

When Structural Concrete is Architectural Concrete

Kevin A. MacDonald, Ph.D., P.E, FACI Beton Consulting Engineers





Definitions

- Architectural concrete : Concrete that will be permanently exposed to view And therefore requires special care in selection of the concrete materials, forming, placing, and finishing to obtain the desired architectural appearance.
- Structural concrete: Plain or Reinforced concrete in a member that is part of a structural system required to transfer gravity loads, lateral loads or both along a path to the ground.

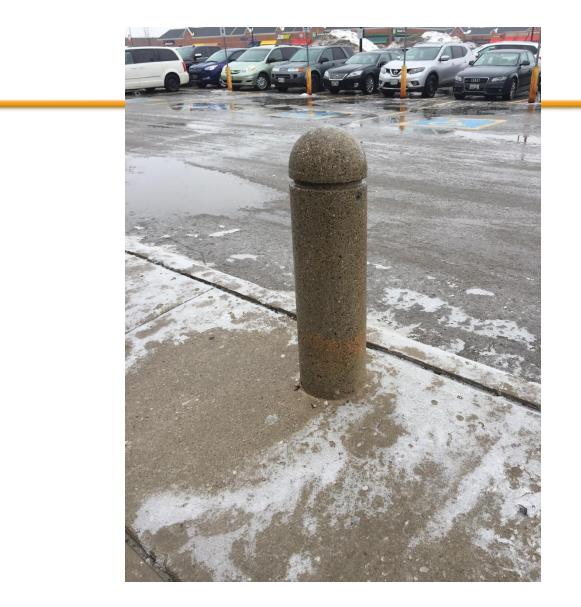








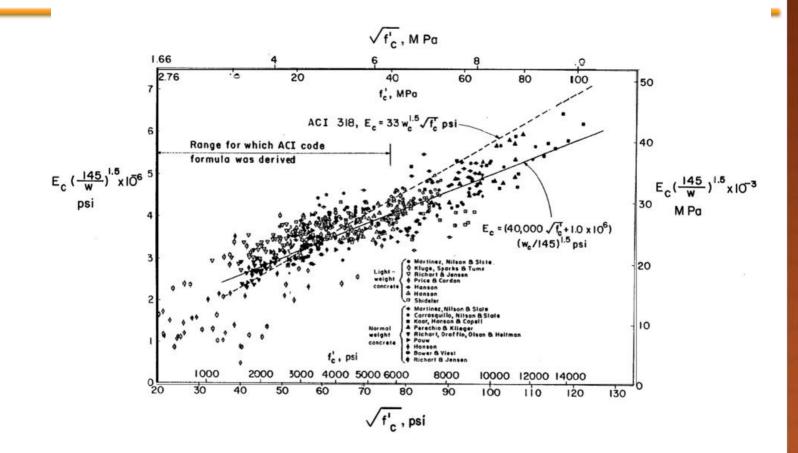
















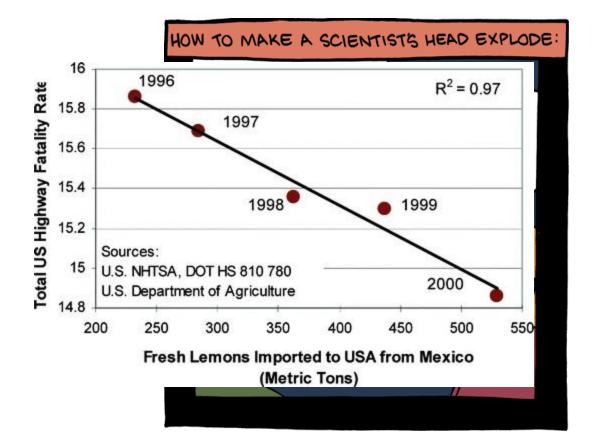


Ward Malisch -

- "There is often a major gap between expectations expressed in specifications and the contractor's ability to economically meet those expectations"
- Ambiguous Language -
- Unacheivable Tolerances (1.000 yd³ yield)
- Anecdotal Justifications



The Plural of Anecdote is not data





Failures

• A failure occurs for only 2 reasons:

