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NATIONAL STANDARD OF THE

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GB 55011-2021

Technical code for engineering of prestressed concrete pavement

城市道路交通工程项目规范

(English Translation)

Issued by: Ministry of Housing and Urban-Rural Development of the People's Republic of China;
State Administration for Market Regulation

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8.1 General provisions

4 Cross

4.0.1
The crossing form of roads and roads or rail transit lines shall be determined according to the analysis of road network layout, grade of intersecting roads, properties of rail transit lines, traffic characteristics, safety requirements and relevant technical, economic and environmental benefits, and shall be related to the surrounding environment. Coordinate and reasonably determine the scale of land use.

4.0.2
Road intersections should be reasonably arranged according to the traffic organization, geometric design elements, traffic engineering facilities and traffic management methods of intersecting roads and rail transit lines to meet the traffic needs of various traffic modes. Provide conditions for safe passage of pedestrian crossings.

4.0.3
When the intersection of roads and roads or rail transit lines meets the following conditions, a three-dimensional intersection should be set up;

1 The urban expressway intersects with roads of all grades;

2 The road intersects with fully enclosed urban rail transit lines;

3 Roads intersect with high-speed railways, passenger dedicated lines, railway stations, and railway marshalling yards;

4 The road on which trams or trolleybuses run crosses the railway.

4.0.4
When urban roads and rail transit lines or highways intersect. Building boundaries shall comply with the following regulations.

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1 When the urban road passes under it, it shall comply with the provisions of Article 3.1.4 of this code;

2 When an urban road crosses over, it should meet the requirements of rail transit lines or highway building boundaries.

4.0.5
The level intersections between roads and roads shall comply with the provisions of sight distance triangle parking sight distance. Within the scope of the sight distance triangle, there should be no obstacles that hinder the recognition and judgment of motor vehicle drivers.

4.0.6
For railway crossings that are unguarded or not equipped with automatic signals, the lookout triangle should be determined according to the design speed of the train. Within the scope of the sight distance triangle, there should be no obstacles that hinder the sight of motor vehicle drivers.

6.0.17 Bridges and tunnels should be equipped with waterproof measures and drainage systems.

6.0.18 Bridges located in ecologically sensitive areas and drinking water source protection areas. Environmental protection measures should be taken.

6.0.19 When the construction of the foundation pit of the bridge foundation endangers the construction safety and the safety of surrounding buildings, the foundation pit enclosure design, construction, monitoring plan and emergency plan shall be formulated.

6.0.20 During flood season construction of bridges with piers in water, flood crossing measures and emergency plans shall be formulated.

6.0.21 When the transportation and installation of long bridge components affect road traffic safety, a special construction plan should be formulated.

6.0.22 For super-large bridges with a single-hole span of not less than 150m, special construction plans, monitoring plans, and emergency plans shall be prepared for technical difficulties and quality and safety risk points before construction, and shall be inspected and accepted. When testing, the bearing capacity of the structure should be tested.

7.1 General provisions

7.1.1
The construction plan of the tunnel shall be determined based on comprehensive factors such as topography, geology, hydrology, meteorology, earthquake conditions, traffic volume and its composition, construction, operation and maintenance on the basis of survey and survey data, and shall be consistent with ground and underground construction. (Structure)

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buildings and various pipelines should be well coordinated.

7.1.2
The general layout and configuration of equipment and facilities of the tunnel shall meet the requirements of daily operation, management and disaster prevention and rescue.

7.1.3
The horizontal and vertical alignment of the tunnel shall be determined according to factors such as topography, engineering geology, hydrogeology, route direction, opening position, obstacles along the route, construction method and other factors, and shall meet the safety requirements of vehicles.

7.1.4
The distance between the tunnel exit and the road intersection on the ground shall meet the requirements for safe passage of vehicles.

7.1.5
The cross-section of the tunnel shall be determined according to the requirements of line technical standards, building limits, equipment layout, structural design, construction method, disaster prevention and operation and maintenance.

7.1.6
Inflammable, explosive and dangerous goods pipelines should not be laid in the tunnel.

7.1.7
The tunnel disaster prevention design shall include traffic safety facilities, traffic monitoring, disaster alarm, ventilation and smoke exhaust, safe evacuation and rescue, disaster prevention power supply and emergency lighting, fire water supply and fire extinguishing, flood prevention, emergency communication and main structure protection measures wait.

7.1.8
Fire protection in tunnels should be set up according to the fact that one fire occurs in one tunnel at the same time.

7.1.9
The tunnel shall determine the fire prevention plan and emergency rescue strategy based on comprehensive factors such as traffic volume, traffic characteristics, fire scale, natural environmental conditions, length of closed section and alignment.

7.1.10
Hazardous chemical vehicles should pass through the tunnel under supervision and protection.

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7.2 Main structure

7.2.1
The main structure of the tunnel should be based on the characteristics of the project and the construction conditions along the line, and through a comprehensive evaluation of technology, economy, construction period, and environmental impact, a safe, reliable, economical and reasonable structural form and implementation plan should be selected.

7.2.2
The design service life of the main structure of the tunnel shall be 100 years, and the durability design shall be carried out according to the environmental conditions.

7.2.3
The tunnel structure shall meet the feasibility and operational safety requirements of project implementation.

7.2.4
The structural design of the tunnel shall be based on the use conditions, load characteristics, structure or member type and construction method, and the structural strength, stiffness and stability calculation shall be carried out respectively according to the normal use stage and the construction stage.

7.2.5
For projects that have undergone seismic safety evaluation of the project site, the seismic fortification intensity and ground motion parameters shall be determined according to the safety evaluation results.

7.2.6
The waterproof grade of the main structure should not be lower than the second grade, and the waterproof measures should be determined according to the environmental conditions, environmental action grade, design working life, structural characteristics, construction methods and other factors, and should meet the structural safety, durability and use requirements.

7.2.7
For tunnel construction, a special construction plan, monitoring plan, and emergency plan should be prepared for technical difficulties and quality and safety risk points based on factors such as geological conditions, the main structure of the tunnel, and the surrounding environment, and dynamic management of the entire process should be implemented.

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