6 Tips for Pouring Concrete in the Summer Heat

Keeping your concrete strong when the heat is on in the Comox Valley

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What counts as hot weather?

Wondering when you should start thinking about what temperature is too hot to pour concrete? If the thermometer hits 27 °C or higher—or it looks like it will during your pour—you're dealing with hot weather, according to CSA A23.1-7.1.1. But it's not just about the temperature. Low humidity, strong winds, and blazing sun can push concrete into hot weather conditions even if the air doesn't feel scorching.

Why does hot weather matter on the job site?

Pouring concrete when it’s hot out needs special consideration. Here’s what you might run into:

- Concrete needs more water to stay workable
- Slump drops fast, so you must move quickly
- It sets up faster, making placement and finishing a real race against the clock
- More risk of surface cracks before it hardens
- Higher mix temperatures can mean weaker finished concrete
- Greater chance of thermal cracks (plastic shrinkage cracks) as concrete cools down after placement

Temperature rules to know

For most Canadian projects, including those under MTO or BC standards, your ready-mix should leave the truck at anywhere between 10 °C and 28 °C. Special mixes like high-performance concrete or silica fume overlays need to be between 10 °C and 25 °C. If the air is hotter than 28 °C and the concrete is above 25 °C, you have to get it down and finished

within an hour after adding water. CSA based projects and specifications: CSA A23.1-8.5.5 states that the maximum concrete temperature at delivery shall be specified when the owner requires a delivery temperature lower than the values given in Table 14.

Table 14
Permissible concrete temperatures at placing
(See Clauses 5.2.5.4.1, 7.2.2.1, 7.5.1.3, 7.6.3.2.3, and 8.5.5.)

	Temperatures, °C	
Thickness of section, m	**Minimum**	**Maximum**
< 0.3	10	32
≥ 0.3 – < 1	10	30
≥ 1 – < 2	5	25
≥ 2	5	20

Notes:

1) *In no case shall the placing temperature for high-performance concrete exceed 25 °C.*
2) *The placing temperature should be kept as close as possible to the suggested minimum temperatures shown in this Table. Higher temperatures result in an increase of mixing water, increased slump loss, and an increase in thermal shrinkage.*
3) *Some non-chloride, noncorrosive accelerators conforming to ASTM C494/C494M, Type C and E, have been found to accelerate setting and strength gain at ambient temperatures of 5 °C and below. When adequate information pertaining to past performance records is available, concrete containing non-chloride, noncorrosive accelerators may be placed at ambient temperatures as low as –5 °C. Test panels/placements and compressive strength cylinders should be made to verify that the setting time and early strength gain characteristics of the proposed mix design are satisfactory to the contractor. Cement characteristics and initial concrete temperature will have a significant impact on setting and early strength gain.*
4) *Additional information on cold weather admixtures and concreting can be found in ACI 306R.*
5) *When the temperature of concrete as placed is consistently above 25 °C, consideration should be given to the use of a suitable set-retarding admixture.*
6) *Higher concrete temperatures result in a faster set times, increased rate of slump loss, a reduction in surface plasticity, a higher water demand, lower ultimate strengths, and an increase in drying shrinkage.*
7) *Additional information on hot weather can be found in ACI 305R.*

Minimize hot weather challenges – 6 tips

Here are some straightforward ways to keep your pour on track when the heat cranks up:

1. Dampen the substrate and form work with cool water prior to concrete placement
2. Ask for superplasticizer and order a higher slump so you can move and place faster.
3. Think about using retarder or supplementary cementing materials if you need more time for finishing, especially for flatwork.
4. Plan pours for early morning or late afternoon when it’s cooler.

5. Make sure you've got enough crew on hand to handle every step—placing, finishing, and curing—all at once if needed.
6. Be ready to cure right away to keep moisture in and stop cracks from forming.

Quick Tip: On hot days, try to get your concrete in before the sun gets too high. The earlier, the better. Hyland is ready to deliver early in the morning on hot days.

If it's regularly topping 25 °C during your pour, you might need to use ice or cool water in the mix to keep temperatures in check. It takes extra planning and can add to the cost, but it's the best way to make sure your concrete meets specs and lasts over time.

Need help?

Hot weather pours need solid planning and quick action. If you want advice specific to your site or project, talk to your Hyland Precast Inc. Concrete Sales Rep, at 250-336-2412 or check out the latest CSA resources.

More info:

- CSA Standards (https://www.csagroup.org/store/product/A23.1-14-A23.2-14/) for pouring Hot Weather Concrete.
- Hyland Ready Mix Concrete FAQ