Ecological Pavers with **TX Active®** by **Advanced Pavement Technology**

Air quality improvement with permeable pavers:

Value added pavement features are a core ingredient for APT's Ecological Pavement Systems division. The introduction to North America of TX Active® photocatalytic cement by Essroc Italcementi Group provides designers with a tool to improve environmental impact normally associated with development and air pollution. This will be very important for LEED projects providing unique solutions to demanding site development requirements.

TX Active® is available in two cement products, TX Arca®, that provides a self-cleaning benefit to concrete and TX Aria® that provides concrete with the ability to reduce environmental pollution. The science behind these products is based upon utilizing a hydraulic binder with photocatalytic properties that render concrete self-cleaning and /or pollution-mitigating. Photocatalysis utilizes sunlight in a natural phenomenon to activate the nano-sized particles of titanium dioxide that speed a chemical reaction to form oxidizing agents that will decompose organic and inorganic pollutants. This process effectively destroys airborne pollutants that are responsible for urban organic pollution that cause staining/discoloration and other health related issues.

Self-Cleaning:

Compounds diminished or eliminated by using TX Arca photocatalytic cements include:

- Soot, grime and organic particulates
- Mold, mildew, fungus and their spores
- Algae, bacteria and allergens
- Tobacco smoke stains

Aqua-Bric ETX pavers may be produced using face-mix design processes with these cements to improve air quality, reduce thermal pollution or reduce staining caused by inorganic pollutants. SRI values have been determined for these products in both cements that will exceed LEED requirements and provide credit for reducing non-roof heat island effect.

Reduction of nitrogen oxides and other VOCs have been tested with studies conducted in Italy, France, Belgium and other sites where NOx reductions in excess of 45%-60% were reported with the use of photocatalytic cements. PICADA (Photocatalytic Innovative Covering Applications for Depollution Assessment) project was formed in 2001 and a consortium of independent laboratories, universities, contractors and manufacturers undertook a 4 ½ year research to verify the effectiveness of photocatalytic cements that are activated with sunlight to remove air borne pollutants that are harmful to human health. A compilation may be reviewed at www.picada-project.com or visit www.essroc.com.

De-Polluting:

TX Aria mix designs will also provide cleaning properties and also air improvement reducing:

- Nitrogen Oxides – component of acid rain, smog, water quality deterioration
- Sulfur Oxides – component of acid rain and other harmful sulfates
- VOC's – benzene, toluene, etc.
- Ammonia, carbon dioxide, organic chlorides and others