

azbil  
FIELD

Dream Mall

azbil  
MIND

Strengthening cooperation within the  
azbil Group, providing higher value to  
customers at home and abroad

Feature

Sonic Landscape in Japan

## CASTLES



# Castles Shiro

## Japanese castles still stand as local symbols

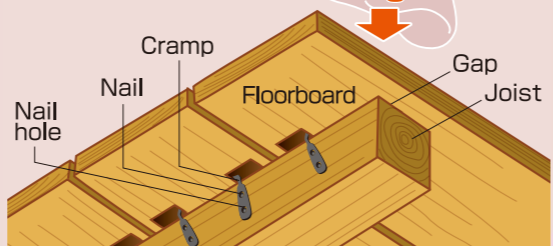
【kyu, kyu, kyu, kyu】 ~キ、キ、キ、キ

Castles and castle ruins can be found throughout Japan. Most of the original structures have been lost and some have been reconstructed in modern times, but a number of well-preserved castles allow the visitor to walk through it, offering a glimpse of samurai life several hundred years in the past. Some castles offer tours where you take off your shoes to walk along wooden halls. When you reach a certain point, the wooden floorboards creak, making a sound described in Japanese as “kyu, kyu, kyu, kyu.” Such a hallway has what is known as a “nightingale floor,” for the “chirping” floorboards. The corridor’s function was to notify the castle’s occupants of the presence of intruders, ninja or otherwise. The visitor is thus reminded of the castle’s original function as a structure to protect the lord of the regional domain.

### Uguisubari: Nightingale floor

The joists supporting the floorboards are held together with steel cramps so that when a person steps on the floorboards, the action of the cramps moving up and down creates the chirping sound, “kyu, kyu, kyu, kyu.” This trap was named for the sound, which resembles the cry of the *uguisu*, a small bird that can be found throughout Japan, when it flies across an open space. Although the 12 extant castles do not offer the experience, visitors to Kyoto can experience the nightingale floor at places like Nijo Castle or Chion-in Temple.

### How the Nightingale Floor Works



When the floorboards are stepped on, the cramps move up and down, producing sound as they rub against the nails.

### Twelve castles preserved in their original state

Castles play an important role in the history of Japan. Up until the Edo Period (1603-1867), castles were places where feudal lords conducted their political business and also served as residences. Towns developed around castles, and the castle became the town symbol. Fights over castles signified fights over territory, so the castle also functioned as a strategic fortress in battles.

Of the 47 prefectural capitals of Japan, more than 30 were originally castle towns. Many still have a castle standing in the middle of the city that is used by the public as a park and that attracts many tourists.

It is said that at one time Japan had more than 25,000 castles. These included simple stockades of a kind, but it is certain that up to the end of the Warring States (*Sen-goku*) Period (1467-1568) a considerable number of castles had been built to carefully mark delineated territory. After countless battles, only the strongest feudal lords remained standing, as well. By the end of the Edo Period, the

number of castles had dwindled to about 170. During the Meiji Restoration that followed, many castles were destroyed by government de-



### ① Stone dropping ② Spikes

The buildings atop steep stone walls obstructed penetration by attackers through the use of steel spikes and openings specifically built for dropping stones.

### Traps and other defensive devices lie behind the beautiful appearance

The premiere attraction of the Japanese castle is its tower, the castle keep. As the tallest structure in the castle, the main tower is highly ornamental, serving as an impressive display of the military might and wealth of its *daimyo*, or feudal lord. The keep often is a three- or five-story structure, with each story smaller than the one below, an architectural technique unique to Japan. The roofs are sharply recurved, with decorative triangular gables known as *hafu*. These give the keep both a graceful and imposing appearance. The castle keep largely served a symbolic purpose and was relatively sparse on the inside, compared to its external splendor. Aside from its strategic function in offering a view of both the castle grounds and surroundings, historical records indicate that it was not extensively used otherwise. The feudal lord lived in a low structure known as a *goten*, or palace, and his retainers also lived in one-story buildings.