- The contractor did not follow the specification, or
- The specification was in error

Bryant Mather





















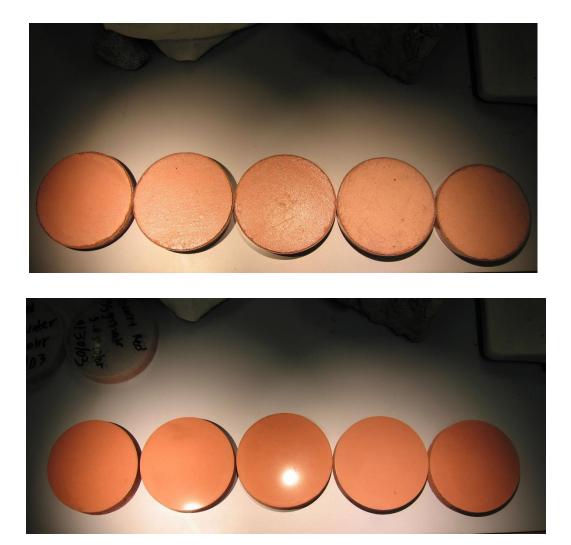








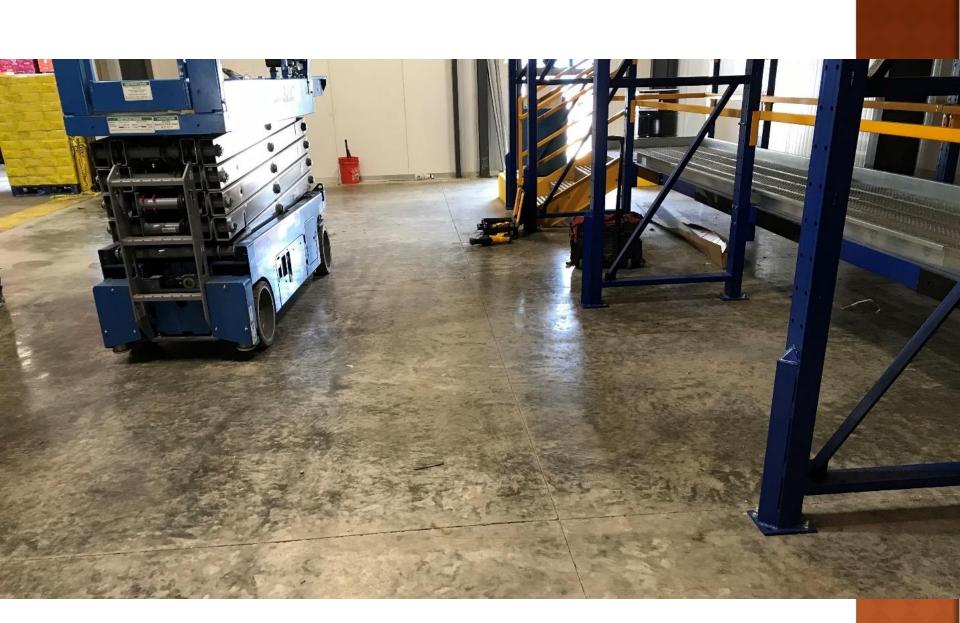




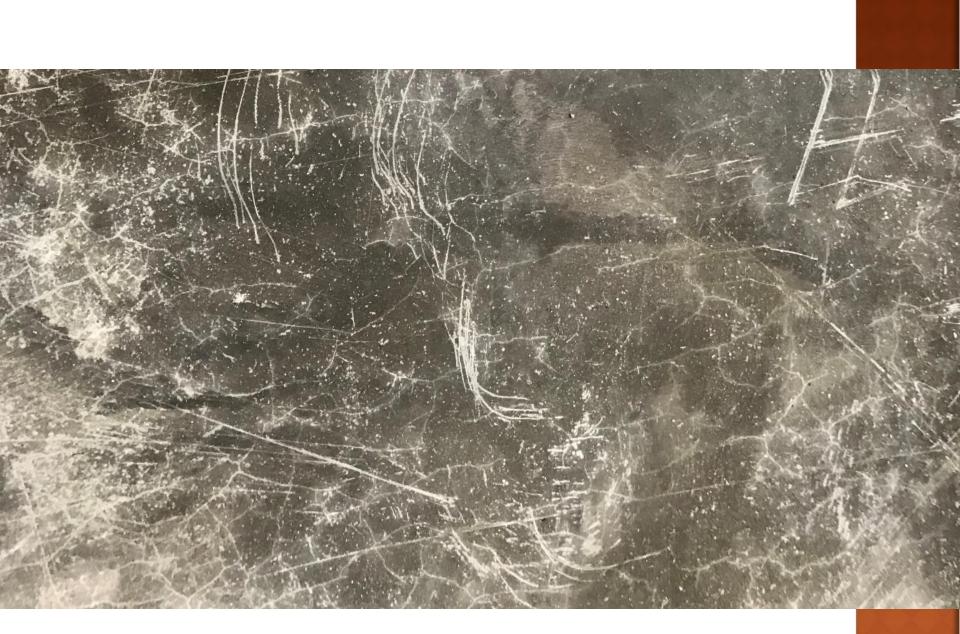


























CONCRETE POLISHING COUNCIL POLISHED CONCRETE APPEARANCE CHART

REPLACES CPAA FINISHED GLOSS CHART

	LEVEL	NAME	DISTINCTNESS-OF-IMAGE (DOI) GLOSS	IMAGE CLARITY VALUE, %	HAZE INDEX
	1	Flat (Ground)	Images of objects being reflected have a flat appearance.	0 – 9	<10
	2	Satin (Honed)	Images of objects being reflected have a matte appearance.	10 – 39	
	3	Polished	Images of objects being reflected do not have a sharp and crisp appearance but can be easily identified.	40 – 69	
	4	Highly Polished	Images of objects being reflected have a sharp and crisp appearance as would be seen in a near-mirror like reflection. May require grouting.	70 – 100	

Distinctness-of-Image (DOI) Gloss

- DOI is the sharpness of images of objects produced by reflection at a polished surface, sometimes called image clarity.
