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**Key technology of precast pre-stressed concrete slab pavement technology**

**Abstract:** At present, asphalt and cement concrete pavements at intersections and high-traffic areas are often damaged, resulting in great difficulties in maintenance and repair. Based on preliminary studies, the design team proposed a precast prestressed concrete pavement based on stress compensation. Thanks to the technology of filling joints with self-expanding concrete, the road structure supports loads uniformly and internal stresses are distributed evenly, which ensures high strength and durability of the pavement. This pavement also offers the advantages of factory production and fast repair paving, and is suitable for high-traffic areas.

The main research areas of the project include:

First, the laboratory analysis of the compensatory properties of self-expanding concrete for precast prestressed pavement is carried out. Then the structural optimisation of prestressed cement concrete slabs based on the prestressing method is carried out. Through numerical simulation, the mechanical properties of precast compensated prestressed cement concrete pavement are analysed. Further, key construction techniques and quality control standards of precast compensated prestressed cement concrete pavement are investigated through engineering applications and field tests.

The research results of the project will help to solve the problems of rapid repair of intersections and heavy traffic areas, the proposed new structural form will enrich the types of precast prestressed concrete pavement with wide application prospects.