**An Experiment to evaluate of Shrinkage deformation of reinforced concrete structures in hot and dry climates in Central Vietnam**

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**Abstract.** The foehn phenomenon refers to the fact that the wind after crossing the mountain becomes dry and hot. In Vietnam, the foehn phenomenon in the southwest monsoon season is often called the hot dry southwest wind. The wind is dry and hot, making the climates of the aforementioned regions harsh. Humidity sometimes drops to 30% while the temperature sometimes reaches 45°C. With the sunny sky, the wind blows evenly like a fan of fire, so the plants wither, the ponds and lakes are exhausted, people and livestock are suffocated, it is easy to cause fires. This property greatly affects the shrinkage of concrete, especially during the initial forming stage. An experiment to measure concrete shrinkage strain was carried out at the laboratory of Department of Civil Engineering, Vinh University. The purpose of this paper is present an experimental study to evaluate the concrete shrinkage deformation under the influence of the foehn wind in Central Vietnam. This test was performed to measure concrete shrinkage strain under conditions at high air temperature (approximately 40 degrees Celsius). This high temperature is intended to simulate the phenomenon of foehn wind and climate change. An experiment was carried out at the laboratory of Vinh University, 570 days, with 12 test samples, using a measuring device, C363 KIT. The obtained data set has been tested and reflected highly accurately and reliably. The research results have reflected that the concrete shrinkage strain in foehn wind conditions has many differences compared to normal conditions, showing in both strain value and strain growth process. This study is the basis to evaluate the shrinkage strain of reinforced concrete in hot dry climate and from there to make predictions for the design of works.

**Keywords:** Experimental, shrinkage; concrete, foehn wind, climate changes