After fully appreciating the keep’s extravagant exterior, the visitor’s attention is drawn to other interesting details. Signs that the castle once served as a military fortress can still be found today. Massive stone walls keep those approaching the central keep circling the complex and turning corners, and stone steps are designed to subtly upset the climber’s stride. These structural details were all designed to keep attackers from making a fast, sweeping approach. Openings in projecting parapets known as machicolations allowed stones to be dropped on wall climbers, and small holes that were round, triangular, or square in shape allowed arrows or guns to be shot while providing nearly full cover.

It could even be fun to tour a castle as if you were a *ninja* trying to avoid detection while searching for the lord in his castle.

### National Treasure Castles



**Matsumoto Castle**  
Matsumoto, Nagano Prefecture

Floorboards on every floor in the castle keep are painted with black lacquer, creating a calm, subdued impression. This black appearance has earned the nickname *karasu-jo*, or Crow Castle.



**Himeji Castle**  
Himeji, Hyogo Prefecture

The white plaster walls make this the most beautiful castle in Japan. It was Japan’s first World Heritage Site. Because the stately white appearance resembles a white heron, it has been nicknamed the White Heron Castle.



**Inuyama Castle**  
Inuyama, Aichi Prefecture

This castle stands upon a hilltop 40 meters above the Kiso River. The view from the keep is magnificent.



**Hikone Castle**  
Hikone, Shiga Prefecture

The great variation in gables of this relatively small castle keep creates a graceful appearance.

# Dream Mall



**Dream Mall, located in Kaohsiung City, is the largest shopping complex in Taiwan. In an effort to lower the mall's electricity expense, the operator implemented energy-saving measures utilizing technologies and know-how from Japan, a front-runner in energy conservation. These measures enabled the operator to generate energy savings that far exceeded the original target while minimizing investment risk through the use of ESCO services.**

**Key issue of reducing the electricity cost of the largest commercial facility in Taiwan**

Taiwan occupies an area of 35,873 square kilometers and has a population of about 23 million people. Today, its economy is experiencing rapid growth on a global scale. Throughout history, Taiwan and Japan have maintained close relations; in recent years, they have developed close business ties, mainly in the IT, semiconductor and electronics industries.

Dream Mall opened on March 30, 2007 in Kaohsiung, a commercial and port city in southern Taiwan, as the largest shopping mall in Taiwan. Occupying an area of about 50,000 square meters, the mall comprises two buildings; one in front and the other behind, both with nine floors above ground, a rooftop and two floors underground. Together, these buildings house over 800 shops, restaurants, recreation facilities and art zones, offering over 1,000 brand-name products. The mall bustles with shoppers and visitors, attracting 35,000 on weekdays and 100,000 on

weekends and holidays.

Dream Mall is operated and managed by President Fair Development Corp., a subsidiary of the Uni-President Group, Taiwan's largest food manufacturer and distributor. Since the mall opened, the energy cost for operation had been an issue for the company.

Mr. Chang said: "Our main problem was how to lower the monthly electricity cost of over NT\$20 million for the entire facility. Moreover, for the Uni-President Group, the promotion of energy conservation is one of the Group's corporate social responsibility initiatives, so we are required to strengthen the company's energy-saving measures."

**Selecting a business partner in Japan with a wealth of expertise**

President Fair Development considered several approaches to implementing more effective measures, one of which was adopting technologies and know-how from Japan, a front-runner in energy

conservation. It consulted with Mitsubishi Corporation, a company having deep ties with the Uni-President Group. Mitsubishi Corporation then decided to collaborate with Azbil Corporation, its business partner in the jointly owned and operated Japan Facility Solutions, Inc., in making a proposal to President Fair Development.

Mr. Chen said: "Aside from Azbil, there were 3 or 4 suppliers we had in mind, including a vendor who was in charge of our facility management system. After reviewing the proposal from Azbil, we visited the company in Japan and saw first-hand its wealth of expertise in energy conservation. Our strong interest in utilizing these



In the central monitoring room, the savic-net FX was installed as the BEMS.