- Measurement by Image Clarity Meter (ASTM D5767): The DOI, Image Clarity Value, obtained from this test method, range from 0 to 100 with a value of 100 representing perfect DOI (image clarity).

Haze

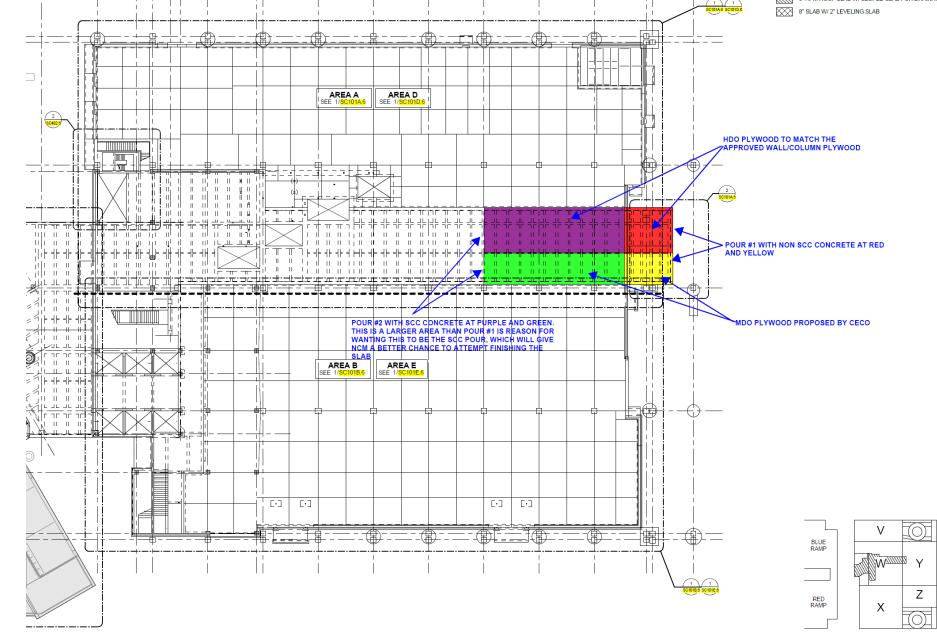
- Haze is the cloudiness or milky appearance of images of objects produced by reflection in a polished surface.
- Measurement by Glossmeter (ASTM D4039): The Haze Index, obtained from this test method, is computed using the numeric difference between the value of specular gloss at 60° and the value of specular gloss at 20°.
- Measurements for Compliance
- The Image Clarity Meter and Glossmeter must be calibrated and used in accordance with ASTM D5767 and ASTM D4039.
- The minimum number of tests distributed across the polished surface should be three for areas up to 1000 ft² and one additional test for each 1000 ft² or fraction thereof. This applies to both the Image Clarity Value and Haze Index.
- The mean (average) values of the test results should be used to evaluate compliance with this chart.

