A Series of Steel Art by Masanori Sukenari

Water to Flowers
With the arrival of spring, plant life bursts forth with activity. Although restricted in scope compared to a human lifetime, new plant life clearly flourishes more abundantly than human life. Even so, if we were to think of ourselves as water drops on fresh young leaves, our imaginations could expand endlessly.

Masanori Sukenari: Born in 1960 in Fukuoka Prefecture, Mr. Sukenari graduated from the Department of Painting, Musashino Art University. He then received a Steiner scholarship to study abroad at the Akademie der Bildenden Kunste Munchen in Germany for the academic year 1993-94. Subsequently, he remained in Germany where in 1997 he held a private exhibition entitled “OPERA.” Following this, he held a private exhibition at the “House of Art” in Czechoslovakia in 2003, participated in the Sixth Shanghai Biennale in 2006, and in 2007 received the “Communications Special Award of the Ermanno Casoli Art Prizes.” In 2002, he assumed his current post as part-time instructor at Tokyo Zokei University.

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Nippon Steel has been in discussion with Yung Kong Galvanising Industries Berhad, a leading Malaysian steel sheet manufacturing firm, on investment in and supplies of hot-rolled sheets to YKGI to reach an agreement with YKGI to subscribe for redeemable convertible preference shares.
As an architect who dares to give shape to “architectural freedom and joy,” Mr. Toyo Ito always finds himself leading the movements of his time. For his unique architectural style that breaks the fetters of conventional thought, Mr. Ito was highly honored in 2009 by the Circulo de Bellas Artes (Madrid), a leading European artistic organization responsible for preserving culture, as “one of the world’s most innovative and influential architects.”

_Nippon Steel News_ invited this internationally noted architect to a face-to-face discussion with Yasuo Takeda, Representative Director and Executive Vice President of Nippon Steel. Their discussion focused primarily on how unique expressions in architecture change with the times, the proper nature of architecture as _monodzukuri_ or product making, and helpful hints for creating something new.
Investment in Malaysian Steel Sheet Manufacturing Firm

Feature Story

Steelworks Visit Produces a Stirring Excitement

Takeda: First of all, I would like to congratulate you again on receiving the 2009 Asahi Prize*1 in January of this year. This was due to the high value placed on your record of expanding the possibility of spatial expression in modern architecture.

The other day I saw the Tod’s Omotesando building that you designed in Tokyo. I was strongly impressed by the façade that blends harmoniously with the immediate scenery and the silhouetted elm trees lining the street.

Presently, about 40% of domestic steel demand is destined for the building construction and civil engineering sectors. Steel is an essential material for buildings and other structures. In today’s discussion, we would be pleased if you could furnish us with useful hints for the development of new steel products and a message for our engineers and researchers. Some days ago, you toured our Kimitsu Works. Tell me what you thought of our steelworks.

Ito: That was my first exposure to a steelworks and I was truly surprised at the scale of operations. Particularly, the blaze rising out of the basic-oxygen steelmaking furnace impressed me. The moment I saw it, I could feel my blood begin to pump harder and was overwhelmed by the thought that flames such as this marked the beginning of human civilization. Also, the thrill of seeing molten steel being transformed into a red-hot slab seemed to portend some immanent occurrence.

In the world of architecture, too, there is an instant, when I am drawing an initial sketch with only a foggy idea and no definite image in mind, that I sense that something great will soon happen.

Takeda: The mammoth blast furnace, which melts iron ore and produces iron, symbolizes the...
steelworks. For us, it is trusty and beautiful. It is a simple structure, an outgrowth of the pursuit of ultimate functions. But what do you think of it, Mr. Ito? Ito: My impression was of something very primitive, in a favorable sense, that reminded me of the beginning of the Industrial Revolution rather than of high performance equipment. I came to fully realize that human life is fundamentally based on such an entity. In an era when the information industry is overrated, I was greatly impressed with the fact that I could intimately feel the strength of a substance.

