

Nordimpianti System Srl, 66100 Chieti, Italy

New extruder production line launched in Georgia

Up until 1990 in Georgia, as in all the territories of the CIS countries the main building components of industrial and housing construction were prefabricated elements manufactured with reinforced concrete. After the fall of the USSR, in the minds of the former Soviet people, these precast construction methods were synonymous with low quality and poor housing design.

As economic activity returned to normal levels after the crisis of the 1990's construction companies in the regions of the CIS countries preferred to use conventional in-situ casting that allowed a certain amount of design flexibility without the need for a grand scale investment.

The technical advantages of prefabrication relating to building design and construction at that time were still not sufficient to outweigh the limitations of in-situ casting. However, in-situ casting still suffered from the disadvantages of higher concrete consumption, longer production times and lower quality control.

The desire to unite both construction systems within the territories of the CIS countries and the need for the sector to

speed up construction times meant that the choice to use precast became obligatory and Georgia took part in this process.

At the same time precast was undergoing a revolution. New developments were taking place with the advent of prestressing with floor slabs now being able to be cast in a continuous process, on long line production beds with higher production outputs than previous prefabrication practice. This production method gained popularity in the CIS countries and soon became the norm.

In the CIS countries this new method opened up the possibility of producing, not only hollow core floor slabs normally associated with continuous production but also other types of elements. On long line production beds various precast prestressed concrete elements can be produced, such as posts for the agricultural sector, T-beams, lintels, U panels, foundation piles, as well as special "U" shaped concrete elements for the construction of bridges etc. One of the concrete elements of note is the non-load bearing partition wall panels used in various civil and industrial applications which is quick and easy to install, as well as being fire resistant and having good acoustic insulating properties.



Internal view of the manufacturing hall for the company "Mega Production" in Georgia



Evo Extruder casting a hollow core floor slab 1200 mm wide and 220 mm high.



200 mm high hollow core floor slabs with toothed profile sides for use in seismic areas

Recently, in Georgia in particular, the construction market has focused on the production of these partition walls for industrial and housing construction. In the CIS countries the use of blocks for partition walls is very common but has disadvantages, not least the high costs of materials. For this reason, the Georgian based company Mega Production began to look for alternatives to produce these wall elements and the solution was found, through a special Extruder machine which itself operated in a continuous production process on the same steel beds.

Indeed Mega Production did not want to limit its production facility to only wall elements but also wanted to produce floor slabs using the most up to date technology available. The one company to offer all this was the Italian company Nordimpianti. After initial meetings, the two companies soon established a good working relationship. From the outset Mega Production recognised the professionalism of the Italian company and the quality and engineering that went into Nordimpianti's machines for the production of pre-stressed concrete floor slabs and wall panels.

The first stage of the project was devoted to the construction of the production hall, the batching plant and production line, consisted of the installation of 2 steel casting beds, each 168 meters long, an Evo Extruder casting machine, with the capability of producing pre-stressed hollow core floor slabs in heights 200, 220 and 265 mm, a transversal saw for cutting elements and a basic range of auxiliary equipment from the wire stressing system to the provision of the concrete distribution. Nordimpianti's specialists designed the production line for the hollow core floor slabs and were readily available to provide assistance before and after commissioning.

The second step of the project involved the purchase of the Nordimpianti Extruder Nano and to increase daily production 4 more production beds, a multi-function bed cleaning machine and lifting machines to take the produced elements from the production bed to the stocking area.

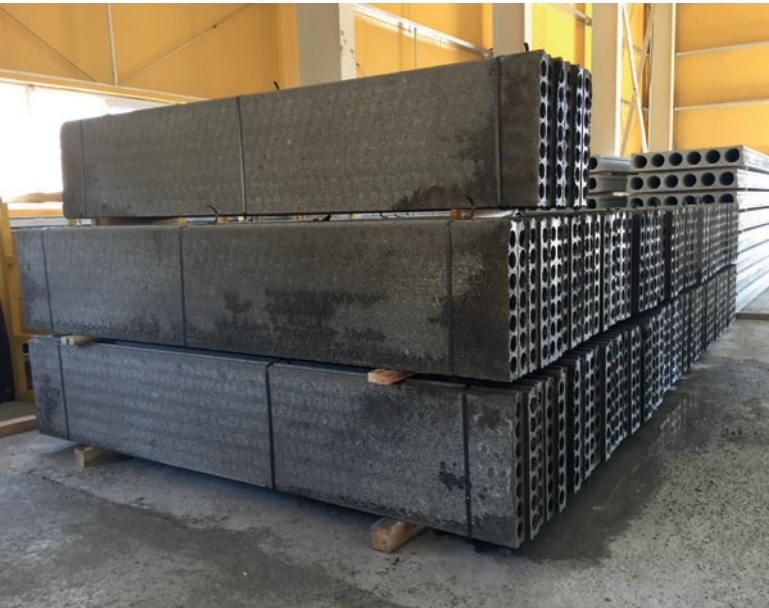
The fact that production of non-load partition wall panels using the Extruder Nano and Nordimpianti's lifting machine could be carried out on the same production beds was a great advantage. It meant that it was not necessary to have a separate production area with dedicated and expensive plant. The same beds used for the floor slabs could be used for the wall panels.



