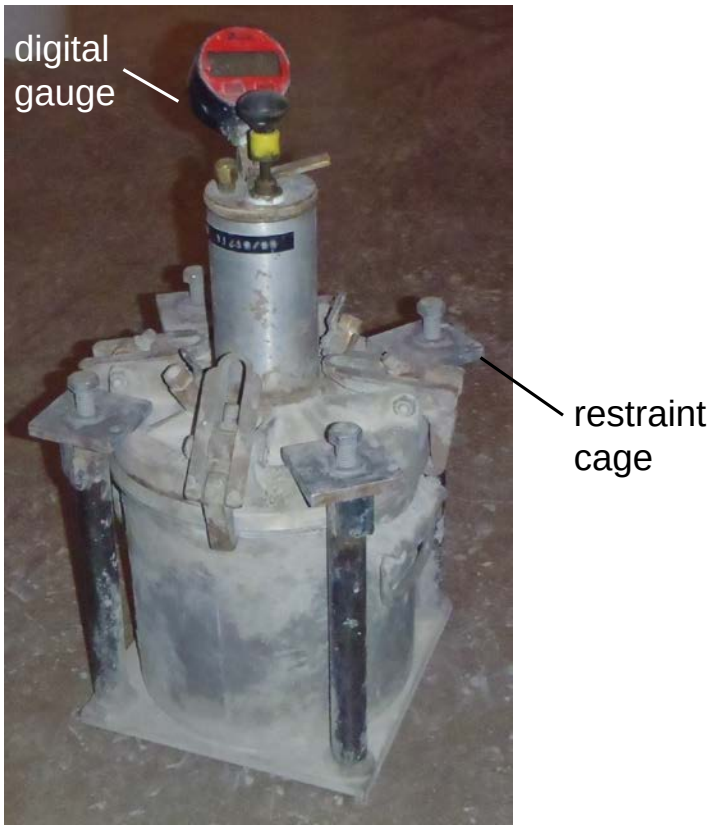
SUPER AIR METER

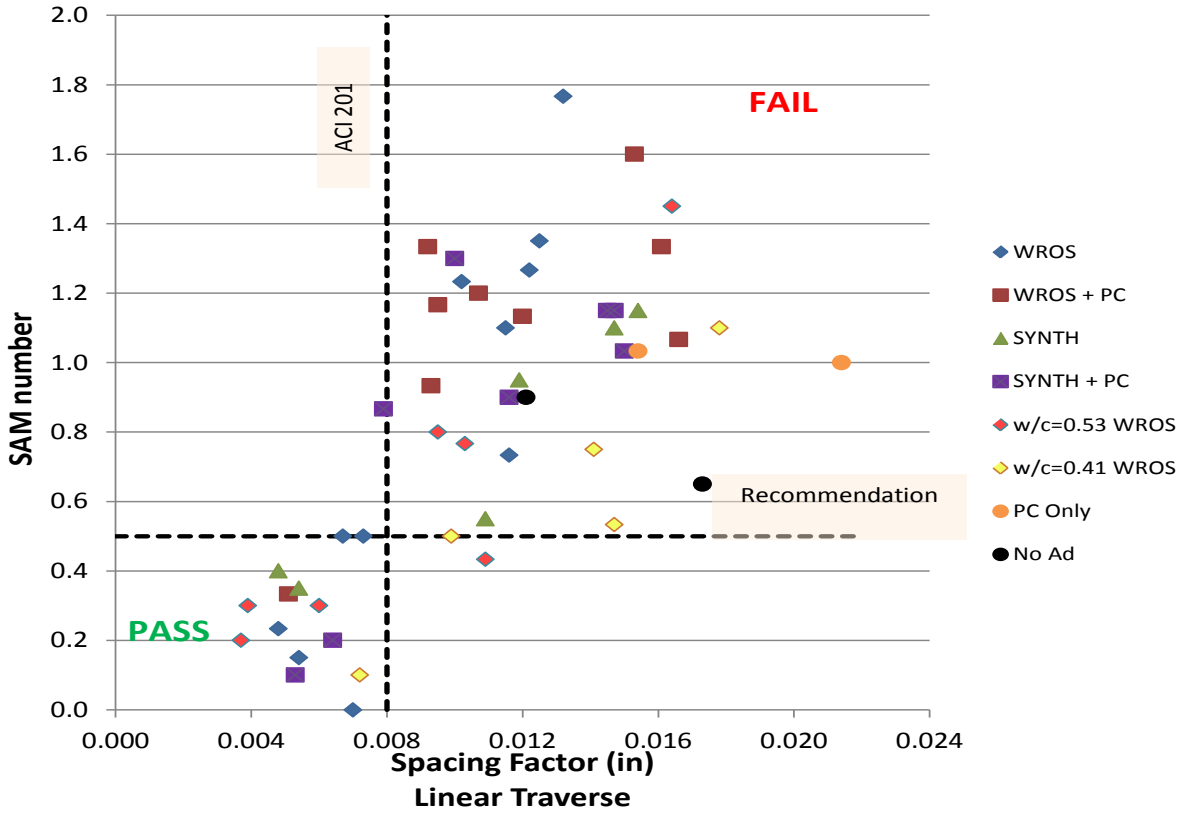
The Super Air Meter or SAM is a modified ASTM C231 Type B Pressure Meter. The meter can function in two ways. First, it provides all the same information as a Type B meter, under the same analytical conditions as a conventional pressure meter. After completing the conventional testing the meter is then able to move into a second mode of operation that places the concrete under a series of higher pressures. By understanding how the concrete responds to the series of high pressures the meter can assess properties of the air-void system beyond the air content. The result is a measurement that has been shown to correlate well with the spacing factor measurement from ASTM C457 and freeze-thaw performance data such as ASTM C666.



The current version of the meter uses a digital pressure gage and a restraint cage. The next generation of the meter will not require a restrain cage and provides a digital gage that provides the user with the total volume of air and the spacing factor. The gage will also be able to tell the user if they have run the test correctly.

To run the test you place concrete and consolidate it as if you are running a typical ASTM C231 test. However with this test **you run the test multiple times without releasing the pressure in the bottom bowl**. The test takes just over 10 minutes to run and provides immediate information about the air void quality in the fresh concrete. This is especially useful to evaluate a concrete mixture before and after a paver, or a pump and for investigation of concrete mixtures with a number of admixtures.

The meter has been validated with over 50 concrete mixtures with different air entraining agents, water reducers, w/cms, and cement contents. These values are shown below. The SAM number has been plotted versus the spacing factor from an ASTM C 457 test. The SAM number is a value calculated from the pressure curves produced in the test. A spacing factor of 0.008" is shown. This value is recommended by ACI 201 as the value needed to produce frost durable concrete. There is almost a linear trend between these two measurements.



This meter has been developed by Tyler Ley at Oklahoma State University. More information about the meter can be found at www.superairmeter.com or you can contact Dr. Ley at:

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There is also a proposed pooled fund study to further investigate the meter at: http://www.pooledfund.org/Details/Solicitation/1338

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