

Toyota Kohki Co., Ltd., Tokio, 183-0035 Japan

Vertical retaining wall

Since its foundation of 1966, Toyota Kohki Co., Ltd. has been developed its technologies and contributed to the concrete industry as a leading mould manufacturing company for precast concrete products in Japan. Each Toyotaforms is custom made to meet individual customer's requests. Various types of precast concrete products in Japan have been shown in CPI and how Toyota Kohki has contributed to the product development as mould professionals. In this issue a special precast concrete product- vertical retaining wall in Japan will be presented.



Fig. 1: Golcon Block with plane surface



Fig. 2: Golcon Block with designed surface



Fig.3: Golcon Block at construction site near Mt. Fuji

As introduced in the previous issues, a various types of retaining walls are used in Japan, such as Hollow Concrete Block, Green Retaining Wall, Road-L and so on. Another type of the special retaining wall is called "Golcon Block"- which is vertical stacked retaining wall.

In order to utilize the slope land effectively, the high vertical retaining wall is widely used in Japan. Not only high level of strength, quality, economic efficiency, but also high quake resistance is required because Japan is well-known as an earthquake country.

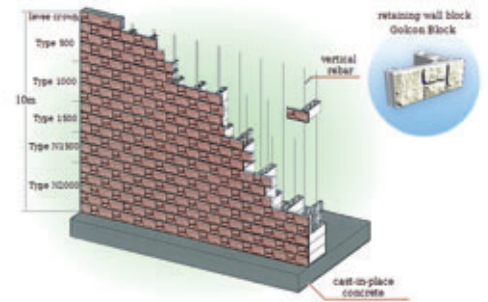
Golcon Block is designed as an ideal retaining wall block specializing in safety, construction efficiency and economic efficiency. It also provides beautiful landscape for next generation.

It is certificated to be constructed up to 5.0M for the residential area (by Act on Regulation of Residential Land Development) and up to 10.0M for the civil engineering (by Public Works Research Center).

Followings are the main characteristics of Golcon Block:

High safety

- The base concrete and Golcon Block are firmly integrated.



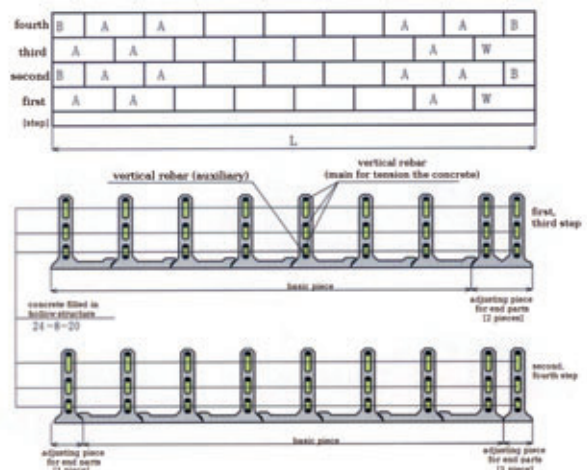
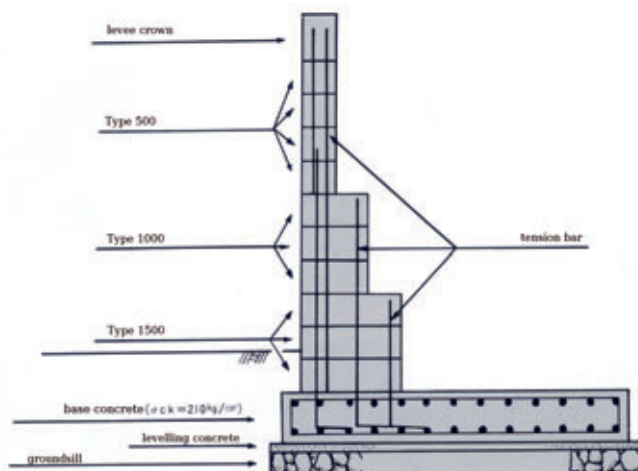
- Golcon Block has been proven to have equivalent or better structure performance to cast-in-place reinforced concrete retaining wall by load tests.

High construction efficiency

- Golcon Block has high stability and is able to be laid easily.
- The size of the block is easy for handling and the large scale heavy machinery is not needed.
- Enable to make curved wall with a beautiful finish.

High economic efficiency

- Golcon Block is vertical retaining wall and brings effective land utilization with no loss of land.
- It can be easily connected by pouring the concrete into the holes on the blocks after pulling up on site. It is also suitable for disaster-relief works.



The pictures below were taken after the huge earthquake hit Japan on March 11th,

2011. Even after the major quakes and aftershocks, the Golcon Block stayed intact,

which surely proves the high seismic intensity. Golcon Block is a product with complex shape. It is necessary to have the mould with high technology and productivity to manufacture.

Fig 9, 10 shows the production site with the mould manufactured by Toyotaforms.

The accuracy of mould equals to the accuracy of concrete product. The quality of moulds also greatly influences the efficiency and productivity. That is, a mould plays a crucial role of manufacturing precast concrete products. Further, the quality of concrete product influences on the quality and productivity at construction site.

The technologies of Golcon Block, including mould, product, and construction, are all introduced and provided by Toyota Kohki Co., Ltd.

FURTHER INFORMATION



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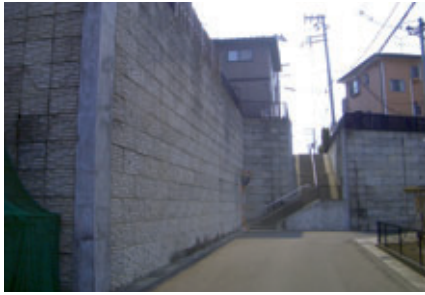


Fig. 7: Shiogama city, Miyagi prefecture (Mercalli intensity IX)



Fig.9: De-moulding



Fig 8: Sendai city, Miyagi prefecture (Mercalli intensity VII)



Fig.10: Opened mould