The Nano Extruder from Nordimpianti



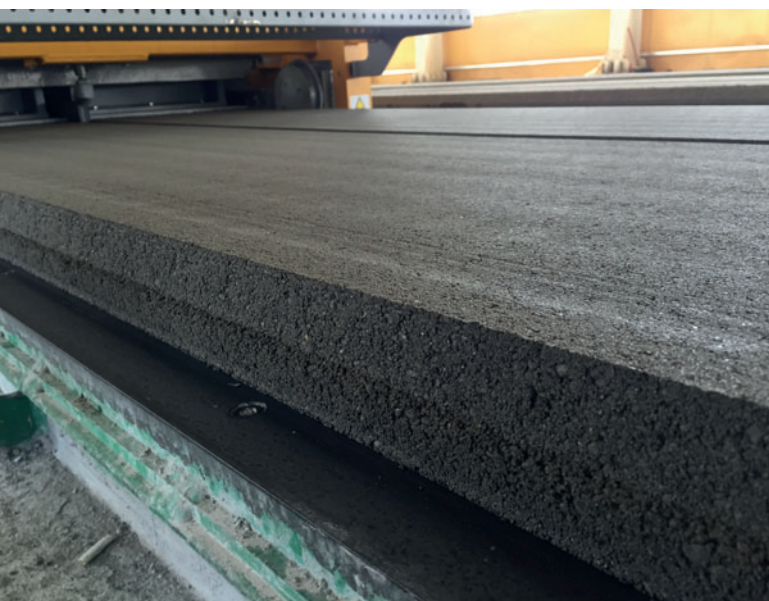
The Extruder Nano during the casting phase producing 2 x 600 mm non-load bearing wall panels



Wall panels 90 mm high in the stocking area

The lightweight concrete mix design was also worthy of attention. Usually expanded clay aggregate is used as a light aggregate. However, in Georgia granulated slag is more readily available and for that reason it was chosen as the preferred material. This actually produced some excellent results. A panel 3 m long 600 mm wide and a height of 90 mm weighed only 135 kg.

There are also advantages to be gained when assembling these panels. 2 people can install between 50 m² and 90 m² per day and the profile design of the finished panel makes it



The excellent finish quality of wall panels produced by the Extruder Nano machine.



The transversal saw during the cutting phase



Lifting machine transporting wall panels from the production bed

very flexible. Adjustment of the geometry of the panels, as well as holes and openings to be easily made on-site for cable channelling and the installation of electrical plant and services using only powered hand tools. This, together with the excellent surface finish of the panel means that the panels need only the minimum of decorative completion. Mega Production has already begun building prefabricated buildings using both floor slabs and wall panels manufactured with the new technology production supplied by Nordimpianti.

The collaboration between Mega Production and Nordimpianti has resulted in high performance and efficient solutions for the Georgian construction product's market. The Georgian company having completed this project, has indeed made a statement of intent to always seek out and use the latest technology available for the production of precast concrete elements. At the same time Nordimpianti has once again demonstrated that its 45 years of experience is built on always stepping outside its comfort zone of producing standard machines to bring new ideas and solutions to market. The Italian company's mission never stops. Its commitment to research and development is self-evident and a solid example of this is the new, flexible, cost effective Extruder Nano Machine.

After this first venture in Georgia Nordimpianti has already started on other projects in the Caucasus region. The first of these is again with Mega Production, which is working to widen its range of products to include, not only hollow core floor slabs and wall panels for the housing sector, but to expand production into the industrial construction market where other prestressed concrete elements with wide spans are required. ■

FURTHER INFORMATION

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