

Creep Test Laboratory

● Outline

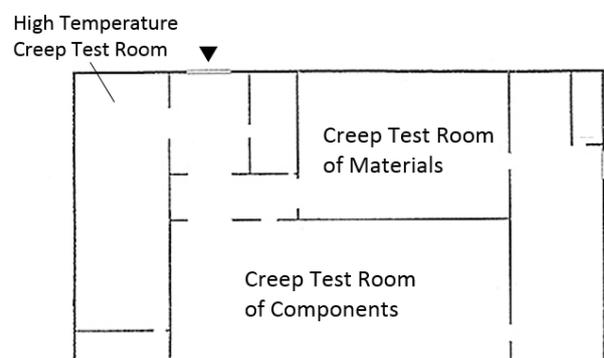
Building materials such as a concrete and timber deform permanently under the mechanical stresses. Deformation of these materials occurs as a result of long-term exposure to high levels of stress. These deformations are called Creep Deformation. Beams and floors of building structures are designed preventing these creep deformations. Creep coefficient of the materials is used to predict creep deformations of them. Measured creep deformations of the materials in the laboratory are used to evaluate creep coefficients.

Creep deformation makes micro failures in the materials, and might result to cause failure of these materials; these failures are called Creep failure. Allowable design stress of structural materials is evaluated considering duration of load turn out creep failures.

Purpose of creep test laboratory is to reproduce these creep phenomena of the materials. Creep phenomena are affected by temperature for long periods. Preventing temperature effect for the creep of materials, creep test laboratory has constant temperature- and humidity- controlled test rooms. Temperatures and humidity of the test rooms are controlled in 20 degree Celsius and 65 percent RH.



Exterior of Creep Test Laboratory



Layout of the laboratory

● Creep Test Room of Components

Creep test room of components is used for the creep test of real size building beams and columns. Creep bending tests using timber beams and creep compression tests using concrete columns are conducted in the room.



Creep Bending Test of CLT Components
(Up: Creep Deformation, Lo: Creep Failure)



Creep Compression Test of High
Strength Concrete Columns

● Creep Test Room of Materials

Creep test room of materials is used for the creep test using small specimens of building materials. Long term creep test are applied for samples removed from buildings.



Creep Compression Test of Cylindrical
Concrete Specimens



Creep Test of Timber Joints