
# Weatherwise

08.07.2025

# Warm Weather Concrete Guidelines

Hot weather (ambient temperature greater than 90º & concrete temperature greater than 77º) can significantly impact concrete placement and finishing, posing risks to both quality and performance if not properly managed. Conditions such as high temperatures, high and low humidity, strong winds, and intense sunlight can lead to rapid moisture loss, accelerated setting times, and increased potential for plastic shrinkage cracking. These factors make it essential to take proactive measures before, during, and after concrete placement. With the right planning, materials handling, and curing practices, concrete can still be placed successfully, even in demanding hot weather conditions. Always follow your Contractor's submitted Hot Weather Concrete Plan as per ACI 305R.

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- ❒ Obtain your contractor's Hot Weather Procedures discussed in the concrete pre-installation meeting and follow procedures.
- ❒ **Make sure that the hot weather concrete mix design has been reviewed by the structural engineer of record.**
- ❒ **Provide sufficient labor to minimize the time required to place and finish the concrete*, as hot weather conditions substantially shorten the times to initial and final set.***
- ❒ Consider adjusting the time of concrete installation to take advantage of cooler temperatures, such as early morning or night time placement.
- ❒ Store rebar and embed material in a cool, shaded area.
- ❒ Cool aggregates and use ice when appropriate in mixing thew concrete to lower initial temperature. Make sure that the water amount is included in the overall w/c ratio.
- ❒ Monitor and record air temperature, surface temperature, wind speed, and relative humidity.
- ❒ Moisten sub-grade, steel reinforcement, and formwork before concrete placement. Damp, no standing water.
- ❒ Minimize time between placement and finishing to reduce surface drying.
- ❒ Provide appropriate curing methods as soon as possible after the concrete finishing processes have been completed. Moist curing is best for slabs to have topping slabs, flooring, coatings, or roofing installed.
- ❒ Erect temporary windbreaks to limit wind and sunshades to reduce concrete surface temperatures.
- ❒ Consider fogging the area above the concrete placement to raise the relative humidity and satisfy moisture demand of the ambient air

## Typical Problems seen with hot weather concrete placement

- ❒ Increased concrete temperature
- ❒ Increased rate of slump loss
- ❒ Increased water demand
- ❒ Increased rate of setting, making it difficult to handle, properly vibrate, and finish the concrete at the correct time
- ❒ Increased tendency for plastic shrinkage cracking during the setting
- ❒ Increased difficulty in controlling entrained air content, making finsih ing the concrete harder and potentially

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