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Primary Issue Affecting Concrete Quality

A low **water to cement ratio** is the number one issue effecting concrete quality.

The ratio is calculated by dividing the water in one cubic yard of the mix (in pounds) by the cement in the in the mix (in pounds). So if one cubic yard of the mix has 235 pounds of water and 470 pounds of cement- the mix is a .50 water to cement ratio.

If the mix lists the water in gallons, multiply the gallons by 8.33 to find how many pounds there are in the mix.

Low water cement ratio impacts all the desired qualities of hardened concrete listed in desired properties of concrete.

Use a maximum .50 water to cement ratio when concrete is exposed to **freezing and thawing** in a moist condition or to **deicing chemicals** per the 1997 Uniform Building Code. (Table 19-A-2)

Use a maximum .45 water to cement ratio for concrete with severe or very severe sulfate conditions per the 1997 Uniform Building Code (Table 19-A-4)

Water permeability increases exponentially when concrete has a water cement ratio greater than .50.

Durability increases the less permeable the concrete mix is.

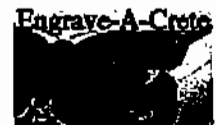
Strength improves with lower water cement ratios. A .45 water cement ratio most likely will hit 4500 psi (pounds per square inch) or greater. A .50 water cement ratio will likely reach 4000 psi or greater.

For complete Uniform Building Code information regarding concrete construction, review with your architect, your ready mix supplier, or at your local library.

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