In the architectural world, we not only prepare drawings using computers, but we also tend to deal with things that are invisible and devoid of substance, such as space and information. This last experience has awakened me.

Mr. Ito visited Nippon Steel’s Kimitsu Works together with his staff. They shouted exuberantly as blazes belched forth from a basic-oxygen steelmaking furnace.
Takeda: According to comments attributed to you in newspaper accounts and articles when you received the Asahi Prize and other prizes, your works of the ‘70s primarily emphasized the pursuit of an “inward-oriented style” in which you sought to confine your architectural ideals within small living spaces. In the ‘80s, however, you came to feel an aversion to grave, composed architecture and instead chose to pursue “lightness and transparency.”

The completion of the Sendai Mediatheque (a multi-function complex accommodating a library, an art gallery, and other facilities) in 2001 marked a turning point. For this building, you sought to create a new, soft, and magnanimous space that maintained continuity with the outside. Will you talk to us about your career as an architect in more detail?

Ito: After graduating from Tokyo University’s Department of Architecture, I worked for Kikutake Architects for several years. Then, I started my own office with no definite prospects for the future. At the outset, I managed to eke out an income mainly by designing private homes for relatives and friends. Entering the ‘80s when the bubble economy in Japan provided increasing opportunities for me to design commercial facilities, I accepted the challenge of creating designs for light, transparent entities devoid of substance, just like spaces within a dream, or virtual space.

By around the “post-bubble” mid-‘90s, I awakened as out of a trance, wishing to construct stronger buildings. Just at that time, I had the opportunity to design a public building. I began to seek ways of contributing to society through architecture and wanted to create an architectural structure that would give people courage and make us aware of it as a “substance,” just as I mentioned about my experience at the steelworks. I fully realize that architecture always overlaps with the times.

Takeda: Recently you said that your ultimate aim is “a single tree” that, on the strength of a simple branching out mechanism, can create an environment that is in tune with complex and affluent surroundings.

Ito: The architecture that I have long had in mind is a natural extension of the “machinery-like architecture” generated by the functionalism of the 20th century. The purpose of a machine is replaced simply by its functions. Higher mechanical efficiency is pursued by finding the right combina-
tion of a machine’s functions. To put it more plainly, in past architecture, sleeping, eating, and other simple activities were provided spaces for their occurrence. In doing so, the most suitable combination of spaces was pursued. In fact, however, people perform complex actions simultaneously, as exemplified by the fact that they watch TV while lying down. Today, as society has become multifaceted, both human relations and lifestyles have become increasingly diversified. The appropriate architecture cannot be determined by simple, traditionally accepted functions.

In addition, one’s pursuit of functions severs his relationship with the peripheral environment. However, due to recent, growing concerns with environmental issues, the establishment of a proper relationship with our surroundings is vital. That is why I speak of “a single tree” as representing the concept that human life and our environment are spaces open to the outside. The proper form of a tree is determined by various environmental conditions, including the direction of the sunlight, the direction of the wind, and the tree’s relationships with neighboring trees. I believe that future architecture requires such a view. I will pursue “the field of architecture like a soft, breathing life form.”

Takeda: Global environment issues—now a worldwide concern—affect the proper stance of architecture, don’t they?

Ito: Yes. To take a heavily equipped office building designed to offer maximum convenience as an example, it is said that a worker in such a building is like a king who keeps scores of servants around him and makes a lavish and profligate use of resources. This is because the amount of CO2 gas emitted by this worker is equivalent to the amount emitted by ten workers in an ordinary building. I think that, in the future when architecture itself approaches still closer to natural space, human lifestyles will undergo a change.

