

P2P Benefits and Specifier Feedback

Developing Industry Leaders
Monday, March 9, 2017



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The P2P Initiative

The P2P Initiative focuses on performance of concrete rather than limiting the producer to a prescriptive specification that may not produce the desired result. Prescriptive specifications are found in every area of the country and often are more restrictive than the ACI 318 Building code.



Example of Prescriptive Specification

TABLE 1.1.1 - PRESCRIPTIVE SPECIFICATIONS AND LIMITATIONS OF MIXTURES

1.1.1.1 - Maximum Percent of SCM's

Material	Maximum Percent of Total Cementitious Materials by Weight
Fly Ash or other pozzolan conforming to ASTM C618 20	20



Target Prescriptive Mix

Prescriptive mix required 700 lbs. min total cementitious per yard.

Mix required 560 lbs. minimum cement content per yard.

Mix required a water cement ratio of 0.38 Maximum

Additionally the following limitations were placed on the percentage of allowable SCM's:



SCM Limitations

The exposure class of the prescriptive mix was defined as F3, P1, C2 and the specifier placed the following limitations on SCM's:

Cementitious Material	Maximum Percent of Total Cementitious Materials by Weight
Fly Ash or other pozzolan Conforming to ASTM C618 20	20



SCM Limitations

Cementitious Material	Maximum Percent of Total Cementitious Materials by Weight
Ground Granulated Blast Furnace Slag conforming to ASTM C989, Grade 100 or higher	30
Total of all Fly Ash, Ground Granulated Blast Furnace Slag and Other Pozzolans	35



ACI 318 Table 4.4.2 SCM Limitations

- Fly Ash or other Pozzolans Conforming to ASTM C618 - 25 Percent
- Ground Granulated Blast Furnace Slag conforming to ASTM C989 – 50 Percent
- Silica Fume conforming to ASTM C1240 – 10 Percent
- Total of Fly Ash, Other Pozzolans, Slag and Silica Fume – 50 Percent



P2P Strategy

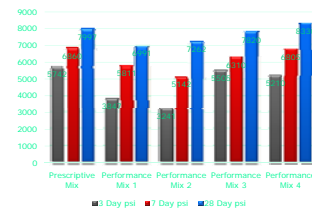
Prescriptive Control Mix

VS.

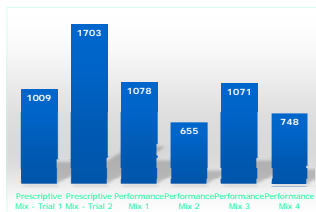
Several Performance Mixtures



Results – Compressive Strength



Results – Rapid Chloride Permeability



Conclusion of Trials

- Performance Mixes were more economical.
- Performance mixes were comparable in compressive strength and still exceed project requirements.
- Performance mixes in some cases provided much lower permeability indicating better durability.



Engaging the Specifiers

1. Do your specifications currently include prescriptive mixes?
2. If yes, are those prescriptive mixes more restrictive than the requirements found in ACI 318?
3. What is the reason for your specification being more restrictive than the ACI 318 requirements?



Engaging the Specifiers

4. Would you be willing to discuss a set of known values with ready-mix producers regarding durability/performance that would allow the producer to meet those requirements regardless of the mix design constituents provided they meet the minimum requirements of ACI 318?
5. What are your biggest concerns for allowing the use of a performance specification?



Questions?

