

## Study and Analysis of Permeable Articulated Concrete Blocks Pavement: With Reference to Indian Context

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**Abstract :** Permeable pavements have significant benefits like managing runoff, infiltration, and carrying traffic over conventional pavements in terms of sustainability and environmental impact. Some of the countries are using this technique, especially at locations where durability and other parameters are of importance in nature; however, sparse work has been done on this concept. In India, this is yet to be adopted. In this work, the progress in the characterization and development of Permeable Articulated Concrete Blocks (PACB) pavement design is described and discussed with reference to Indian conditions. The experimentation and in-depth analysis was carried out considering conditions like soil erosion, water logging, and dust which are significant challenges caused due to impermeability of pavement. Concrete blocks with size 16.5" x 6.5" x 7" consisting of arch shape (4" x 4") at beneath and 12" PVC holes for articulation were casted. These blocks were tested for flexural strength. The articulation process was done with nylon ropes forming series of concrete block system. The total spacing between the blocks was kept about 8 to 10% of total area. The hydraulic testing was carried out by placing the articulated blocks with the combination of layers of soil, geotextile, clean angular aggregate. This was done to see the percentage of seepage through the entire system. The experimental results showed that with the shape of concrete block the flexural strength achieved was beyond the permissible limit. Such blocks with the combination could be very useful innovation in Indian conditions and useful at various locations compared to the traditional blocks as an alternative for long term sustainability.

**Keywords :** connections, geotextile, permeable ACB, pavements, stone base

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