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## Making Green Porous Concrete for Rain Water Harvesting and Urban Pavements

Anurag Prabhakar Rangankar<sup>1</sup>, Dr. S. G. Makarande<sup>2</sup>, Prof. R. S. Kedar<sup>3</sup>

PG Scholar, Department of Civil Engineering<sup>1</sup> Professor, Department of Civil Engineering<sup>2</sup> Associate Professor, Department of Civil Engineering<sup>3</sup> Bapurao Deshmukh College of Engineering, Sevagram, Wardha, Maharashtra, India

Abstract: Flooding is seen to be a common phenomenon due to urbanization and improper water drainage. Now a day's impervious concert is mainly used for making pavements and courtyards which does not allow rain water to drain and percolate under the ground. Due to improper drainage systems cities like Mumbai gets easily flooded with even less rainfall. Moreover, thermal radiation is emitted by these concrete blocks and create heat enhancing to rise in the global climatic temperature. So, if the material used is pervious in nature, the water will pass through the surface enhancing rain water harvesting and will recharge groundwater. Using impervious material leads to health hazards and leading to serious environmental damage. As a solution to the problem is to make pervious concrete pavement block with a green cover on the top from locally available materials. The more void space in this pavement blocks will allow water to percolate freely into the ground and allow grass to be cultured and grown on top of this pavement block which will lead to eco-friendly environment.

Keywords: Pervious concrete, Ground water, Urban pavements, Water absorption, Porosity, Eco-Friendly.

## REFERENCES

- [1]. Pervious Concrete Pavements, http://www.perviouspavement.org, maintained by National Ready Mixed Concrete Association (NRMCA), (accessed July 15, 2010)
- [2]. Meiningen, R.C, No-nonspurious concrete for paving, Concrete International, August 1988, Vol. 10, No. 8, pp. 20-27.
- [3]. Storm water technology fact sheet porous pavement, United States Environmental Protection Agency, EPA 832-F-99-023, September 1999. www.epa.gov/npdes
- [4]. NRMCA, "What, Why, and How? Pervious Concrete," Con series, CIP 38, Silver Spring, Maryland, May 2004b.
- [5]. Tennis, P., Leming. M.L., and Akers, D.J., Pervious Conc EB 302, Portland Cement Association (PCA), Skokie, Illino Leming, M.L., Malcolm, H.R., and Tennis, P.D., "Hydro Pervious Concrete," EB 303, Skokie, Illinois, 2007.
- [6]. Pervious Concrete: Hydrological Design and Resources, C PCA, Skokie, IL, 2007. Stormwater Phase II Final Rule Fact Sheet Series, United State Protection Agency, http://cfpub.epa.gov/npdes/storm cfm.
- [7]. Leadership in Energy and Environmental Design (LEED) Rating System, US Green Building Council, National Ready Mixed Concrete Association, Winter.
- [8]. 8.Ash Pervious Concrete to Achieve LEED<sup>™</sup> Points ", Concrete info V. 8, No. 5, pp. 81-84, http://www.nrmca.org/research/CI 08%20Perv%20Conc%20LEED.pdf, (accessed July 15, 2010 ACI Committee 522, Specification for Pervious Concrete Pav American Concrete Institute, Farmington Hills, MI, USA. Wanielista, M., Chopra, M., Spence, J., and Ballock.
- [9]. Performance Assessment of Pervious Concrete Pavements Management Credit," Storm water Management Academic Central Florida, 81 pp.
- [10]. NRMCA, "Pervious Concrete: Guideline to Mixture Pro Research Report," 2PE002, Version 1.0, Silver Spring, Mar 2009, 32 pp. The Chicago Green Alley Handbook, http://egov.city web portal/COC Web Portal/COC\_EDITORIAL/Green Alle (accessed July 19, 2010)