Outdoor Exposure Site

●Outline

Many kinds of building materials and components are used for buildings, and so their durability is one of the most important characteristics, as well as the safeties and comfortableness. Also, from a view of ecology conscious, to use materials with high durability leads to low energy consumption and less industrial garbage, and these also can explain the importance of durability.

This Outdoor Exposure Site was made in 1975, and this site is one of the finest research facilities for the studies on construction parts and materials, all over the world.

In this institute, the researches on the durability of construction parts and materials cover from the simple material to the combined materials and parts, furthermore to their durability for being used practically under real environmental conditions.

For the test method, we adopt “Outdoor Exposure Test”, and “Accelerated Exposure Test”. This site equips the facilities and machines to conduct these kinds of tests. Here, we carefully observe the degradation process and weather conditions, concretely, temperature, humidity, wind and its strength, rainfall, and insolation. Then relations of these two are probed.

① Location : 36° 7’ 50” N
140° 4’ 23” E
29m above sea level

② Climate Condition (2014)
Maximum temp. 36.2
(August 2)
Minimum temp. − 7.7
(February 5)
Annum rainfall 1,620 mm

③Site scale

Area approximately
10,000 ㎡
Material Exposure Area
2,000 ㎡
Parts Exposure Area
2,000 ㎡
Structure Exposure Area
2,000 ㎡
Special Exposure Area
2,000 ㎡
Control Room
320 ㎡

■Weather Factor Measurement

We can count many degrader factors which bring out the degradation of material's durability. Among them, weather factors weigh much, therefore to grasp them accurately is very important. To measure these factors, control room can accumulate the data concentrically, and we also use the remote measuring system to save us much task.

We adopt and manage the data gained in these measurements as the weather factors after making reference to those of gained in meteorological office to prove they are not inadequate. And we also manage the thermo-data and others of materials under Outdoor Exposure Test, for the quantification of degrader factors on the material's or parts' durability.

■Specimens

In this Outdoor Exposure Site, many kinds of metals, paints, waterproofing materials are tested and measured. The photos below are

some of them. We research the durability of Light-weight-concrete with some kinds of Lighter Aggregate, in terms of Long-term-strength and Neutrality etc. Also, with north side wall under shed, where is said to be stern for metals, we conduct the Outdoor Exposure Test of coated metals, parallel with same metals being exposed in normal conditions to be compared.

Outdoor Exposure Test of
“Light-weight-concrete”: begun in 1969

Outdoor Exposure Test of coated metals:
begun in 1989