



## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-001</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Fire resistance of tunnel structures						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU). Section 4.2.1.2 This specification applies to all tunnels.</p> <p>(a) In the event of fire, the integrity of the tunnel lining shall be maintained for a period of time that is sufficiently long to permit self-rescue, evacuation of passengers and staff and intervention of the emergency response services. That period of time shall be in accordance with the evacuation scenarios considered and reported in the emergency plan.</p> <p>(b) In the cases of immersed tunnels and tunnels which can cause the collapse of important neighbouring structures, the main structure of the tunnel shall withstand the temperature of the fire for a period of time that is sufficient to allow evacuation of the endangered tunnel zones and neighbouring structures. This period of time shall be reported in the emergency plan.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 7.4.1.1 The major parts of the structure are to be measured for a certain fire load. The temperature-time curve applied in this measurement is established during safety planning and recorded in the safety report. Details on how the measurement curve is established are given in Appendix B.</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	The bases on which the fire measurements are made are described in more detail in the referenced norm (e.g.: definition and documentation of fire curve in safety planning).						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 7.4.1.1 and Appendix B						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-002</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Safe area						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU). Section 4.2.1.5.1 This specification applies to all tunnels of more than 1 km in length.</p> <p>(a) A safe area shall allow the evacuation of trains that use the tunnel. It shall have a capacity corresponding to the maximum capacity of the trains planned to be operated on the line where the tunnel is located.</p> <p>(b) The safe area shall maintain survivable conditions for passengers and staff during the time needed for the complete evacuation from the safe area to a final place of safety.</p> <p>(c) In case of underground/undersea safe areas, the provisions shall allow people to move from the safe area to the surface without having to re-enter the affected tunnel tube.</p> <p>(d) The lay-out of an underground safe area and its equipment shall take into account the control of smoke, in particular to protect people who use the self-evacuation facilities.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 8.8.5.1 The escape routes shall always lead to safe areas. Safe areas are:</p> <ul style="list-style-type: none"> <li>- tunnels and shafts to the exterior</li> <li>- parallel tunnel tubes, service and rescue tunnels</li> <li>- emergency stop areas</li> <li>- areas outside the tunnel on the exterior and</li> <li>- parts of the tunnel tube which are protected from smoke fumes</li> </ul> <p>Protected areas must be accessible from the exterior. Section 8.8.5.2 Suitable measures must be in place to prevent smoke and dangerous gases from entering protected areas.</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	SN 505 197/1 provides more detailed requirements regarding protected areas (in a tunnel). The duration of survival should be determined in the safety planning.						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003 Sections 8.8.5.1 and 8.8.5.2						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-003</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Access to the safe area						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.5.2 This specification applies to all tunnels of more than 1 km in length.</p> <p>(a) Safe areas shall be accessible for people who commence self-evacuation from the train as well as for the emergency response services.</p> <p>(b) One of the following solutions shall be selected for access points from a train to the safe area:</p> <p style="margin-left: 20px;">(1) Lateral and/or vertical emergency exits to the surface. These exits shall be provided at least every 1000 m.</p> <p style="margin-left: 20px;">(2) Cross-passages between adjacent independent tunnel tubes, which enable the adjacent tunnel tube to be employed as a safe area. Cross-passages shall be provided at least every 500 m.</p> <p style="margin-left: 20px;">(3) Alternative technical solutions providing a safe area with a minimum equivalent safety level are permitted. The equivalent level of safety for passengers and staff shall be demonstrated using the Common Safety Method on risk assessment.</p> <p>(c) Doors giving access from the escape walkway to the safe area shall have a minimum clear opening of 1.4 m wide and 2.0 m high. Alternatively it is permitted to use multiple doors next to each other which are less wide as long as the flow capacity of people is demonstrated to be equivalent or higher.</p> <p>(d) After passing the doors, the clear width shall continue to be at least 1.5 m wide and 2.25 m high.</p> <p>(e) The way in which the emergency response services access the safe area shall be described in the emergency plan.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 8.8.4.1 The emergency exits provide a link between the railway tunnel and a safe area. A passageway may form the transition between emergency exit and protected area.</p> <p>Section 8.8.4.3 Emergency exits through cross-passages into a parallel tunnel tube, a service and rescue tunnel or another tunnel must be provided at least every 500 m.</p> <p>Section 8.8.4.4 The walkable cross-passages should be at least 2.00 m wide and 2.20 m high. They must be isolated from the vehicle tunnel. The doors to the cross-passages should be at least 1.00 m wide and 2.00 m high. They should be easily opened and closed. Double doors should open in the direction of escape. If sliding doors are installed, it must be clear to the user how to use them. It should be possible to access the whole breadth of the cross-passage for maintenance work.</p> <p>Section 8.8.4.5 Appropriate measures should prevent or at least restrict combustion gases and smoke from entering emergency exits. The effects of natural air currents and heavy gas should be taken into account.</p> <p>Section 8.8.4.6 The fire resistance of closures (emergency exit doors) is determined in the safety planning. The doors must be in service at least until self-evacuation is complete.</p> <p>Section 8.8.4.7 The closures must be able to resist the dynamic pressure conditions resulting from passing trains.</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	<p>SN 505 197/1, SIA 197/1:2003, Section 8.8.4.1 contains additional information regarding passageways.</p> <p>In addition to access to the neighbouring tube, SN 505 197/1, SIA 197/1:2003, Ziffer 8.8.4.3 mentions the service and rescue tunnels.</p> <p>With respect to SRT TSI (1303/2014/EU) Section 4.2.1.5.2 para. d (1.5 m width), SN 505 197/1, SIA 197/1:2003, Section 8.8.4.4 specifies a width of 2.0 m for walkable cross-passages.</p>						

