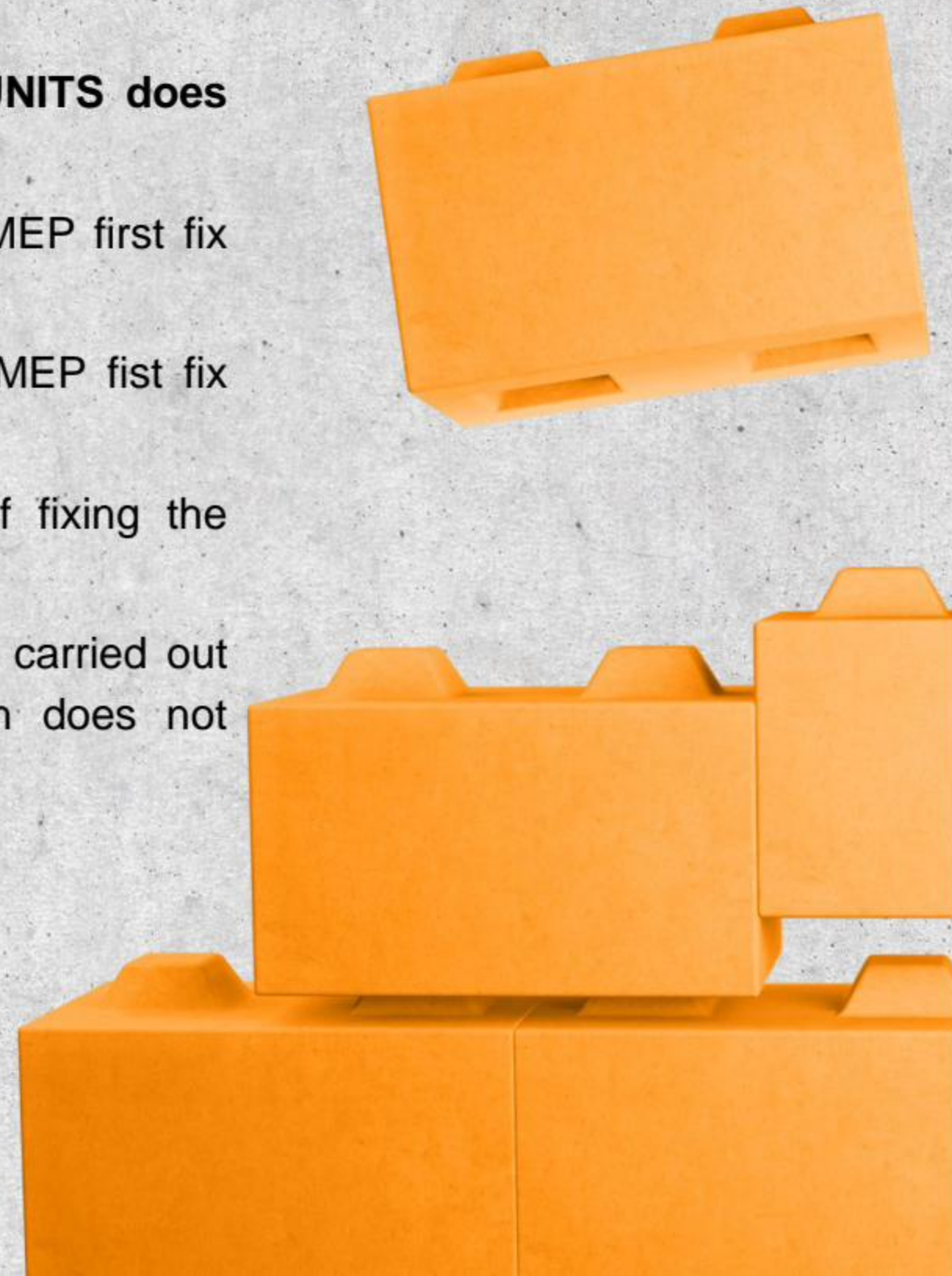
Installation of communications in MOBILE UNITS does not require special materials and tools.

d. The possibility to use the hollow blocks for MEP first fix (conduits and water pipes)

e. The possibility to use the hollow slabs for MEP first fix (conduits).

f. MEP suspended works and the method of fixing the supports to the precast hollow slabs.

According to the points of the DEF, the work is carried out according to the project documentation, which does not require special skills.



g. MEP loads on the precast hollow slabs and the required level of coordination (AC equipment, Solar panels, etc.).

The loads are calculated by the designers when preparing the design documentation. At the same time, there are no complicated calculations for this work of the designer.

h. MEP builders works and the required opening for duct crossings.

There are no difficulties in crossing communications.

Scan qr code and see video

