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Precast flooring for the reconstruction of Haiti

On 12 January 2010, an earthquake of magnitude 7 shook the Caribbean island of Haiti. According to estimates, the earthquake claimed up to 500,000 lives and injured hundreds of thousands more. In addition, more than 250,000 homes and 30,000 businesses were destroyed. Experts estimate that one third of the country's population was directly affected by the disaster. With 90% destruction, the town of Léogâne situated approximately 30 km from the capital Port-au-Prince, achieved notoriety as the worst affected town.

■ Daniel Breitbach, Weckenmann Anlagentechnik, Germany ■

Even if the damaged houses have mostly been repaired and are habitable, "the reconstruction of the destroyed buildings is still progressing slowly even two years after the disaster," says Franz Groll, co-founder of the German Pro Haiti association, which has already been operating training projects in Haiti for 15 years. "Only the small rich section of the population has started constructing their homes", adds Groll. The construction of public buildings, churches, and the majority of the houses of the poorer population has still hardly got underway. One of the main reasons for this is that the poor simply lack the necessary funds. On the one hand, it is difficult for those in need to access the required donations, and on the other hand, the international aid agencies complain of a lack of cash flow.

Pro Haiti decided immediately after the earthquake to set up the CCFPL training centre (Centre Catholique de Formation et de Production à Léogâne), where the project has two main objectives:

New perspectives through training and jobs in the construction industry

Because of the earthquake, Haiti's economy, which was already on its knees, has ground to a halt entirely; all of the schools were destroyed and there are no well-trained and experienced personnel in any field. Therefore, since October 2011, the training centre has offered about 100 male and female trainees practical and theoretical training for the professions of mason, joiner, carpenter, electrician, mechanic and auto mechanic, and in future the number of trainees will be increased to 120 per annum. The training period should be on average two years. In addition to job-related subjects, basic business skills are taught. Furthermore, masons and carpenters who are already working will be offered courses in earthquake-resistant building.

As a result of the efforts of Pro Haiti, it is envisaged that there will be a high proportion of regular practical training. On afternoons and at weekends, the students should be able to participate in practical operations. The training project has been discussed with the National Education Ministry and the course content is aligned with the "Institut National pour la Formation Professionnelle" (INFP). In turn, the trainees will, if they wish, be entered in the state exam.

The CCFPL students must first pay school fees, just as in every Haitian school. Pro Haiti is striving to keep the school fees as low as possible and prefers instead that, in the course of their hands-on training at CCFPL, the students actually perform construction services in the market, contributing to the sustainable financing of the school. After completion of the training, good students can apply for a job at CCFPL and work as teachers or in production. According to Pro Haiti estimates, after the devastating earthquake of 2010 alone, a



The extent of the destruction following the earthquake in Haiti was catastrophically large (image: Pro Haiti)



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10 to 20-year intensive construction phase is required for the reconstruction of private and public buildings in the earthquake area around Léogâne and Port-au-Prince.

Hands-on learning through producing precast flooring

To provide students in building trades with the most practical training possible, the CCFPL has its own small production area for the manufacture of precast flooring, which will contribute to the reconstruction of earthquake-proof buildings. Initially, Weckenmann Anlagentechnik from Germany, which specialises in manufacturing machinery and equipment for the precast industry, last year delivered a stationary production table with built-in vibrators for optimum concrete compaction and a manually operated beam for lifting the finished items. The buildings for the training centre were built on a greenfield site using this basic equipment.

After completion of the centre there are now more tables and related formworks, together with other supplies from Pro Haiti, in a container on its way to Haiti. "Perhaps," says Franz Groll, "some may be asking why we should want to introduce concrete technology in Haiti which, from the perspective of the local people, is costly. After all, Germany worked for many decades without semi-precast concrete flooring and with simple means. This traditional method has also been used up to now in Haiti, but it is precisely there that it has serious drawbacks. Large amounts of formwork boards and a correspondingly large number of supports are needed for a flooring formwork. To provide wood for the supports, large quantities of young trees are being chopped down when they have barely rea-



The CCFPL is a training centre where construction using precast flooring - from production through to installation on site - is taught (Images: Pro Haiti)



Precast flooring is produced on a stationary production table, provided by the German company Weckenmann (Images: Pro Haiti)



The precast flooring is transported to the site, where it is installed and concreted on site with simple equipment (images: Pro Haiti)



ter. At the same time, the project leaders hope that imitators for the project can also be found in the private sector.

Thanks to the CCFPL training, Haitians should be in a position to construct earthquake-proof residential buildings within the next 3-4 years themselves (image: Pro Haiti)

ched the thickness of a human arm, which are then frequently used only once, which is a tragedy in a sparsely wooded country like Haiti. Due to the use of flooring slabs, following the German model, formwork boards are no longer required. This means that we can now be environmentally friendly, faster than in the past and construct earthquake-proof buildings."

How precast flooring production is contributing to reconstruction

Interest in the training centre's precast flooring is great, as was demonstrated at an "Open Air" exhibition where CCFPL first presented a sample of this type of flooring, which is still unknown in many places. Since the vast majority of people without their own home are unable to afford a new

home with an average of 50m² living space, they rely on donations. Under the motto "Hands together for the reconstruction of houses," a first cooperative with more than 150 people was recently founded on the CCFPL site.

The aim is for them to construct their homes themselves over the next 3-4 years. However, since there is no money to buy the building materials, the co-operative will request the financing for the necessary materials from international aid organizations. In this way, Pro Haiti is hoping that the CCFPL project will continue to manufacture large amounts of precast flooring in the coming years, with more and more new trainees, which will contribute towards improving the lives of the people and creating earthquake-proof houses for the victims of the disas-

FURTHER INFORMATION



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