Parking area lights were replaced with energy-efficient ballast-equipped lighting.



advanced technologies and know-how was the decisive factor in choosing Azbil as a partner."

After officially selecting Azbil in October 2009, President Fair Development adopted two measures to be implemented as ESCO\*1 business using a 3-year, guaranteed-savings method. One measure was installing Azbil's savic-net™FX Building Management System as the BEMS\*2 to control the intermittent operation of the mall's 102 air-conditioners (76 general-purpose air-conditioners and 26 for the electrical and machine rooms). The other was replacing the 2,232 sets of light fixtures in the mall's parking areas and President Fair Development's office space with high-efficiency ballast-equipped lights.

Mr. Wang said: "Azbil proposed additional energy-saving measures, such as using inverters for cooling water pumps to control variable flow rates. However, we thought the construction work involved could negatively affect our tenants' businesses, so this time we decided on two measures: the intermittent operation of air-conditioners using BEMS and the replacement with energy-efficient lighting."

**Achieving 117% of the energy-saving target after one year of operation**

The facility renovation for Dream Mall's two buildings was completed in June 2010. After one year of operation, the mall's energy-saving efforts had yielded positive results. Specifically, the ESCO service guaranteed an energy cost reduction of NT\$2.4 million per year; however, the energy

cost savings through the use of intermittent operation of air-conditioners and of energy-efficient lighting for one year, from July 2010 to June 2011, reached NT\$2.8 million, an achievement rate of 117%.

Mr. Wang said: "We are extremely satisfied with not only the highly stable operation of Azbil systems and equipment but also the local Azbil Taiwan staff and their consistently positive stance toward providing support."

President Fair Development plans to continue fine-tuning the systems and equipment introduced this time and further drive energy conservation initiatives for the mall's facilities. It also hopes to apply this know-how to other facilities that it manages and operates.

Mr. Chen said: "In December 2011, we began construction of a new shopping mall in Tainan, one of the principal cities in Taiwan. For this mall, we are positively examining the use of the energy-saving measures that were proposed by Azbil but weren't applied to Dream Mall."

Mr. Chang said: "While the demand for energy conservation is growing globally, the extremely low cost for utilities such as electricity and water usage in Taiwan, compared with Japan and other countries, has been hampering the progress of energy conservation activities in Taiwan. We hope that Dream Mall will serve as a model facility to raise awareness among companies and citizens of Taiwan. We also look forward to implementing more innovative energy-saving proposals from Azbil, which will firmly support our energy conservation activities."

**President Fair Development Corp.**



Location	789, Zhonghua 5th Rd, Kaohsiung, Taiwan
Start of operation	March 30, 2007
Business scope	Management and operation of Dream Mall



Paul Chang  
General Manager

Ruskin Chen  
Director  
Property Management Division



Ansel Wang  
MEP Team Manager  
Property Management Division

**glossary**

**\*1 ▶ ESCO (Energy Service Company) business**  
This business provides comprehensive services for conserving energy in plants and buildings. There are two types of ESCO service contracts. One is the "guaranteed-savings contract" where customers raise funds for initial investment by themselves, and the other is the "shared-savings contract" where the service provider shoulders the initial cost. In both types of contracts, the service provider guarantees the amount of energy cost reduction, from which facility investment can be recovered.

**\*2 ▶ BEMS (Building Energy Management System)**  
A system designed to minimize the energy consumption for an entire building or plant by automating the monitoring and control of energy consumed by energy-using facilities and equipment including district heating/cooling equipment.

## Strengthening cooperation within the azbil Group, providing higher value to customers at home and abroad

On April 1, 2012, Yamatake Corporation made a fresh start, changing its name to Azbil Corporation and changing its management. The corporation now has a new president and CEO, as well as new presidents of the Building Systems Company and Advanced Automation Company. Under new management and following its “human-centered automation” philosophy, Azbil Corporation will further accelerate the reform of its business and operational structures and maximize the value provided to customers.

