

Grind to Form

My work begins with creating a block of layered sunlight reflective glass sheets that are used in building construction. Sheet glass is harder than crystal glass, but contains many impurities, such as ferric oxide, that result in lower light-transmission than high-grade glass as well as particular color and light attenuation. Technically, the index of refraction is 1.52, reflectivity is 4%, specific gravity is 2.5, Mohs hardness is 6.5, and the linear expansion coefficient is $8.5 \times 10^{-6}/^{\circ}\text{C}$. Sheet glass might be compared to an opaque north sea replete with plankton, while crystal glass is transparent, like a south sea.

To construct the block, I use an ultraviolet curable adhesive (UV adhesive) with 600(cPa.s) viscosity, 1.51 refractive index, and Shore 93/43 hardness. This adhesive has the tactile consistency of car oil, and it turns to the texture of soft plastic when exposed to sunlight. It is superbly transparent and suitable for bonding sheet glass surfaces. Sheet glass is regarded as a difficult to process brittle and fragile material. However, it is in fact sufficiently tractable.

Three-step Process

1) Grinding

Using an air grinder with a 4" or 6" diamond blade, I shape the glass block by hand into the desired form. Sometimes, this goes very smoothly and the glass seems to take on a shape on its own.

2) Smoothing

An even surface is achieved by removing scratches with particle size tips of varying fineness, ranging from #60, 150, 300, 500, 800, 1000 to 1500.

3) Polishing

A felt buff with cerium oxide applied is used to polish the surface. The reaction of friction and cerium oxide reduces and removes irregularities, resulting in a transparent surface.

Surface Texture

Japanese industrial products are recognized for surface texturing excellence. Some years ago, a small Japanese metal polishing company gained attention for its production of iPod cases. The beautiful gloss of the finely textured stainless steel polishing made the iPod look like minimalist sculpture.

Sculptor Constantine Brancusi, born in 1876, was the first to polish the surface of his metal

sculpture to mirror-like quality. The entire surface of his propeller shaped Bird in Space, polished to a mirror finish, reflects all its surroundings, including a distorted image of the viewer. Brancusi's work had great influence on the abstract sculpture and minimal art movements that followed.

All materials, organic and inorganic, have their particular texture. Silk, stone, iron, sculptures, paintings - all have their grain, feel, and defining texture. Rodin's sculptures, with their traces of chisel handiwork, and Van Gogh's paintings with their robust brush strokes, attest to both sculptor and painter being fully aware of and actively taking advantage of the expressive effects of surface texture.

Texture is either natural or man-made. Sculpture embraces both. Among the countless varieties of texture, we are most sensitive to what our skin or tongue touches. Though texture is closely connected with the sense of touch, in sculpture we can experience texture simply by seeing, without direct contact.

Glass Texture

Mirrors and industrial sheet glass as industrial product have no texture. A sculptor working with sheet glass or mirror cannot make use of texture, an essential element of expression.

Although natural texture exists, Rodin's sculptures could not have been accomplished without the handiwork and traces of chisel marks. Sculpture devoid of such texture only appeared in the 20 th century. As previously noted, Constantine Brancusi's bronze version of Sleeping Muse (1910) was polished, except for the head, to a mirror finish. Though it is common today, reflection in sculpture was revolutionary at the time.

Reflection

Ancient bronze Chinese and Japanese 'magic mirrors' could reflect light from a flat, untextured, surface and generate a shadow image of Buddha. The mechanism for this is a figure-shaped hollow inside the mirror that deforms the mirror surface, creating a figure-shaped deflection that generates a shadow image recognizable as Buddha.

In the case of sculpture, polishing eliminates texture from the surface, eradicating traces of the creation process. However, even with texture removed, a distortion remains that reminds viewers of the hand of the artist. Therefore we can interpret reflected light as texture, and that texture emerges through reflected images.

Transmitted Light

Even though polishing can diminish or make texture on a curved surface invisible, surface deflection will not be lost. The physical properties of glass (color, refraction) appear when transmitted light becomes invisible. In effect, transmitted light allows visualization of glass properties.

The physical properties of plate glass render its transmitted light green. Invisible surface deflection imparts the properties of color and refraction to transmitted light, giving the viewer a sense of texture. Transmitted light has no glare.

Grinding

Grinding produces shape (curved surfaces), and polishing generates texture with invisible distortion. When shape and texture are well balanced, an ordinary object becomes extraordinary - an artwork. This is the case as well for conventional sculpture.

I build and then polish a form until it is transparent. After that, I check the balance of texture and form. If necessary, I alter the form, re-polish it, and again check the balance. An artwork emerges from the repetition of this process

Photographs

I consider the photographing of my works to be an important part of the creative process. All of the photos in this catalog are my own. I have recorded my artworks in photographs since I began to work in glass. My purpose has been first of all simply to record my works on film. Another motivation is fear of losing what I have made, and I am also interested in showing the photographs to others. The main reason, however, is that I want to view my works through a lens and to see them as photo images.

I have included new photos, past photos, and revisions of past photos in this catalog. Hopefully, linking this catalog, the photos, the exhibition, and images on my internet site (<http://toshio-iezumi.jp/>) will arouse interest in the mystery of 'seeing' and 'being seen,' and serve to make this exhibition a success.

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