Contact your Concrete Polishing Council (CPC) contractor or the CPC Hotline at (844) 923-4678 or by email at cpchotline@ascconline.org with any questions.

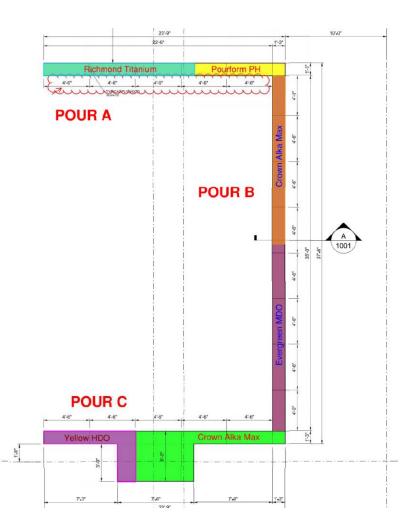
PCAC - 11.17

AMERICAN SOCIETY OF CONCRETE CONTRACTORS





















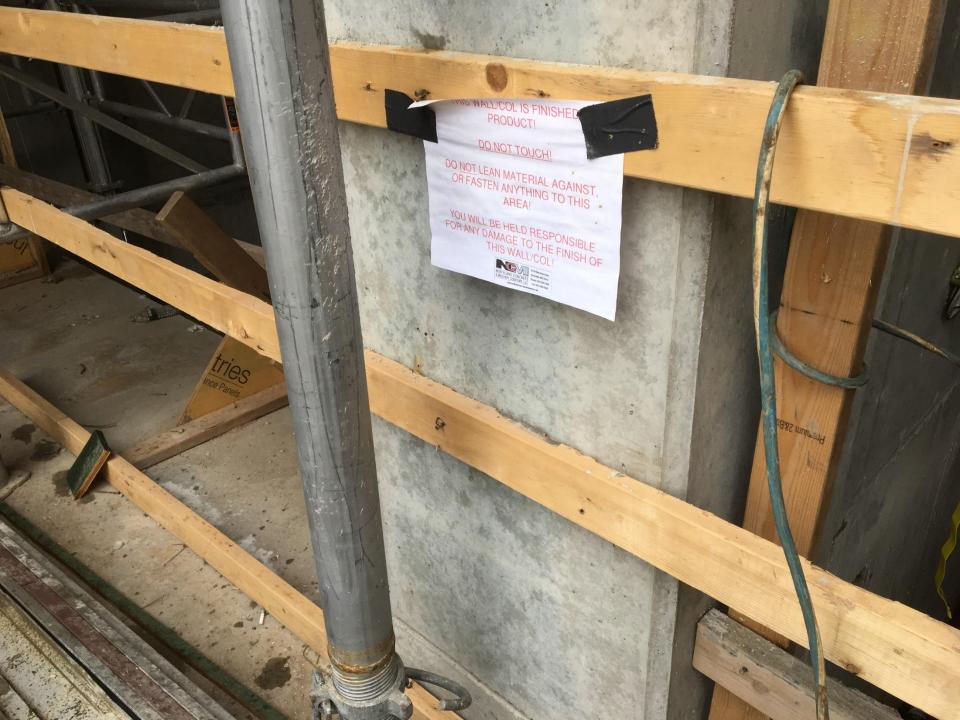


















Thank You

