

# NTT-AT to provide technical cooperation for Super hydrophobic coating at Osaka Kansai Expo

## Realization of mystical water movement in private pavilion BLUE OCEAN DOME

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NTT Advanced Technology Corporation (NTT AT, Head Office: Shinjuku-ku, Tokyo, President: Tadashi Ito) has provided technical cooperation using super hydrophobic coating HIREC® for the exhibition of "water circulation" through mystical water movement in Dome A of the private pavilion BLUE OCEAN DOME, which is exhibited by NPO ZERI JAPAN at Expo 2025 Japan (Osaka Kansai Expo).

### 1. 「BLUE OCEAN DOME」

BLUE OCEAN DOME is a pavilion where visitors can enjoy learning about the concept of environmental protection, with the theme of sustainable use of marine resources and protection of marine ecosystems, in order to realize the Osaka Blue Ocean Vision, announced at the Group of 20 Osaka Summit in 2019, which aims to reduce the additional pollution caused by marine plastic waste to 0 by 2050.

This pavilion, which is based on the theme of the sea, aims to conserve and promote awareness of "sustainable use of the sea" and implement initiatives to realize the Blue Ocean Declaration.

### 2. Technical Cooperation with "HIREC"

"HIREC" contributes to the realization of a huge, dense, and clean "water" spectacle in Dome A of BLUE OCEAN DOME.

Water moves in unprecedented ways on a white board with HIREC, a super hydrophobic coating. Small clumps move like pachinko balls, but when they come together, they solidify due to surface tension, and when they flow out, they move like snakes. For this reason, the water can be manipulated in a variety of ways, creating an exhibit that invites visitors to a sense of wonder.

Unlike ordinary hydrophobic coating, NTT-AT's HIREC is extremely water-repellent, with an initial contact angle of over 150°. Water forms a sphere on the painted surface, and water drops roll off when there is a slight tilt. In addition to water, the HIREC is also effective against snow and ice accretion, so it has been used in a variety of fields, including design and art, as well as measures to prevent radio wave attenuation in antennas and to prevent accidents involving falling ice and snow in high-altitude structures. This time, the HIREC is also contributing to the realization of new expressions in the fields of design and art.



**Water drops on HIREC painted surface**

The concept and direction of the BLUE OCEAN DOME exhibition was managed by Hara Design Laboratory of the Japan Design Center, a long-standing HIREC customer.

The Dome A art piece was created by Nomena.

●**Japan Design Center, Inc.**

<https://www.ndc.co.jp/projects/blue-ocean-dome/>

●**Nomena, Inc.**

<https://nomena.co.jp/project/expo2025-blue-ocean-dome/>

**[Reference: Super hydrophobic coating, HIREC]**

While general fluororesin coatings have a water contact angle of about 100 degrees, which indicates excellent water repellency, HIREC has an excellent initial contact angle of more than 150 degrees. As a result, the surface coated with HIREC does not absorb water and get wet i.e., water film does not easily form.

When water is placed on a surface coated with HIREC, the surface tension causes the water to form globular lumps and behave in a mysterious way that is slightly different from that of water placed on the surface of a general material. This characteristic is used to create new ideas in the field of art and sculpture.

HIREC is effective not only for water landing but also for preventing ice and snow accretion. In addition to art and sculpture, HIREC is used in a wide range of fields such as antennas and radars, bridges and towers, wind power generation, and railways for the safety and maintenance of equipment because of its self-cleaning function.

●**Detailed Information on Super hydrophobic coating HIREC**

<https://keytech.ntt-at.com/environ/prd4001.html>