

## Project Case Study:

# Customised AlphaSlide and PermaSteel speed Russian post-tensioned floor.

**A high-specification development north of Moscow is benefitting from the strength of a post-tensioned floor, aided by two specially customised Permaban products.**

Property developer Ghelamco (in conjunction with the property investor) specified the post-tensioned concrete floor for their warehousing development at Dmitrov Logistics Park, north of Moscow. The Class A buildings were set to house a range of clients, so well-protected construction joints were key to maintaining the building value, and preventing joint maintenance issues for occupants.

### Designing the floor

Creating the post-tensioned floor required considerable planning, both in terms of the engineering work to design the floor, and the skills of the contractor to install it. Ghelamco, together with the investor, called on the expertise of respected post-tension consultants, Freyssinet. Their engineering team designed the slab; and the company also installed the post-tension cables on site.

### Preparing to install

The challenge of creating the floor was given to flooring contractor Floor Service Russia: this would be the first time they had installed a post-tensioned floor. In preparation, the Floor Service team, together with Ghelamco's Technical Director, visited the UK to meet with Freyssinet and see a warehouse where a post-tensioned floor was already installed. Permaban's AlphaSlide (right) had been used successfully on that project – and so Floor Service approached us to supply AlphaSlide for Dmitrov Logistics Park.

### The benefits of AlphaSlide

AlphaSlide was created for use where construction joint gaps are likely to reach widths of 20-40mm – such as cold stores and post-tensioned floors. The top of the product incorporates two wide steel 'cover plates' one on top of the other, with one plate attached to each side of the joint (see right). As the concrete contracts and the joint is pulled open, the two plates slide apart in opposite directions. However, because of the width of the plates, the slab-deep gap in the middle of the joint is never exposed. This stops debris from falling into the gap, and also conceals the post-tension cables.

Where the plates have slid apart, a shallow gap is left in the surface of the joint. Even though the concrete arrises are not exposed at all, this gap can still present an impact issue for vehicles passing over - so it should be filled with a steel strip. Because this gap will continue to widen until the concrete has fully contracted, the infill strip is designed to be replaced with wider strips as necessary, to ensure the joint retains its long-term impact resistance.

*Cont'd*

### Project Key Facts

<b>Project type</b>	Warehousing
<b>Location</b>	Nr Ermolino, 30km north of Moscow
<b>Products</b>	600m AlphaSlide 3330m PermaSteel 1000 square dowel bars 150m Signature
<b>Completed</b>	September 2012

<b>Client</b>	Ghelamco Group
<b>Engineer</b>	Freyssinet
<b>Flooring contractor</b>	Floor Service Russia



## Technical support

Permaban became more technically involved in the project during the pre-works meetings, when the slab was being planned. By doing so we were able to establish that a customised version of AlphaSlide – with holes drilled through it – would enable the post-tension cables to be run straight through the joint. This would save valuable time on site.

Furthermore, by also creating apertures in our PermaSteel permanent formwork (see right), used at the edges of the slab, the post-tension cables could be installed easily. By not using timber formwork, as had been considered, more time could be saved as the formwork would not need to be removed after the pour.

Both these product modifications helped the contractor achieve the desired results in a much-reduced timeframe.

## Introducing Signature

One of Permaban's most recent innovations was also used on part of the project. Permaban Signature<sup>®</sup> was installed in one section of the floor which was not post-tensioned. Also designed to accommodate gap sizes up to 40mm, Signature's unique design enables traffic to pass over the joint from any direction without creating impact, or causing any damage. This value-added benefit helps increase the flexibility of how this high quality, flagship building can be used during its lifetime.

**“Working with Permaban helped us find a good solution for this project. We were very happy with the end result, and with the help they provided.”**

Rene Broos, Director, Floor Service Russia

