Ebawe Anlagentechnik GmbH, 04838 Eilenburg, Germany

Modernland is building earth-quake safe houses in Indonesia with precast concrete elements

Modernland, one of Indonesia's leading developer through its subsidiaries PT. Modern Panel Indonesia, is creating a new housing project with tested, earthquake-safe precast elements. The prefabricated elements are produced at their own automated precast plant equipped by Progress Group. Now also the reinforcement for the precast elements is processed more effective and automated with the new mesh welding plant M-System BlueMesh® from Progress Maschinen & Automation, one of the leading automation machinery providers.

PT. Modern Panel Indonesia is a manufacturing company and a subsidiary of PT. Modernland Realty Tbk. It produces building materials such as Ready-Mix Concrete (RMC), Precast Concrete, EPS Panel and Mesh.

The benefits of building with precast concrete elements

Precast has many advantages over conventional building systems and thus the market is very accepting of this new way to build. One of the most important benefits of using prefabricated precast elements is the fast, on-site installation time. On the Indonesian market the government issues a great advantage for real estate developers realizing a fast construction time: The developer who can hand over a new house to the customer within 6 months saves 10% in tax payments. It only takes 5-6 days to install a house made of precast elements (45 pcs precast panels for 1 house). So, all in all it takes about 75 days to build one house from foundation work to finishing steps and the final handover to the real estate developer (5-8 days for foundation work, 6 days for installing the precast elements and the rest is usually planned for architectural work). But not only the short building time is a benefit advocating for constructing with precast elements. Due to the production in a plant with automated machinery the quality is consistently high. No weather conditions are influencing the timing and product quality and the safety and environmentally friendlier conditions are huge benefits of those factories.

Mr Hendy W.Budijanto, Operation Div.Head of PT. Modern Panel Indonesia is convinced, that precast houses have the most potential for being the future of building.

Earthquake-safe prefabricated concrete elements benefit first housing project

First housing project

Jakarta Garden City (Cluster Shinano) in East Jakarta is the first housing project of the well-respected company, who chose to plan and provide the prefabricated earth-quake safe elements for this huge project. 106 of the 120 units are already sold within 3 months. The real estate agents bought

The installation of the prefabricated concrete elements is being done on-site with little noise, waste and personnel needed.

immediately and so did their clients. For the 67 m² per unit they charged 1,5 B Rp (around 103.500 USD) thus making it also affordable for the middle class. Due to the very central location the houses do not need any further infrastructure added within the complexes, such as pools or similar, because the clubhouse as well as the periphery are providing the needed shops, pools, gym etc.

Additionally, to the quick and secure building method and the affordability also for the middle class, this house has been tested in the laboratory for earthquake resistance. These approved tests were carried out in Puskim, Bandung. The strength of the earthquake reached more than 9 on the Richter scale and still, the precast concrete elements passed the test!

The main customer of PT. Modern Panel Indonesia are independent real estate developers, who will sell these houses. PT. Modern Panel Indonesia are not only delivering the elements and setting up the house. At the Jakarta Garden City (Shinano) precast house projects for example, they also handled the structural work as well as painting and finishing. The project is built with the full bearing wall system (walls, slabs, beams, and stairs) made of prefabricated precast concrete elements. The slab thickness is 12 cm, while the walls are 10 cm thick.

Fieris Hotel at Jl. Perserikata, Rawamangun, Jakarta.
1.015 sqm wall panels
16 days for installation
Finished

Fieris Hotel – Rawamangun

With the support of the new mesh welding plant M-System BlueMesh and its facilitating of the production through automation, PT. Modern Panel Indonesia has also already finished a hotel as well as a university. Currently it is finishing another hotel project. The hotels were supplied with the precast façade (ready to paint surface), while at the new housing project everything is in their hands (precast structure, architecture, and electrical plumbing) up until the final steps.

Production of precast elements – fast, reliable and high-quality

To provide the top-notch materials PT. Modern Panel Indonesia is working in two long shifts (shift 1 from 8 AM to 8 PM and shift 2 from 8 PM to 8 AM) and is producing precast as well as ready-mix at a capacity of 60 m³ per hour. Per shift around 25 precast elements are produced on the pallets.

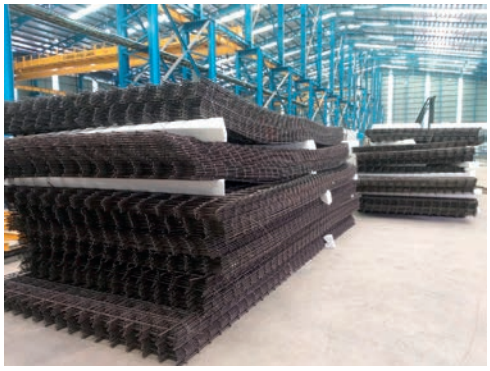
The finished elements - mainly solid slabs and walls as well as beams and stairs - are shipped to the site during day- and night-time and thus, by far, provide the quickest way of building.

Reinforcement automation ensures constantly high quality and safety

For the further modernization of the production, which has been equipped in 2018 with fully automated plants from the German automation specialist Ebawe Anlagentechnik, and to increase the automation in the factory, Modernland decided to invest in a mesh welding plant from the reinforcement machinery expert Progress Maschinen & Automation, both Progress Group companies. Both times this has been made in cooperation with the local partner PT Detede. The new M-System BlueMesh is currently working one shift with using mainly 6, 7 and 8 mm in wire diameters. As the walls are only 10 to

Binus University at Alam Sutera Jl. Jalur Sutera Barat, Jakarta.
1.864 sqm wall panels
30 days for installation
Finished

GOR Binus Alam Sutra



With the customized mesh welding plant M-System BlueMesh® the production of mesh directly from coil has been automated.

12 cm thick the bent mesh cannot be produced with wires of a higher diameter range. This is reflecting the whole Indonesian market and thus has been specifically adjusted and installed for this need. Nevertheless, the walls are earthquake tested and resistant, although being slim.
The mesh is mainly used for the needs of the factory itself. The new machine welds reinforcing steel from coil according to individual specifications, which leads to considerable reductions in labour costs and waste. The M-System BlueMesh is convincing not only because of its high technological level, but also because of being economical in terms of energy, usage, space requirements and steel as well as personnel costs. Until to now, reinforcement production still involved manual workstations. With the new M-System BlueMesh, the mesh is automatically produced, just-in-time and with the corresponding cut-outs for the precast elements.

Future of building – precast concrete elements

With the plant operating automated and with a high capacity, Modernland is already planning further projects. Currently they are developing a plan for an 8-storey apartment complex, built with a full precast system (bearing wall system). Also, another housing project is in the making with the production and providing of a precast façade for the 24-storey high Cleon Apartment. Modernland is working on creating a new future of safe living with prefabricated concrete elements and is convinced that this will be the future of building - not only in Indonesia. ■

The earthquake tested and safe elements with the cut outs for doors and windows already implemented are transported to the sites.

The solid slabs and walls are already equipped with reinforcement and ready for transport and installation on site.

The building time is enormously reduced by building with prefabricated elements that are installed on site with cranes and qualified staff.

FURTHER INFORMATION

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