High-performance concrete (HPC) offers several benefits over normal-strength concrete. A greater understanding of HPC behavior under different weather conditions should improve the confidence in its uses. Mechanical properties of concrete are adversely affected by hot weather. Hot weather affects internal structure of the concrete such as pore structure and microcracking due to thermal incompatibility of the ingredients of the concrete. Durability of concrete is affected more than its strength due to hot weather. There is limited information about summer weather use of high-performance concrete. Therefore, this research was directed towards evaluating the effects of laboratory simulated hot weather conditions on strength and durability of HPC for placement during summer construction. Properties such as strength, permeability, resistance to chloride-ion penetration, sulfate attack, alkali-silica reaction, etc. for high-performance concrete having 28-day strength of 80 to 100 MPa are reported in this paper. This paper consists of current state-of-the-knowledge along with recent research conducted at the University of Wisconsin-Milwaukee Center for By-Products Utilization (UWM-CBU).

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