



Yamashita competing at the 50th Japan National Skills competition

National Skills Gold Medalist Bound for International Competition

Long Days of Hard Work and Refining Skills pay off

In October 2012, thirty MHI contestants participated in the 50th Japan National Skills competition, an event where young technicians compete using skills honed on a daily basis. Daisuke Yamashita, in his third year at MHI, took home gold in the Construction Steel Work category of the competition, marking MHI's first gold medal win in 47 years. The technical skills Yamashita displayed in the competition were developed in an environment conducive to skill transmission, where the joy of creation and the fun of refining skills are continuously passed on.

Nuclear Energy Systems
Kobe Shipyard & Machinery Works, Kinki General Affairs Department

Taking up the Challenge of Construction Steel Work —the Foundation of *Monozukuri*

In construction steel work, a single steel plate is transformed into a structure through processes such as marking, cutting, bending, welding and assembly. The techniques employed form the basis of *monozukuri* (manufacturing) and are used in everything from machinery and equipment manufacture to buildings, bridges, shipbuilding and even space engineering.

In the Construction Steel Work category at the Japan National Skills competition, entrants must process steel according to plans and specifications and complete the assigned small steel structure within the time limit of 10 hours. The finished item is judged on dimensional accuracy and cross sections, the aesthetics of welded portions, and how smoothly movable parts operate. Each contestant must read the plans carefully and determine a process to create the item; there is no single correct answer. They need highly developed skills as well as a deep understanding of the equipment, tools and materials involved.

At the MHI Kobe Shipyard & Machinery Works, technical employees who join the company hone their skills at an in-house training facility. After six months, some of these employees are selected to be National Skills contestants, and they concentrate on training specifically geared to the competition. Yamashita competed for the first time in 2011 during his second year with MHI, and won a bronze medal. "I trained really hard for the competition, and I just barely managed to win," Yamashita remembers. "But my coworkers were very pleased, which made me happy, and I was glad I had put the work in."

At the same event, Yamashita's colleague, Yuzuru Matsuno, won a silver medal. "I had expected Matsuno to outperform me, so I wasn't frustrated. At the time I wasn't conscious of it, but looking back on the training

that followed, I guess I did start seeing him as a rival." From that point on, Yamashita dedicated himself to improving his skills beyond those of Matsuno's.

MHI Dominates Rankings through Constant Competition

At first, there were several processes that Yamashita says he was not good at, including welding. However, he was helped by the more senior employees and Matsuno, who trained alongside him. Yamashita overcame his weaknesses by observing the others' techniques, to the point where, in his words, "I stole almost all of them."

His instructors were Masahiro Nishikawa (22 years with MHI) and Kunitoshi Horike (17 years with MHI), who channeled the contestants' rivalry to make refining skills fun. According to Horike, "I thought it would be boring to just train, so I gave them problems they had to work out on their own and had them compete. The rivalry between Yamashita and Matsuno grew fiercer every day. If Matsuno did better on one day's problem, Yamashita would overtake him the next day. Before the competition, they were continually jockeying. I think maintaining motivation is part of an instructor's job."

Nishikawa says that, as he watched the two train, "I thought, 'This is a rare sort of enthusiasm,' and I invested more and more in their instruction. We graded trainees and graphed the grades to foster rivalry. We weren't just 'instructing from on high,' though; it felt as though we were creating right alongside them."



The winning steel structure produced by Yamashita in capturing gold at the 50th Japan National Skills competition.



From left photo: Nuclear Energy Systems, Nuclear Plant Production Division, Nuclear Plant Manufacturing Department, Heavy Component Shop, Kunitoshi Horike, Coach / Containment Vessel & Piping Shop, Daisuke Yamashita / Containment Vessel & Piping Shop, Masahiro Nishikawa, Coach / Kobe Shipyard & Machinery Works, Kinki General Affairs Department, Labor Section, Seiichi Morimoto, Manager

As Nishikawa always maintains, "If the beginning (pre-processing) is neat, the rest of the work goes easier." According to Yamashita, as his weaker skills improved, he learned how to create things on his own and developed the leeway to enjoy himself. A year later, his efforts paid off. At the 50th Japan National Skills competition, he won a gold medal in the Construction Steel Work category. With Matsuno and Yuzuke Shiomoto (in his second year with MHI) both taking silver medals, MHI dominated the top slots.

Transferring Skills to the Next Generation Ensures Continuous Development

MHI's success at the Skills competition go back to the 1962 international event, where Akinori Honda of Nagasaki Shipyard & Machinery Works won a gold medal. Many more medalists followed that initial success until the oil shock and sluggish demand in the shipbuilding industry forced the company to stop hiring technical employees and halted its participation in the competition. However, MHI returned in 2002 when Kobe Shipyard & Machinery Works decided to strengthen the *monozukuri* skills and leverage the training of its young technical employees.

Seiichi Morimoto, who supervises technical employee training, defines skill transmission this way: "If the first generation learns a skill in ten years, then passes that skill down to the next generation, that generation is able to learn it faster. And the faster they learn, the further they go. However, if this process of skill transmission stops, we have to start over again from scratch, and it takes a long time to relearn those skills. Unless skill transmission continues over a long period, it weakens." National Skills training is no exception. Yamashita's gold-medal win was made possible by building upon the wisdom and skills that senior workers had passed down to him. Morimoto continued, "There are many people at MHI who have instructor's expertise and real, solid skills. By passing these skills on, our *monozukuri* organization can carry on indefinitely, and indeed, keep developing."

This summer, Yamashita will represent Japan at WorldSkills International in Leipzig, Germany. At this competition, although contestants will be given new problems that differ from those at the National Skills competition, Yamashita will no doubt display his inherited *monozukuri* skills. His experiences will aid younger employees attempting National Skills competition and will be put to work in MHI's many creations.



Yamashita after the medal ceremony, being cheered as he secures a place at WorldSkills International.