



YouTube capping gypsum

Gypsum Capping

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Grinding Machine



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Abstract

In Concrete Compressive Strength test, using a grinding machine is a very common and standard surface treatment method. However, the initial investment is substantially high and must be properly maintained otherwise the surface will become uneven.

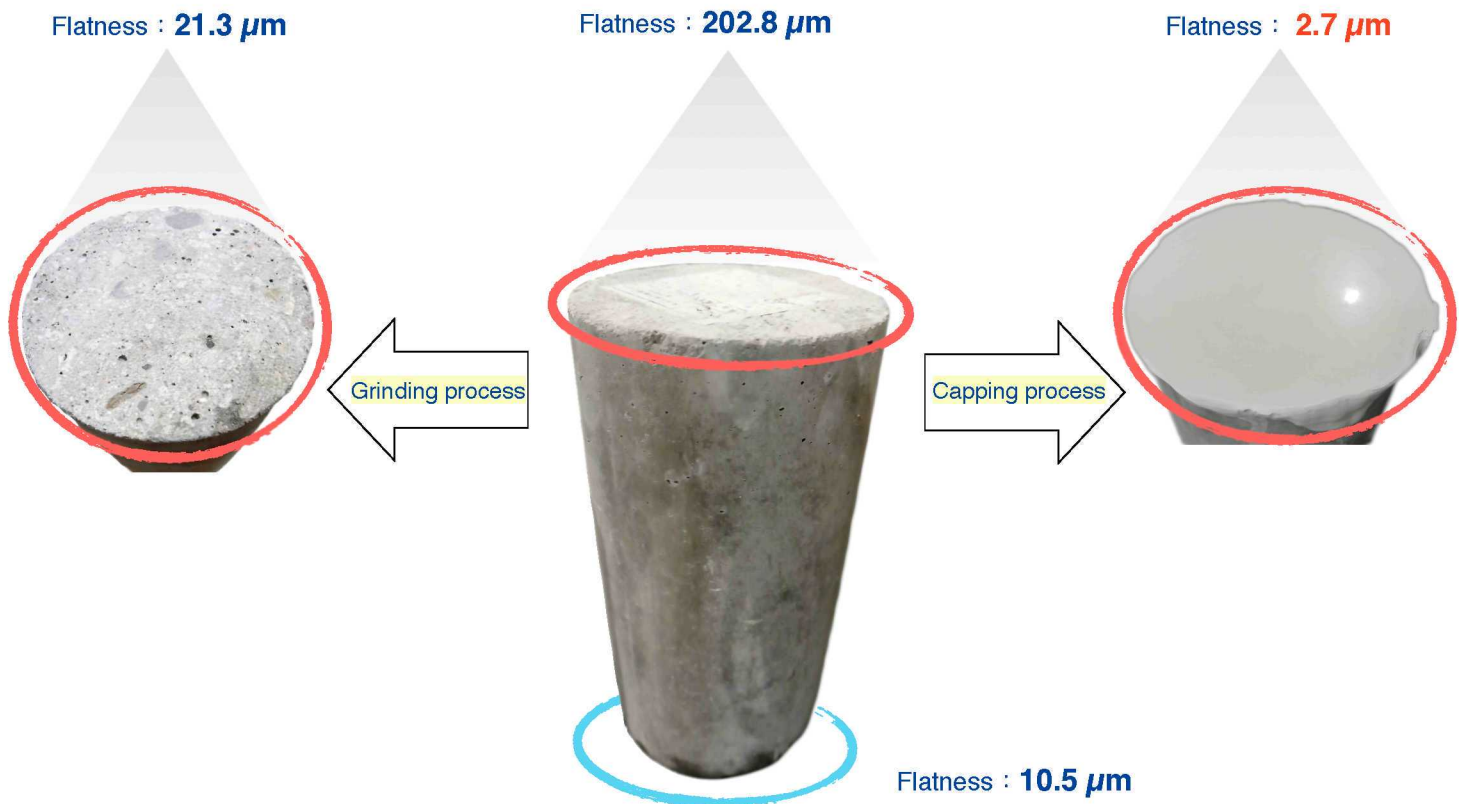
The alternative and better option is "High Strength Gypsum", which also comes from ASTM C617 providing excellent end condition with outstanding flatness. The gypsum strength could reach 9000 psi within 40 min. The operator could process 10 ~ 15 concrete specimens in one time without any other equipment investment.