### *In tandem with the corporate name change, new management*

In 2006, the 100th year since its establishment, Azbil Corporation adopted the Group philosophy of “human-centered automation” and the Group symbol “azbil.” Under the 10-year plan, which began in 2004, the four years from 2010 to 2013 are designated as the Period of Growth. At the turning point of this period, in the present year, on April 1, the company name was changed from Yamatake Corporation



**Keiichi Fuwa**

Executive Director and Managing Executive Officer, and President of Building Systems Company, Azbil Corporation

to Azbil Corporation. Group companies in Japan also changed their names to include “Azbil” so that Group companies worldwide now have azbil in their brand and corporate names.

This new start was also marked by a shakeup in management, including new directors and executive officers. Hirozumi Sone has become President and CEO of Azbil Corporation, with Keiichi Fuwa as President of Building Systems Company and Masato Iwasaki as President of Advanced Automation Company. The new management of Azbil Corporation will strive to reform business structures and operations and enhance the enterprise value of the Group as a whole to realize the azbil Group’s long-term goal of becoming a “top-class global automation enterprise.”

### *Drawing upon the collective strength of all Group companies to further enhance the value provided to customers*

In the present environment, with increasing market uncertainty inside and outside Japan due to factors like the sharp appreciation of the yen and financial instability in Europe, future prospects are difficult to forecast. Additionally, society has been consistently pressing forward with mechanization and automation. At such a time, it is



**Hirozumi Sone**

President and Chief Executive Officer, Azbil Corporation

necessary not only to pursue efficiency but also to think about how safety and peace of mind can be ensured and how people and machines, and people and the natural environment, can coexist.

Against this backdrop, Azbil Corporation has made a fresh start. Based on the Group philosophy of “human-centered automation,” Group companies have together been providing value to customers and will continue to do so through the azbil Group’s three core businesses of Building Automation (BA), Advanced Automation (AA) and Life Automation (LA). In each of these

businesses, areas of coordination and cooperation will be further strengthened and expanded.

First, the BA business offers safety, peace of mind and comfort in buildings as well as provides life cycle solutions for HVAC instrumentation systems and security systems which assist customers’ management through optimum building control and operation. Especially after the Great East Japan Earthquake, in addition to existing needs such as cutting CO<sub>2</sub> emissions and saving energy, the need to curtail electricity usage has been rising rapidly. To respond to such needs, Azbil Corporation proposes solutions for “visualizing and forecasting” based on the azbil Group’s unique measurement and control technologies, to help to improve the indoor environment of buildings of any type or size. There is strong demand both inside and outside Japan for the azbil Group’s unique solutions for improving indoor environments, from surveying and planning to building operation; and we will continue to develop such solutions.

For customers in the industrial sector, such as factories and plants, the AA business proposes solutions for manufacturing sites to realize higher productivity while ensuring workers’ safety and comfort. By capturing the fast-growing trend of globalization due to

the sudden changes in customers’ business conditions and industry structure, Azbil Corporation creates value with customers at their sites worldwide and provides optimum solutions for factories and plants. Already, customers’ manufacturing sites are moving out of Japan and expanding into China, Southeast Asia, Europe and North America, and furthermore into India, the Middle East, and Central and South America. By sharing customers’ problems and proposing solutions that exceed customers’ expectations and by making full use of our on-site capabilities, we can help customers to realize the innovation they desire.

In the LA business too, business activities will be strengthened with a view to providing higher added value to communities and to the lives of people in them. In the Life Assist field, the need for nursing care has been increasing due to Japan’s rapidly aging society. The business for residential central air-conditioning systems providing comfort and environmental efficiency is being developed in Japan, while the business that supports essential lifelines, such as gas and water supply, is expanding in Japan and abroad. The LA business aims to be a comprehensive provider of products and services that meet the needs of customers.

