

# Forging the Future of Stainless Steel

Conversation

**Kengo Kuma, architect, and Atsushi Kinoshita, President of Asahi Mekki Co., Ltd.**

## Coloring Technology and Branding



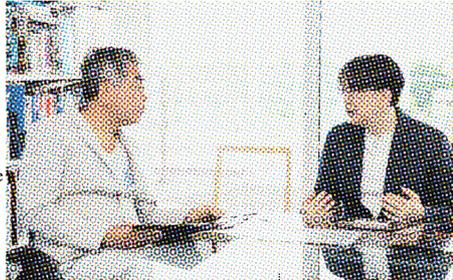
**Kengo Kuma, architect**

Kengo Kuma graduated from the Department of Architecture at the University of Tokyo in 1979. After participating as a visiting scholar at Columbia University, he established Kengo Kuma & Associates in 1990, became a professor at the University of Tokyo in 2009, and then became a Special/Honorary Professor at the University of Tokyo in 2020. He is from Kanagawa Prefecture, and is currently 65.

**Kinoshita:** I am a fan, and have always thought that I would like for us to work together someday. I am so honored that you have expressed an interest in Ororu Processing technology, and feel grateful to have this opportunity. This technology allows precise control of the thickness of the coating on the surface of stainless steel to prevent corrosion, and uses the interference of light to produce 20 different colors. We have strong confidence in this technology, not only because it provides stronger resistance to corrosion and impact when compared to stainless steel products with a conventional coating, but also because it can be used by architects to manufacture products with or without glossy surfaces, and that are resistant to fingerprints. It can also be used safely in the food industry.

**Kuma:** Until now, stainless steel products have had a cold impression. I've used stainless steel for several decades, but I never imagined that adding color would create such a warm impression. These days, following the end of the 20<sup>th</sup> century, people are feeling anxious due to many disasters, including the novel coronavirus. There is a need to alleviate such feelings, even if just a little, through the use of warmth and gentleness in architecture. I look for a sense of friendliness in materials. Even though this product uses cutting edge technology, it has the friendliness and warmth of traditional crafts. I think it will work well with natural wood and stone. It is exactly what we need in this era. What led you to develop this technology?

Discussion between President Kinoshita of Asahi Mekki (right) and Mr. Kuma



**Kinoshita:** This is also a problem with business owners. So, at our company, we are implementing reforms that include upgrading our technology and training the employees who use it, all based on the motto "no growth without facing challenges". We are moving forward with changes in our work style in order to reduce work hours by 11 hours each week, but there is still more to be done.

As you mentioned a moment ago, this technology has been evaluated highly overseas. Therefore, we created a sales company called "Ororu," which comes from "aurora," the French word for aurora. We are creating the brand "Ororu Processing" based on the emotional value of color, and are working hard to become a proposal-based company that brings new value to the world. Do architects such as yourself have the opportunity to come into contact with these kinds of products and technologies during your daily work?

**Kuma:** Architects want to use good products and technologies. We can't make good designs without good products. But, due to things such as the client's personal preference and ordering systems, we currently don't have such opportunities very often.

I would love to create an opportunity for exchange between manufacturers and architects. If architects and designers also understand how good these products and technologies are, many new ideas and designs will be developed. It would be interesting to collaborate with manufacturers.

**Kinoshita:** I would really like to have such an opportunity in the future.

By the way, in what ways do you think you would like to use these products and technologies that our company has developed?

**Kuma:** As I mentioned before, this product has completely changed the image that I had of stainless steel. I would like to use it in a variety of ways as one type of material in my architecture. I think it could work well with wood and stone.

**Kinoshita:** Thank you. This discussion has helped to clarify our goals for operating our business and developing our products in the future. We will work hard to use these products and technologies to change the image of stainless steel to one of "warmth," first in Japan and then around the world.