When I previously proposed to provide a rooftop pool and garden for a shopping center in Singapore, I was told, “Local people accustomed to air conditioning will never take the trouble to go out in the hot open air.” But when the garden opened, children were the first to frolic in the pool with their clothes on. Seeing this, adults soon followed suit. I realized that, surprisingly enough, when a design is prepared in a manner that appeals to our animal instincts, we humans are quick to seek nature's comfort. My hope is to create buildings that are open to nature in just such a manner.
Takeda: When an architectural designer incorporates his architectural design and ideas in an actual structure, he first examines whether or not such a design and his ideas can be technically realized, and then determines the structure through a series of compromises that maximize the characteristic features of his building materials—that is the process as I perceive it. But, in designing the Taichung Metropolitan Opera House in Taiwan (scheduled for completion in 2013), you seem to have rejected any compromise as to whether such a structure could be formed. Do you have a magic formula for realizing such an innovative structure? 

Ito: The drastic progress made in structural analytical technology by means of computers in the last ten to fifteen years has largely contributed to such design work. For example, Antoni Gaudi, at the structural design stage, once introduced a stabilized architectural structure by reversing the curve produced by attaching spindles at regular intervals on horizontally stretched yarn. But, modeling like that, which used to take 10 years, can now be completed in a week. The free curves and complicated designs we now visualize can be easily realized by means of structural analysis.

Rather, the difficult problem lies in the construction technology required to realize such designs. Fortunately, Japan is blessed with skillful young craftsmen who aggressively undertake the challenges of construction work with a relentless “can do” spirit. They themselves produce three-dimensional CGs and seriously tackle these tasks on site in a manner that makes us designers rather anxious. However, it is only through the existence of craftsmen such as these that our architectural designs can be realized.

Takeda: While on a different level, collaboration between concerned parties is important in the world of steel, too. In this regard, we steelmakers not only supply the material, but also participate in joint research with our users to propose solutions that incorporate steel applications. This is regarded as one of the strengths of the Japanese steel industry. How do you assess steel as a basic industry?

Ito: When I observed the systematic character of the steelmaking process, I recognized the high degree of quality offered by the steel industry as one of Japan’s basic industries, and truly realized the extent to which our architecture relies on your supply of the world’s highest-quality steel products. While we often request special-purpose steel products that meet our design purpose, I was
surprised to learn that minute quality adjustments are made even as early as the melting process in order to fully realize such special-purpose characteristics.

Takeda: About a half of the 6,000 tons of steel products used for the Sendai Mediatheque were supplied by our company, and these were fire-resistant steel products featuring no loss of strength even in high-temperature applications.

Ito: In the Sendai Mediatheque, a high-strength honeycomb structure composed of two steel sheets was adopted for the floors, which have a span of 10+ meters. This was the first time that I felt an interest in building an architectural structure using steel sheets and in figuring out how to suppress strain after welding. In the Library of Tama Art University, I devised a new approach in which a steel sheet structure was installed at the center of the building, while both sides of the structure were lined with concrete.

Recently, structures with curved façade are being built with increasing frequency. And, in order to provide the best finish to these façades, the method used in shipbuilding is applied in which curved ship hull configuration is finished while bending the steel plates. When finishing exteriors, joints inevitably appear when using glass sheets and panels, but the use of careful on-site welding of steel sheets allows for architectural structures that are joint-free and offers a dynamic flow of forces.

Takeda: Steel that is procured in large quantities and at low cost is extensively used as a structural material worldwide, and sometimes it is said that the development of steel products has entered a stage of maturity. However, taking the strength of steel as an example, we see that 80% of the strength potential inherent in steel (about 60% for special-purpose steel) remains untapped.

In this regard, the strength and fire resistance
of steel still remain at the developmental stage. As for formability, steel products with compatible performances for strength and formability, along with new forming methods, have been developed to produce complicated configurations. If anyone wishes to use new, advanced steel products, we will willingly meet the challenges presented by any request.

Ito: Currently, steel is available only as a structural material that facilitates the construction of structures with curved façades in a shorter period of construction. I believe that, with additional improvements to the strength and fire resistance of steel, the potential of steel in the field of architecture will expand still further.

