

Being Ethical Is the Name of the Game

TOKUYAMA College of Technology

Hello, everybody! We are from Tokuyama Kosen in Yamaguchi. We hope you can enjoy our presentation. We all major in civil engineering and architecture. Today, we will present a social issue concerning this field of study and work.

Take a look at this picture.

I had a terrifying experience this August. On my way to school for a club activity, I heard a huge crashing noise. I didn't know what had happened. But it was not long before I noticed that a large concrete block had fallen to the ground near me. It dropped off the elevated railroad's wall of the Sanyo Shinkansen Line that ran high above me. I was so frightened that I ran away from the spot immediately. The incident was broadcast on the evening TV news and I recognized that was where I had been.

Recently, there have been a lot of disastrous incidents related to civil engineering and architecture.

One well-known recent incident in the news regarding civil engineering was the collapse of school buildings due to a large earthquake in China. It is said that the collapse was related to constructors' dishonest work.

Another example is the much publicized Aneha scandal, where condominiums were designed and built using false earthquake resistance data.

What are the underlying causes of these incidents?

In an attempt to find an answer to this question, let us take a closer look at two events.

The first incident occurred on the Sanyo Shinkansen Line in June 1999. A chunk of concrete weighing about 200 kg hit a passing bullet train in a tunnel between Kokura and Hakata. It badly damaged the roof of one of the cars like this.

This is a picture of the inside wall of the tunnel. The cause of the drop of the chunk is said to be the cracks that opened up there. It is also believed that seawater that had permeated the cracks accelerated the deterioration.

JR West reports that they have been checking all the concrete walls since that incident, as this picture demonstrates. They have also been reviewing the frequency of the inspections, the inspection method, the criteria for the assessment of the concrete walls, and the repair methods.

Nevertheless, a series of similar events have been reported even after inspections began.

The second event is the scandal involving Mr. Aneha. He designed condominiums and buildings based on falsified quake-resistance data. The inspection agencies, both governmental and private, were unable to detect faults in designs and approved the fabricated ones. That incident caused a great shock throughout the field of architecture. After the incident, the Building Standards Law was amended in order to tighten the approval and the inspection of designs and supervision of

private inspection agencies.

However, the news that many existing condominiums built with falsified design data will collapse quite easily in a large earthquake has evoked public anxiety for their residents.

Now we have seen some of the physical or direct causes of the two events we presented. So, then what is the underlying reason for such activity? Let us speculate.

The falling chunk of concrete is related to jerry-building. The Sanyo Shinkansen Line was constructed in the days of rapid economic growth. In those days, constructors lacked both labor force and building materials. So, in order to meet demands, they lowered the quality of the constructions.

With regard to the Aneha scandal, the incident was brought about by the complicated relationships among the people involved. First, the ordering parties asked the constructors to build condominiums as cheaply as possible. And so, the constructors chose to cut expenses. This resulted in low quality buildings. Next, the constructors put strong pressure on the architects who were responsible for designing a building with adequate quake-resistance. As a result, the architects chose to falsify the quake-resistance data so that they could receive more orders with low prices for buildings believed to be adequately safe. Also, some inspection agencies overlooked and missed the architects' wrongdoing because of their sloppy work in some cases and because of bribery in others. It became a vicious circle.

The closer look at the incidents tells us that they could have been prevented if the people involved had maintained a sense of professionally accepted ethics.

Civil engineers and architects engaging in constructing buildings, bridges and condominiums use technology for the general public. They don't contact the users of these structures directly. Therefore, they run a high risk of ignoring and neglecting the damage to the users their misconduct might cause.

But fabricating quake-resistance data, for example, unquestionably endangers the users' lives. That's why civil engineers and architects must keep the potential danger in mind and adhere to a sense of professional ethics so that they can assure the users' safety.

However, even with sound ethics, engineers can't use technology correctly unless society permits or demands them to. Yes, it is important for engineers to have sound ethics. But it is as important for the society to have to adhere to the same ethical standards. By "society" here, we mean ordering parties, clients and users. For example, ordering parties must not force low prices to the extent that constructors must be corrupt to stay in business.

You may say that stricter laws can prevent the incidents and protect the users' safety more effectively and easily than a sense of ethics. But engineers have a sense of professional pride and ambition to do something good for others. These feelings are what cultivate our sense of ethics. And it is our sense of ethics that prevents unconscientious work.

Now, let us summarize what we have presented and believe.

First, civil engineers and architects, including the ones in the making like us, must follow the highest sense of ethical standards when they design and construct

buildings.

At the same time, our society should be sympathetic and understanding to the goal of this ethical code. Everyone must keep in mind that price and quality tend to be proportional.

We would like to conclude our presentation by saying, "Being ethical is the name of the game."

Thank you very much.