The following "Capping Gypsum" is a better choice for the compressive strength test.

1. Surface Flatness
2. Pressure Uniformity
3. Sample Applicability
4. Retainable Tag

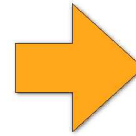
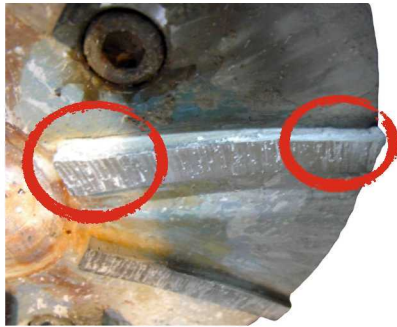
Surface Flatness

- Gypsum Capping method shows the better flatness after capping⁽¹⁾.
- Grinding method merely shows similar flatness to the bottom end⁽¹⁾.



(1)Yen-kuei Chang., 2007, "The investigation of the compressive stress deviation of concrete cylinders under different capping methods using the pressure sensitive films." p74-97

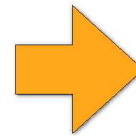
Why Different Flatness



Flatness : 21.3 μm



The concrete surface is treated by the grinding knife. It is difficult to get a completely smooth surface. Without the periodic maintenance, the knife has a high possibility to be damaged causing a poor end surface.



Flatness : 2.7 μm

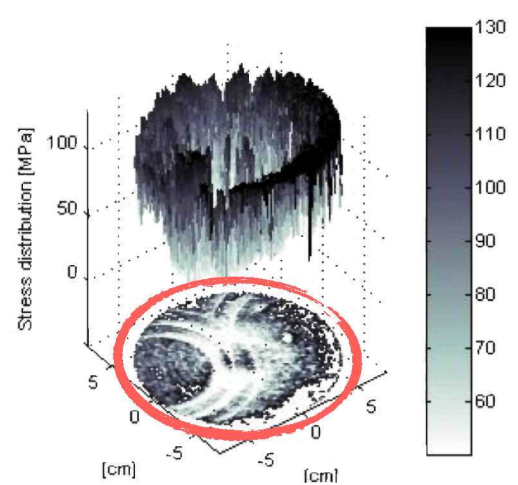
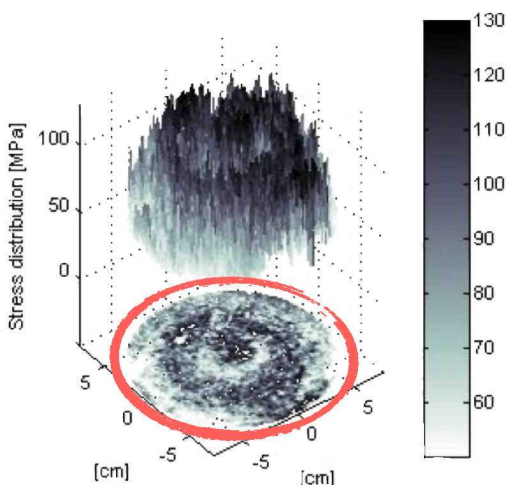


The completely smooth surface comes from the flowing gypsum slurry and thick glass plate. After being covered by the glass, the gypsum surface will be flat just like glass similar to a mirror.

Pressure Uniformity pressure distribution diagram

Below pressure simulation diagram is tested by pressure-sensitive paper. It shows the pressure distribution on the concrete cylinder surface after the Gypsum Capping and Grinding Machine treatment (1)

- Gypsum Capping pressure uniformity: It provides a perfect load transformation.
- Grinding pressure uniformity: It shows an obvious knife pattern. Knife condition could impact the performance.



(1)Yen-kuei Chang., 2007, "The investigation of the compressive stress deviation of concrete cylinders under different capping methods using the pressure sensitive films." p74-97