Takeda: “Research in steel” may create a somewhat stiff impression. However, it is also necessary to give researchers a fairly free hand in choosing themes and engaging in research. There are cases where a researcher who plunges intensively into research of his own choice eventually achieves something great. In one of your writings, you give five pieces of advice to young architects: “to become innovation conscious,” “to debate with others,” “to think using the five senses,” “to form the habit of expressing one’s theme in a single word,” and “to be courageous enough to abandon one’s own ideas.” I think that, in order to create something new, not merely architects but also researchers and engineers have to reshape their awareness in one way or another.

For our company, your advice about “innovation consciousness” seems to recommend that we be more aware of the danger inherent in the current severe operating environment, but you also advise us to be “more attractive and less restrictive,”
Ito: To do something out of the ordinary is not “innovation.” True innovation is the creation of new thoughts with the understanding that everything changes with the times. As an example relating to my second piece of advice, “to debate with others,” my office organizes group ideas through debates—which ultimately represent several dozen staff members. If the notion that “this is the next-generation architecture!” can be shared among the members while debating, individual and free ideas can be accepted regardless of differences in the experiences of those participating in the debate. Eventually, a combination of ideas can give shape to new architectural ideals in our minds.

Takeda: Regarding the advice “to think using the five senses,” my understanding is that not only theoretical aspects are construed by thinking, but also that intuition is needed to seize what is attractive. But, it is difficult to express what is seized through intuition, isn’t it?

Ito: Particularly in our information-inundated society, it is not easy to determine what is pleasing and attractive. When I was young, I knew from personal experiences that while contrivances produced by my mind could change in three days, what I wished to do in reality using my hands or even my whole body would never change throughout my lifetime. These experiences allowed me to realize the importance of using the five senses and, for the first time, provided the attraction that drew me to architecture. I earnestly hope that all young architects will experience the same attraction.

None of the floor information that is seen in ordinary buildings is provided in the aforementioned Sendai Mediatheque, thereby forcing visitors to walk around in quest of the information they need. The first floor is designed to be an open plaza-like space where visitors freely walk around as they would in a park and instinctively choose a comfortable place to sit. I think that human beings are sensitive creatures, after all.

Takeda: I quite agree with your advice “to form the habit of expressing one’s theme in a single word,” since I give similar advice to my subordinates. If an employee cannot explain his theme in a word, he cannot summarize his viewpoint and has not
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been sufficiently thoughtful in selecting his theme. **Ito:** Sometimes, I review the essays of university students, with the result that I wonder what the students wish to do. I would like to find even such illogical words as “like” or “dislike” in their essays, which would be suggestive of their wishes.

**Takeda:** In addition, although determining whether to “proceed” or to “stop” with an idea is said to be important in our research, the decision to “stop” is extremely difficult. In fact, “to be courageous enough to abandon one’s own ideas” or to have the nerve not to insist on one’s own view is important.

**Ito:** When we cannot make good headway with our design work, we also tend to adhere to our own ideas. From my experience, there are great many cases where satisfactory results can be obtained by going back to the beginning and adopting a different way of thinking. To those staff members who adamantly insist on their own ideas, I recommend that they temporarily abandon those ideas.

**Takeda:** In addition to your own construction projects, you are now actively involved with the “Imabari Toyo Ito Architectural Museum (tentative name)” (to be completed in summer 2011) and other projects that aim to foster young architects and further interaction with local communities, aren’t you?

**Ito:** Assuming that I will retire within the next decade, I regard the training of young architects as my mission, which is, in a sense, more important than commitment to my own architecture. In the early ’90s, I undertook the task of designing a certain public building in Kumamoto Prefecture, and this marked a turning point in my career as an architect.

Currently, as a result of this business connection, I am still involved in the project of “Kumamoto Artpolis” and as commissioner I am responsible for furnishing young architects with opportunities for involvement in public construction. As part of the Imabari Museum project, I plan to organize a workshop among local people and young architects to study towns of the future and to convey the appeal of town-building and architecture to children. Eventually, through an array of commitments, I wish to establish a new theory of architecture in the 21st century.

**Takeda:** Thank you very much for your valuable insights.