	<p>SN 505 197/1, SIA 197/1:2003, Section 8.8.4.4 also requires double doors to open in the direction of escape.</p> <p>SN 505 197/1, SIA 197/1:2003, Section 8.8.4.5 provides further information regarding measures to prevent combustion gases and smoke from entering emergency exits.</p> <p>SN 505 197/1, SIA 197/1:2003, Section 8.8.4.6 provides further information regarding the usability of doors; it must be possible to use these until self-evacuation is complete.</p> <p>SN 505 197/1, SIA 197/1:2003, Section 8.8.4.7 provides further information regarding the need to take account of dynamic pressure conditions resulting from passing trains.</p>
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 8.8.4

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-005</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Escape walkways						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section				<b>Address:</b>	3003 Bern SWITZERLAND	
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.6 This specification applies to all tunnels of more than 0.5 km in length.</p> <p>(a) Walkways shall be constructed in a single track tunnel tube on at least one side of the track and in a multiple track tunnel tube on both sides of the tunnel tube. In tunnel tubes with more than two tracks, access to a walkway shall be possible from each track.</p> <p>(1) The width of the walkway shall be at least 0.8 m. (2) The minimum vertical clearance above the walkway shall be 2.25 m. (3) The height of the walkway shall be at top-of-rail level or higher. (4) Local constrictions caused by obstacles in the escape area shall be avoided. The presence of obstacles shall not reduce the minimum width to less than 0.7 m, and the length of the obstacle shall not exceed 2 m.</p> <p>(b) Continuous handrails shall be installed between 0.8 m and 1.1 m above the walkway providing a route to a safe area.</p> <p>(1) Handrails shall be placed outside the required minimum clearance of the walkway. (2) Handrails shall be angled at 30° to 40° to the longitudinal axis of the tunnel at the entrance to and exit from an obstacle.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 8.8.3.1 Walkways as described in Section 8.5.2 usually serve as escape walkways inside the railway tunnel.</p> <p>Section 8.8.3.2 Single-track tunnels must have at least one escape walkway along one side, if possible along the convex edge, but without a change of sides.</p> <p>Section 8.8.3.3 In two-track and multi-track tunnels an escape walkway is required on both sides.</p> <p>Section 8.8.3.4 The escape walkway is at least 1.00 m wide and 2.20 m high and without obstacles.</p> <p>Section 8.8.3.5 In order to facilitate egress from the train in the event of an incident, the upper surface of the escape walkway should in general be higher than track level. When determining the height and distance from the centre of the track, appropriate account shall be taken of maintenance requirements (e.g. possible use of and access for machinery for track maintenance) and incident management requirements (e.g. access to undercarriage of vehicles).</p> <p>Section 8.8.3.6 The escape walkway in tunnels of more than 1 km in length shall be equipped with a handrail and must be lit and indicated by signs.</p> <p>Section 9.4.1 The handrail shall be mounted at a suitable height. It is mounted around all obstacles (e.g. contact line idlers or protruding construction elements). There may be a break in the handrail around niches and doors.</p> <p>FOT guideline on safety requirements for existing railway tunnels: 2009, Section I04. A handrail shall be mounted along the walkway. If space is restricted, it may be replaced by a guide board along the tunnel wall. The handrail shall be mounted around obstacles, but is interrupted for niches (tunnel classes C and D).</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	<p>The following exceptions to SRT TSI (1303/2014/EU) apply:</p> <ul style="list-style-type: none"> <li>- Minimum escape walkway width of 1.0 m according to SN 505 197/1 (TSI-SRT (1303/2014/EU): 0.8 m)</li> </ul>						

	<ul style="list-style-type: none"> <li>- Handrail in tunnels of at least 1000 m in length according to SN 505 197/1, SIA 197/1:2003, Section 8.8.3.6 and FOT guideline on safety requirements for existing railway tunnels: 2009, Section I04.</li> </ul>
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003. FOT guideline on safety requirements for existing railway tunnels: 2009.
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Sections 8.8.3.4 and 8.8.3.6. FOT guideline on safety requirements for existing railway tunnels: 2009, Section I04.