### *Sharing group companies’ core technology and know-how and strengthening business infrastructure globally*

In promoting its three businesses, BA, AA and LA, the azbil Group emphasizes the importance of developing them on a global scale. Especially in China and Southeast Asia, conserving energy and electricity has become a national issue, resulting in increased expectations of owners of factories, plants, buildings and houses for the products, services and technology offered by the azbil Group.

We intend to provide not just products and technologies but also support



for the management and operation of buildings, factories and plants by delivering product and service solutions and helping to resolve customers’ on-site problems, which is the strength of the azbil Group. In order to provide such solutions to customers on a global scale, the Group’s business infrastructure is being fortified.

This requires, as a key factor, cooperation between the companies engaged in the BA, AA and LA businesses within Azbil Corporation as well as between the azbil Group companies. Various measures have been taken to facilitate cooperation such as organizational changes, which include unifying the service departments within each business unit, providing a unified contact point for customers and promoting collaboration internationally. Moreover, in terms of product development and manufacturing, it is hoped that our capabilities to solve customers’ problems on site can be further improved by sharing core technologies and know-how within the BA, AA and LA fields.

In the future, guided by the “human-centered automation” philosophy, the azbil Group as a whole will strengthen its internal cooperation, accelerate business expansion both at home and abroad and together strive to maximize the value provided to customers.

## ■ HP7 Series: Versatile photoelectric sensors with built-in general-purpose amplifier

HP7 series photoelectric sensors are useful for diverse applications, such as transfer conveyors, assembly machines, processing machines and multi-story car parks. Compared with the previously available product, this series has improved environmental resistance and a wider range of models, for use in a greater variety of applications.

### Features:

- Improved resistance to interference from external sources of light, such as invert-er fluorescent lights and LEDs.
- Higher reliability installation with the use

of metal sleeves. The device can be securely tightened without fear of destroying the screw threads. This also allows quicker installation.

- Improved resistance to harsh environments with the use of oil and chemical resistant modified polyarylate in the lens (thru scan and diffuse scan), and the use of one-piece button instead of a potentiometer.
- A thru scan sensor with a different frequency is provided, allowing sensors to be mounted in close proximity.
- If there is a problem with sensing, the sensor can be adjusted to optimum sensitivity by the press of a button.



Optimum sensitivity adjustment even in cases of light diffraction or light penetration.



Use of oil and chemical resistant modified polyarylate in the lens (thru scan and diffuse scan).



New algorithm improves resistance to ambient light.



Thru scan with a different frequency available, allowing gang-mounting. Up to 2 diffuse scan sensors together and/or 2 retroflective sensors together can be installed.

## azbil

<http://www.azbil.com/>

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

### Japan

- Azbil Corporation • Azbil Trading Co., Ltd.
- Azbil Yamatake Friendly Co., Ltd.
- Azbil Care & Support Co., Ltd • Azbil SecurityFriday Co., Ltd.
- Hara Engineering Co., Ltd. • Azbil Kimmon Co., Ltd.
- Azbil Kyoto Co., Ltd. • Azbil Royal Controls Co., Ltd.
- Azbil Taishin Co., Ltd. • Tem-tech Lab.

### Overseas

- Azbil Korea Co., Ltd. • Azbil Taiwan Co., Ltd.
- Azbil Kimmon Technology Corporation
- Azbil Vietnam Co., Ltd. • Azbil India Pvt. Ltd.
- Azbil (Thailand) Co., Ltd. • Azbil Philippines Corporation
- Azbil Malaysia Sdn. Bhd. • Azbil Singapore Pte. Ltd.
- PT. Azbil Berca Indonesia • Azbil Control Instruments (Dalian) Co., Ltd.
- Azbil Information Technology Center (Dalian) Co., Ltd.
- Yamatake Environmental Control Technology (Beijing) Co., Ltd.
- Azbil Control Solutions (Shanghai) Co., Ltd.
- Shanghai Azbil Automation Co., Ltd.
- Azbil Hong Kong Limited
- Yamatake Automation Products (Shanghai) Co., Ltd.
- Azbil North America, Inc. • Azbil BioVigilant, Inc.
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