[ABSTRACT]

An evaluation device acquires various physical property values of concrete needed to evaluate thermal cracking risk, using concrete made of the same material as that used in the field. The device includes a strength test unit with a plurality of first cylindrical molds, an unconfined test unit with a bottomed first rectangular frame, and a confined test unit with a bottomed second rectangular frame whose longitudinal ends are restrained by a confining steel member having a thermal expansion coefficient of less than 1×10^{-6}/°C. A heat-insulated storage container covers these test units, and a thermometer measures temperature changes inside the container. The unconfined test unit has a first strain sensor disposed within the first rectangular frame, and the confined test unit has a second strain sensor disposed on the confining steel member, enabling detailed evaluation of concrete behavior under unconfined and restrained conditions.