



Continental Cement

What Does Additional Water Do To Concrete?

Concrete delivered to projects generally has a slump of 3-5 inches. If the driver adds water at the job site:

- It will reduce the durability and strength of the concrete.
- It will increase setting times at moderate temperatures.
- It will increase the cracking potential of the concrete due to shrinkage!

Think **BEFORE ADDING MORE WATER TO CONCRETE**

IF ONLY ONE GALLON OF WATER IS ADDED TO A TYPICAL CUBIC YARD OF 3000 PSI CONCRETE MIX

The slump increases about one inch.

The compressive strength is reduced by as much as 200 psi.

The effect of about 1/4 bag of cement is lost.

The potential for shrinkage (cracking) increases.

The possibility of moisture penetration through the concrete increases.

The freeze-thaw resistance is reduced.

The resistance to attack by deicing salt and fertilizer decreases.

The possibility of scaling increases.

WATER ADDED:	SLUMP INCREASE:	STRENGTH REDUCTION:	
GALLONS PER CUBIC YARD	INCHES (APPROX.)	IN PSI	IN %
1	1	200	7
2	2	400	13
3	3	600	20
4	4	800	27
5	5	1000	33
6	6	1200	40

WE RECOMMEND THAT THE CUSTOMER ASSUME RESPONSIBILITY FOR WATER ADDED AT THE JOB SITE



MISCELLANEOUS CONCRETE TIDBITS...

HOT WEATHER

A 20°F increase in concrete temperature can reduce setting times by 2 hrs. or more.

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A 20°F increase in concrete temperature can reduce slump 1 - 1½ inches.

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As a general rule, an increase of 1.5°F in aggregate temperature will increase concrete temperature about 1°F.

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As a general rule, a 10°F increase in cement temperature will increase concrete temperature about 1°F.

COLD WEATHER

Setting times increase about 33% for each 10°F drop in concrete temperature.

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2 gallons of additional water per cubic yard can increase setting times up to 1 hr.

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As a general rule, a 5°F increase in water temperature will increase concrete temperature by 1°F.

CYLINDERS

You can expect up to 61% strength loss for insufficient consolidation.

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You can expect a 26% strength loss for cylinders left in the field for 7 days exposed to warm temp.

MIXING

70-100 revolutions (at mixing speed) is essential to produce high quality ready mixed concrete. An additional 30 revolutions is required if water is added at the job site.

REMINDER

CURING & AIR ENTRAINMENT are critical factors in producing durable concrete that will withstand the freeze-thaw cycles experienced in the Midwest.