

Directive 2004/54/EC of the European Parliament and of the Council of 29 April 2004
on minimum safety requirements for tunnels in the Trans-European Road Network

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ANNEX I

Safety measures as referred to in Article 3

1. Basis for deciding on safety measures
 - 1.1. Safety parameters
 - 1.1.1. Safety measures to be implemented in a tunnel shall be...
 - 1.1.2. The following parameters shall be taken into account:
 - 1.1.3. Where a tunnel has a special characteristic as regards the...
 - 1.2. Minimum requirements
 - 1.2.1. The safety measures required by the following paragraphs shall be...
 - 1.2.2. In order to provide a unified interface in all tunnels...
 - 1.3. Traffic volume
 - 1.3.1. Where "traffic volume" is mentioned in this Annex, it refers...
 - 1.3.2. Where the number of heavy goods vehicles over 3,5 t...
2. Infrastructure measures
 - 2.1. Number of tubes and lanes
 - 2.1.1. The main criteria for deciding whether to build a single...
 - 2.1.2. In any case, where, for tunnels at the design stage,...
 - 2.1.3. With the exception of the emergency lane, the same number...

- 2.2. Tunnel geometry
 - 2.2.1. Special consideration shall be given to safety when designing the...
 - 2.2.2. Longitudinal gradients above 5% shall not be permitted in new...
 - 2.2.3. In tunnels with gradients higher than 3%, additional and/or reinforced...
 - 2.2.4. Where the width of the slow lane is less than...
- 2.3. Escape routes and emergency exits
 - 2.3.1. In new tunnels without an emergency lane, emergency walkways, elevated...
 - 2.3.2. In existing tunnels where there is neither an emergency lane...
 - 2.3.3. Emergency exits allow tunnel users to leave the tunnel without...
 - 2.3.4. Shelters without an exit leading to escape routes to the...
 - 2.3.5. Emergency exits shall be provided if an analysis of relevant...
 - 2.3.6. In any event, in new tunnels, emergency exits shall be...
 - 2.3.7. In existing tunnels longer than 1 000 m, with a...
 - 2.3.8. Where emergency exits are provided, the distance between two emergency...
 - 2.3.9. Appropriate means, such as doors, shall be used to prevent...
- 2.4. Access for emergency services
 - 2.4.1. In twin-tube tunnels where the tubes are at the same...
 - 2.4.2. Wherever geographically possible, crossing of the central reserve (median strip)...
- 2.5. Lay-bys
 - 2.5.1. For new bi-directional tunnels longer than 1 500 m where...
 - 2.5.2. In existing bi-directional tunnels longer than 1 500 m with...
 - 2.5.3. If the construction characteristics of the tunnel do not allow...
 - 2.5.4. Lay-bys shall include an emergency station.
- 2.6. Drainage
 - 2.6.1. Where the transport of dangerous goods is permitted, the drainage...
 - 2.6.2. If in existing tunnels that requirement cannot be met or...
- 2.7. Fire resistance of structures
- 2.8. Lighting
 - 2.8.1. Normal lighting shall be provided so as to ensure appropriate...
 - 2.8.2. Safety lighting shall be provided to allow a minimum visibility...
 - 2.8.3. Evacuation lighting, such as evacuation marker lights, at a height...
- 2.9. Ventilation
 - 2.9.1. The design, construction and operation of the ventilation system shall...
 - 2.9.2. A mechanical ventilation system shall be installed in all tunnels...
 - 2.9.3. In tunnels with bi-directional and/or congested unidirectional traffic, longitudinal ventilation...
 - 2.9.4. Transverse or semi-transverse ventilation systems shall be used in tunnels...
 - 2.9.5. For tunnels with bi-directional traffic, with a traffic volume higher...
- 2.10. Emergency stations
 - 2.10.1. Emergency stations are intended to provide various items of safety...
 - 2.10.2. Emergency stations can consist of a box on the sidewall...
 - 2.10.3. Emergency stations shall be provided near the portals and inside...
- 2.11. Water supply
- 2.12. Road signs
- 2.13. Control centre
 - 2.13.1. A control centre shall be provided for all tunnels longer...
 - 2.13.2. Surveillance of several tunnels may be centralised at a single...
- 2.14. Monitoring systems
 - 2.14.1. Video monitoring systems and a system able to automatically detect...

