

Standard Guidelines for Product Review  
**PCC Patching; Section 02010.10**  
February 14, 2011

DEPARTMENT OF  
TRANSPORTATION

Construction Section  
800 Airport Road  
Salem, OR 97301-4798  
503/986-3059

**02010.10 – PCC Patching**

PCC Patching is for specialized projects where we are looking for a material that can be used on full depth concrete repairs and is traffic bearing in just over 3 to 24 hours. These products are generally cementitious. These are specialty materials, for quick setting.

- Products incorporating metallic particles will not be allowed.
- Products including magnesium phosphates or added gypsum will not be allowed on any new submittals. There are concerns that products incorporating magnesium phosphates will not be compatible with future surface toppings and could have reduced freeze thaw performance.

There are three separate categories, all of them are exterior applications:

1. Horizontal – Rapid
2. Horizontal – Very Rapid
3. Vertical.

Process - Submit the following:

- [Preliminary Information for Product Evaluation Form](#).
- Independent Test Results showing compliance with Specs listed below.
- Legible copy of the MSDS.
- Spec Data Sheet.
- Detailed installation instructions.
- List of Limitations and Precautions.
- Complete the PCC Patching Repair Questionnaire.
- Furnish a statement certifying “Cosmetic” or “Structural” suitability.

Specifications - We require PCC Patching Materials to comply with the following:

1. COMPRESSIVE STRENGTH

- ASTM C-39, (AASHTO T-22), Using 4”x 8” cylinders when possible.  
For aggregates 3/8” and larger.
- ASTM C-109, (AASHTO T-106), Using 2” cubes.  
For aggregates smaller than 3/8”.

	<u>Cure Time</u>	<u>Compressive Strength</u>
<b>Rapid Hardening</b>	24 Hours	3000 psi
	28 Days	4500 psi
<b>Very-Rapid Hardening</b>	3 Hours	3000 psi
	28 Days	4500 psi
<b>Vertical</b>	28 Days	4000 psi

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2. LENGTH CHANGE – ASTM C928  
Requirements are the same for all 3 types of PCC Patches  
Maximum allowable increase, after 28 days in water, based on length at 3 hrs: +0.15%  
Maximum allowable decrease, after 28 days in air, based on length at 3 hrs: -0.15%.
3. SET TIME - Manufacturer's recommendations for actual working time @ 70 degrees F.  
Rapid Set: 20 to 30 minutes;  
Very Rapid Set: 10 to 30 minutes  
Vertical: 10 to 30 minutes.
4. CHLORIDE CONTENT AASHTO T 260 (Not needed for epoxy based products)  
Requirements are the same for all 3 types of PCC Patches  
Maximum 0.1% by weight.
5. Structural Submittals only - MODULUS OF ELASTICITY – ASTM C469, minimum 4,000 KSI (4,000,000 PSI).
6. Only cementitious based products certified by the manufacturer as suitable for structural applications will be listed as such. Epoxies, urethanes, polyesters, or other types will not be considered for structural applications.

For cementitious products, verify:

- Shrinkage Strain (R<C)
- Creep Coefficient (for repairs in compression R<C)
- Creep Coefficient (for repairs in tension R>C)
- Thermal Expansion Coefficient (R=C)
- Modulus of Elasticity (R=C)
- Poisson's Ratio (R=C)
- Tensile Strength (R>C)
- Fatigue Performance (R>C)
- Adhesion (R>C)
- Porosity and Resistivity (R=C)
- Chemical Reactivity (R<C)

Where: R = the Patching Material  
C = Concrete

**Submit documentation to:**

Oregon DOT – Materials Lab  
Product Evaluation Coordinator  
800 Airport Road SE  
Salem OR 97301-4798  
503-986-3059

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/QPIndex.shtml>