## Changing Images, Creating New Ideas



**Atsushi Kinoshita, President, Asahi Mekki Co., Ltd.**

Atsushi Kinoshita graduated from the Department of Information Science at Shonan Institute of Technology in 1993, and began serving as the secretary to a member of the House of Representatives that same year. He joined Asahi Mekki in 2011, was promoted to Managing Director in 2012, and became President of Ororu in 2018. He is from Tottori Prefecture, and is currently 52. He became President of Asahi Mekki on June 1. (1 Nanei-cho, Tottori-shi)

## Started with Comments from Clients Warmth and Strong Corrosion Resistance

**Kinoshita:** It all started from comments we heard from staff members at hospitals and care facilities that "stainless steel is inorganic and cold." Since 2013, we have been trying to change it to warmer colors, and make it more resistant to corrosion and scratches. Originally, in the plating industry we received most of our work from processing companies, usually through subcontracting, so I also wanted to use this opportunity to make changes in that respect. We had a difficult time developing uniform colors, but finally in 2016 we succeeded in doubling corrosion resistance and developing 20 colors. We can also support large sizes and complex shapes, and we are on schedule to start mass production in the spring.

Since this is a unique technology, we want to focus on introducing our products to the world in the field of surface processing, rather than conventional plating.

**Kuma:** In architecture, there is also low regard for the word "subcontracting." In Japan, I think that small and medium-size businesses, which are responsible for finishing parts and details, have the most advanced products and technologies. Business owners should have more confidence in their work. The more time I spend around the world, the more I feel the superiority of technology in Japan.

However, people in Japan don't seem to understand this, and for several decades have placed more importance on the price of a product rather than its quality. As a result, work goes to other countries, and Japan's most wonderful products and technologies are at risk of disappearing. I think that buyers and architects are also partly responsible for this.

## Shinji Hirai, Governor of Tottori

### Message

Congratulations to Asahi Mekki on its new fully operational factory. With its roots in the founding of Asahi Ringyo in 1948, Asahi Mekki got its start in 1958, and their employees worked hard together, based on a strong "Asahi Mekki spirit," to develop superior technologies. Now they have developed a unique, new surface processing technology for adding color to stainless steel, and expanded it into a new service called "Ororu," which has led to the opening of their new factory. I would like to express my sincere hope that Asahi Mekki, as a major base for stainless steel color processing, will make great contributions to the development of industry in Tottori Prefecture.



### Confidence in an Industry Leader

The novel coronavirus is having a major impact not only on our daily lives, but also at manufacturing sites. However, I am confident that, through their reliable technology and passion to keep moving forward, Asahi Mekki will continue to lead the way in the future as they have in the past. I sincerely pray that Asahi Mekki will prosper as a company, and make great leaps forward through the development of unique, new technology at their new factory.

# Bringing ORORU Processing to the World

## Mechanism and Effect of Ororu Processing Technology

Stainless steel color processing is a technology that uses chemicals to grow the oxide film that covers the surface of stainless steel and prevents corrosion. This process changes how light is reflected from the surface, making it appear as if color has been added. This technology has existed for some time, but since it was difficult to precisely control the thickness of the oxide film in units of 1 nanometer (nano means on billionth of a quantity), variations in color were found when manufacturing large volumes of product, and therefore commercialization was never achieved.

## Controlling the Thickness of Oxide Film, Developing Uniform Colors

Asahi Mekki has succeeded in creating uniform colors through the precise control of oxide film thickness. They have developed 20 standard colors, with or without a glossy finish, as well as a semi-glossy finish. And, they have worked hard to standardize both the quality of chemically colored film and their testing methods according to JIS standards.

This technology is used for a wide variety of applications, including building materials, bodies for precision equipment, automotive parts, and daily products. Currently, Asahi Mekki is working on the United Nations sustainable development goals (SDGs), through research in the application of this technology for pressure vessels for storing the hydrogen that is used as fuel in fuel cells, and for septic tanks for ballast tanks on ships.