- 2.14.2. Automatic fire detection systems shall be installed in all tunnels...
 - 2.15. Tunnel closing equipment
 - 2.15.1. In all tunnels longer than 1 000 m, traffic signals...
 - 2.15.2. Inside all tunnels longer than 3 000 m, with a...
 - 2.16. Communication systems
 - 2.16.1. Radio re-broadcasting equipment for emergency service use shall be installed...
 - 2.16.2. Where there is a control centre, it must be possible...
 - 2.16.3. Shelters and other facilities where evacuating tunnel users must wait...
 - 2.17. Power supply and electrical circuits
 - 2.17.1. All tunnels shall have an emergency power supply capable of...
 - 2.17.2. Electrical, measurement and control circuits shall be designed in such...
 - 2.18. Fire resistance of equipment
 - 2.19. Table displaying informative summary of minimum requirements
- 3. Measures concerning operations
 - 3.1. Operating means
 - 3.2. Emergency planning
 - 3.3. Works in tunnels
 - 3.4. Management of accidents and incidents
 - 3.5. Activity of the control centre
 - 3.6. Tunnel closure
 - 3.7. Transport of dangerous goods
 - 3.8. Overtaking in tunnels
 - 3.9. Distances between vehicles and speed
 - 4. Information campaigns

ANNEX II

Approval of the design, safety documentation, commissioning of a tunnel, modifications and periodic exercises

- 1. Approval of the design
 - 1.1. The provisions of this Directive shall be applied from the...
 - 1.2. Before any construction work begins, the Tunnel Manager shall compile...
 - 1.3. The design, as appropriate, shall be approved by the responsible...
- 2. Safety documentation
 - 2.1. The Tunnel Manager shall compile safety documentation for each tunnel...
 - 2.2. The safety documentation shall describe the preventive and safeguard measures...
 - 2.3. In particular, the safety documentation for a tunnel at the...
 - 2.4. The safety documentation for a tunnel which is at the...
 - 2.5. The safety documentation for a tunnel which is in operation...
- 3. Commissioning
 - 3.1. The initial opening of a tunnel to public traffic shall...
 - 3.2. This procedure also applies to the opening of a tunnel...
 - 3.3. The Tunnel Manager shall transmit the safety documentation mentioned in...
 - 3.4. The Tunnel Manager shall forward this safety documentation to the...

4. Modifications
 - 4.1. For any substantial modification in the structure, equipment or operation,...
 - 4.2. The Tunnel Manager shall inform the Safety Officer of any...
 - 4.3. The Safety Officer shall examine the consequences of the modification...
5. Periodic exercises

ANNEX III

Signing for tunnels

1. General requirements
 - 1.1. Road signs shall be used to designate the following safety...
 - 1.2. Radio:
 - 1.3. Signs and markings shall be designed and positioned so that...
2. Description of signs and panels
 - 2.1. Tunnel sign
 - 2.2. Horizontal signing
 - 2.3. Signs and panels for signing of facilities

- (1) [OJ C 220, 16.9.2003, p. 26.](#)
- (2) [OJ C 256, 24.10.2003, p. 64.](#)
- (3) Opinion of the European Parliament of 9 October 2003 (not yet published in the Official Journal), Council Common Position of 26 February 2004 ([OJ C 95 E, 20.4.2004, p. 31](#)) and Position of the European Parliament of 20 April 2004 (not yet published in the Official Journal).
- (4) [OJ L 228 of 9.9.1996, p. 1.](#) Decision as amended by Decision No 1346/2001/EC ([OJ L 185, 6.7.2001, p. 1](#)).
- (5) [OJ L 184, 17.7.1999, p. 23.](#)