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-006</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Emergency lighting on escape routes						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.5.4 This specification applies to all tunnels of more than 0.5 km in length.</p> <p>(a) Emergency lighting shall be provided to guide passengers and staff to a safe area in the event of an emergency.</p> <p>(b) Illumination shall comply with the following requirements:</p> <ol style="list-style-type: none"> <li>(1) Single-track tube: on the side of the walkway.</li> <li>(2) Multiple-track tube: on both sides of the tube.</li> <li>(3) Position of lights: <ul style="list-style-type: none"> <li>- above the walkway, as low as possible, so as not to interfere with the free space for the passage of persons, or</li> <li>- built into the handrails.</li> </ul> </li> <li>(4) The maintained illuminance shall be at least 1 lux at a horizontal plane at walkway level.</li> </ol> <p>(c) Autonomy and reliability: an alternative power supply shall be available for an appropriate period of time after failure of the main power supply. The time required shall be consistent with the evacuation scenarios and reported in the Emergency Plan.</p> <p>(d) If the emergency light is switched off under normal operating conditions, it shall be possible to switch it on by both of the following means:</p> <ol style="list-style-type: none"> <li>(1) manually from inside the tunnel at intervals of 250 m;</li> <li>(2) by the tunnel operator using remote control</li> </ol>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 9.3.1.2 In tunnels of more than 1 km in length, emergency lighting (see Section 9.3.2) shall be installed that can be switched on locally in the event of an incident. It can also be used by operating and maintenance staff.</p> <p>Section 9.3.2.1 Emergency lighting shall consist of regularly placed lights or continuous lighting on the tunnel wall. The lights shall in general be at handrail-level or just below. They shall be anti-glare and light the emergency walkway and emergency exits adequately.</p> <p>Section 9.3.2.2 Local damage to the emergency lighting shall not result in the general failure of the system. Emergency lighting shall therefore be divided into sections of maximum 500 m.</p> <p>SN EN 1838: 2013 Section 4.2.5 The security lighting on escape routes must be operative for at least one hour.</p> <p>FOT guideline on safety requirements for existing railway tunnels: 2009 Section I02-3-a Emergency lighting (feeder cables in the tunnel, light connectors) and the power supply to the lighting sections (cables, terminal box) shall be set to function for 30 minutes (E30).</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	<p>SN 505 197/1, SIA 197/1:2003 makes reference to anti-glare lighting; this is not mentioned in the TSI. Local damage shall not result in the general failure of the system. Sections of max. 500 m are indicated.</p> <p>SN EN 1838 defines the period (60 min.) during which lighting should be available.</p>						

	FOT guideline on safety requirements for existing railway tunnels defines the period (30 min.) during which lighting should be available in existing Class C and D railway tunnels.
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003 SN EN 1838: 2013 FOT guideline on safety requirements for existing railway tunnels: 2009
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 9.3 SN EN 1838: 2013, Section 4.2.5 FOT guideline on safety requirements for existing railway tunnels: 2009, Section I02-3-a



## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-008</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Emergency communication						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.8 This specification applies to all tunnels of more than 1 km in length.</p> <p>(a) Radio communication between the train and the infrastructure manager control centre shall be provided in each tunnel with GSM-R.</p> <p>(b) Radio continuity shall be provided for permitting the emergency response services to communicate with their on-site command facilities. The system shall allow the emergency response services to use their own communication equipment.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 9.7.1 Tunnels shall be equipped with communication systems aligned to the operational concept and incident concept. They shall include:</p> <ul style="list-style-type: none"> <li>- radio: train radio, construction radio, radio for emergency services</li> <li>- telephony: connection to railway telephone network or public network in the technical niches, mobile telephony.</li> </ul> <p>Section 9.7.2 A sufficient number of communication installations shall be available in case of an incident. They shall be defined in the safety planning.</p> <p>Section 9.7.3 There shall be sufficient space for these installations (devices, connections, radiating cable, antennae) in the niches for technical installations and in the tunnel cross-section. The distance between the niches shall be set at the maximum transmission distance. The space required to mount the radiating cable or the radio antennae shall be precisely determined.</p> <p>Section 9.7.4 Uninterrupted transmission of important data to the train shall be possible and good train-to-ground radio communication shall be available at all times.</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	<p>SN 505 197/1, SIA 197/1:2003: SN 505 197/1 prescribes various specific radio systems (train, construction and incident) and telephone systems (railway, public network).</p>						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 9.7.						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-009</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Access to safe areas (access for emergency services)						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	SRT TSI (1303/2014/EU) Section 4.2.1.5.2 (e) The way in which the emergency response services access the safe area shall be described in the emergency plan.						
<b>Reference in Swiss regulation:</b>	SN 505 197/1, SIA 197/1:2003 Section 8.8.8.1 The tunnel portals and the escape tunnels shall generally be accessible to rescue vehicles. There shall be access roads on either side of the tracks with enough room for vehicles to manoeuvre. Section 8.8.8.2 The design of access roads, areas and installations shall be defined in the incident concept. If possible, rescue helicopters should be able to land in the vicinity of the portals. Section 8.8.8.3 At the portals permanent installations for contact line earthing should allow clearance for the passage of rescue trains and other vehicles. Section 8.8.8.4 The route from the portal to the assembly area should be secure so that persons evacuating the tunnel do not fall (emergency lighting, signs).						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	According to SN 505 197/1, SIA 197/1:2003, tunnel portals and emergency exits must be accessible to road vehicles via access roads. These requirements apply.						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 8.8.8						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-010</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Fire-fighting points (outside of tunnel portals)						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.7 d) Requirements for fire-fighting points outside the portals of the tunnel In addition to the requirements in 4.2.1.7 (c), fire-fighting points outside the portals of the tunnel shall comply with the following requirements: (1) The open air area around the fire-fighting point shall offer a minimum surface of 500 m<sup>2</sup>.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 8.8.8.1 The tunnel portals and the escape tunnels shall generally be accessible to rescue vehicles via access roads. There shall be access roads on either side of the tracks with enough room for vehicles to manoeuvre. Section 8.8.8.2 The design of access roads, areas and installations shall be defined in the incident concept. If possible, rescue helicopters should be able to land in the vicinity of the portals. Section 8.8.8.4 The route from the portal to the assembly area should be secure so that persons evacuating the tunnel do not fall (emergency lighting, signs).</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	SN 505 197/1 requires access roads either side of the tracks with room for vehicles to manoeuvre. There should also be room for rescue helicopters to land. It also specifies lighting and signs along the route to the assembly area.						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 8.8.8						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-011</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Fire-fighting stations (water supply)						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	SRT TSI (1303/2014/EU) Section 4.2.1.7 c (1) The fire-fighting points shall be equipped with water supply (minimum 800 l/min during 2 hours) close to the intended stopping point of the train. The method of supplying the water shall be described in the emergency plan.						
<b>Reference in Swiss regulation:</b>	SN 505 197/1, SIA 197/1:2003 Section 9.8.1 Fire extinguishing installations are to be determined according to the incident plan and in consultation with the emergency services. Section 9.8.2 In tunnels of more than 1 km in length, provision shall be made for the use of fire-fighting and rescue trains or a fire-water system. Section 9.8.3 Water supply and fire-fighting equipment (e.g. hydrants, fire extinguishers) shall be provided at the portals and possibly at the emergency stop areas. Where provision is not made for the use of fire-fighting and rescue trains, further fire-water supply points may be necessary. Section 9.8.4 Fire-water supply points should be dimensioned to allow for the following extraction volumes: – single extraction point, at least 20 l/s – to fill fire-fighting and rescue train, 80 l/s (approx. value). The required number of extraction points in use at any one time is to be determined in the incident plan. Section 9.8.5 The pressure at the extraction points shall not fall below 0.6 MPa. The static pressure shall not exceed 1.5 MPa. Section 9.8.6 The minimum water volume and water reserve is to be determined in the incident plan. Section 9.8.7 Water reservoirs shall be equipped with a normal overflow and a water gauge with low-water alarm system.						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	SN 505 197/1 specifies water supply requirements in detail and for specific situations.						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 9.8						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-014</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015												
<b>Title:</b>	Emergency stopping points/Fire-fighting points																		
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section				<b>Address:</b>	3003 Bern SWITZERLAND													
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch																		
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.7 (b) Fire-fighting points shall be created:</p> <p style="padding-left: 40px;">(1) Outside both portals of every tunnel of &gt; 1 km and (2) Inside the tunnel, according to the category of rolling stock that is planned to be operated, as summarised in the table below:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Tunnel length</th> <th style="text-align: left; border-bottom: 1px solid black;">Rolling stock category according to paragraph 4.2.3</th> </tr> </thead> <tbody> <tr> <td>1 to 5 km</td> <td>Category A or B</td> </tr> <tr> <td>5 to 20 km</td> <td>Category A</td> </tr> <tr> <td>5 to 20 km</td> <td>Category B</td> </tr> <tr> <td>&gt;20 km</td> <td>Category A</td> </tr> <tr> <td>&gt;20 km</td> <td>Category B</td> </tr> </tbody> </table> <p>(e) Requirements for fire-fighting points inside the tunnel In addition to the requirements in 4.2.1.7 (c), fire-fighting points inside the tunnel shall comply with the following requirements:</p> <p>(1) A safe area shall be accessible from the stopping position of the train. Dimensions of the evacuation route to the safe area shall consider the evacuation time (as specified in clause 4.2.3.4.1) and the planned capacity of the trains (referred to in clause 4.2.1.5.1) intended to be operated in the tunnel. The adequacy of the sizing of the evacuation route shall be demonstrated.</p> <p>(2) The safe area that is paired with the fire-fighting point shall offer a sufficient standing surface relative to the time passengers are expected to wait until they are evacuated to a final place of safety.</p> <p>(3) There shall be an access to the affected train for emergency response services without going through the occupied safe area.</p> <p>(4) The lay-out of the fire-fighting point and its equipment shall take into account the control of smoke, in particular to protect people who use the self-evacuation facilities to access the safe area.</p>							Tunnel length	Rolling stock category according to paragraph 4.2.3	1 to 5 km	Category A or B	5 to 20 km	Category A	5 to 20 km	Category B	>20 km	Category A	>20 km	Category B
Tunnel length	Rolling stock category according to paragraph 4.2.3																		
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<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 8.8.7.1 The emergency stopping point in the tunnel serves as an egress point and comprises a platform and access to a protected area.</p> <p><b>Section 8.8.7.2</b> The protected area at the emergency stopping point shall have a slightly higher air pressure compared with the tunnel tube in order to prevent the ingress of combustion fumes and smoke. It shall be equipped with communication devices and with material necessary to administer first aid.</p> <p><b>Section 8.8.7.3</b> The length of the platform shall correspond to the maximum length of a passenger train. It shall be wide enough to enable rapid evacuation of the train and rapid passage to the protected area.</p> <p><b>Section 8.8.7.4</b> For standard-gauge railways, the height of the platform shall generally be 0.55 m above the track level. For other gauges, the height shall be set according to the rolling stock in service.</p> <p><b>Section 8.8.7.5</b> The position of the platform edge (height, distance from the centre of the track) shall also be determined in accordance with the maintenance concept.</p> <p><b>Section 8.8.7.6</b> There should be sufficient smoke outlets in the platform area. The concept shall be determined at the project stage.</p>																		
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI																		
<b>Full description:</b>	The SRT TSI does not contain any information on emergency stopping points as a specific type of safe area.																		

