

5. Creep of Reinforced Concrete Columns using 100N/mm² High- Strength Concrete to Construction Load

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In order to identify the creep of 100-N/mm² concrete in an actual building, strain was measured in the building over a long time and laboratory creep tests were conducted. Then the creep and longitudinal strain of columns were examined during the construction of the frame. As a result of the creep tests, it was found that loading at an axial force ratio of 0.20 at an age of 28 days resulted in a creep coefficient of 0.49 at an age of two years (730 days) and an ultimate creep coefficient of 0.59. The creep coefficient obtained in the laboratory tests was corrected in a column cross section of the actual building and an estimated strain was obtained by adding creep to elastic strain generated each time a frame was constructed. The estimated strain was in good agreement with the measured strain in the actual building. Then, it was confirmed that the proposed method could enable the estimation of changes in longitudinal strain with the increase of construction loads.

Key words : high-strength concrete, creep, construction load