Modern Technology Reproduces Ancient Japanese Art Technique

NASHIJI is a form of Japanese lacquer work used to create the background of a pattern. The technique is very old—it flourished in the Muromachi period (1338–1573) in Japan. To create nashiji, gold or silver flakes called nashiji-ko are sprinkled onto the surface of the object (excluding the design) on which lacquer has been applied. Nashiji lacquer is then applied and burnished with charcoal, so that the gold or silver can be seen through the lacquer. The name nashiji is thought to have originated because the lacquer finish resembles the skin of a Japanese pear called "nashi."[1]

Today, the PNEUMA BLAST® machine from Fuji Manufacturing utilizes modern technology to reproduce this slightly textured, semi-glossy pattern on numerous items. Fuji Manufacturing calls this surface the "Pear Skin Finish." Because this surface finish hides scratches and is aesthetically pleasing, the PNEUMA BLAST machine is used on camera bodies, watch cases, cell phone cases, aluminum wheels, containers for cosmetics, eyeglass frames and more.

The Pear Skin Finish is also used to improve the function of many items. The finish improves oil retention and prevents glare and slippage. Objects that benefit from this surface treatment include paving stones, heating pipes, golf clubs, and paper forwarding rolls.

The Sensoji Temple and the PNEUMA BLASTER®

Sensoji (also known as Asakusa Kannon Temple) is a Buddhist temple located in Asakusa. It is one of Tokyo's most colorful and popular temples. According to legend, in the year 628 a statue of an enlightened being named Kannon was found in the Sumida River by two fishermen. The chief of their village recognized the sanctity of the statue and enshrined it by remodeling his own house into a small temple in Asakusa so that the villagers could worship Kannon.[2]

Recently, when the Sensoji temple wanted to replace the clay roof tiles of the temple with titanium tiles, they choose the Pear Skin Finish of the PNEUMA BLASTER® to give the tiles the historical and refined appearance necessary of such an important landmark. The project was completed at the Fuji Manufacturing facility and it required the treatment of 90,000 titanium tiles. As an additional point of interest, after the new roof was installed, its gross weight was decreased from 900 tons to 180 tons and the temple is now better able to withstand earthquakes.

The titanium tiles for the Sensoji temple were spray blasted with the PNEUMA BLASTER® to achieve a "Pear Skin Finish."

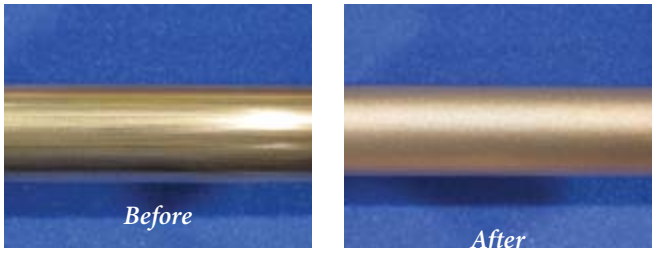
A detail from the roof that highlights the intricate design of the roof tiles.

[1]Britannica.com [2]Wikipedia.com

The PNEUMA BLASTER®

The PNEUMA BLASTER® equipment utilizes a digitally controlled spraying process for the stable and continuous spraying of steel shot and non-ferrous media. It is used in shot peening and the thermal spray pretreatment of non-magnetic media such as ceramic shot, alumina, glass beads and more. Stable and constant blasting is possible even with shot smaller than 200 µm.

The PNEUMA BLASTER® by Fuji Manufacturing uses a digitally controlled spray for the stable and constant application of steel shot and non-steel media.



Copper tubing before and after receiving the Pear Skin Finish by the PNEUMA BLASTER®.

Purdue University Announces the Launch of the Center for Surface Engineering and Enhancement

PURDUE UNIVERSITY has announced their vision to be the leading industry-university research alliance for the metal surface finishing industry. The embodiment of their vision is the Center for Surface Engineering and Enhancement (C-SEE) on the Purdue campus. The goals of the center are to serve consortium members' needs, establish a knowledge base, and educate the future leaders of the industry.

The research capabilities of C-SEE will be available to industries and government agencies. Pre-competitive research is available to member groups as well as specific and proprietary research for individual organizations. The program offers access to test equipment, research staff and disciplines that most companies do not have.

Research will be defined by the participating groups or organizations. The research will be conducted by undergraduate and graduate students seeking industry positions and the research programs will be under the leadership of these Purdue faculty members:

David Bahr, PhD, Professor and Head of Materials Engineering. Mr. Bahr's research spans a range of materials-reliability issues, from hydrogen embrittlement to high-strain MEMS, to dislocation nucleation in metals.

Gary Cheng, PhD, Associate Professor, School of Industrial Engineering. Mr. Cheng's research is in laser materials processing and materials processing, microsystems technology and nanostructured materials in manufacturing.

Michael Sangid, PhD, Associate Professor, School of Aeronautics and Astronautics. Mr. Sangid's expertise lies at the confluence of materials science, solid mechanics, and manufacturing.

Electronics Inc. has collaborated with Purdue on the development of C-SEE and will be funding research on three projects related to shot peening. "As a Purdue alumnus, I am pleased and honored to be a part of the C-SEE program. As a manufacturer, I'm eager to have access to research on topics that have interested me for years. Finally, theory will become practice and we will be able to commercialize these ideas," said Jack Champaigne, President of Electronics Inc.

If you are interested in learning more about C-SEE, please contact David Bahr at (765) 494-4100 or dfbahr@purdue.edu.