<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 8.8.7

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-018</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Segmentation of overhead lines or conductor rails						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section				<b>Address:</b>	3003 Bern SWITZERLAND	
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.2.1 This specification applies to all tunnels of more than 5 km in length.</p> <p>(a) The traction energy supply system in tunnels shall be divided into sections, each not exceeding 5 km. This specification applies only if the signalling system permits the presence of more than one train in the tunnel on each track simultaneously.</p> <p>(b) Remote control and switching of each 'switching section' shall be provided.</p> <p>(c) A means of communication and lighting shall be provided at the switching location to enable safe manual operation and maintenance of the switching equipment.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN 505 197/1, SIA 197/1:2003 Section 9.2.2.3 The contact line may require additional space</p> <ul style="list-style-type: none"> <li>– in the vicinity of switches</li> <li>– at tensioners</li> <li>– at the feed points in the contact line sections (contact line should be segmented in accordance with the operating concept for the track section, maintenance and rescue).</li> </ul>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	SN 505 197/1 Requirements for contact line segments do not specify length of segments, but apply to all tunnels. SRT TSI only applies to tunnels of more than 5 km in length.						
<b>Current applicable norms in Switzerland:</b>	SN 505 197/1, SIA 197/1:2003						
<b>Test specification for certificate of conformity:</b>	SN 505 197/1, SIA 197/1:2003, Section 9.2.2.3						

## Notified national technical rules (NNTRs)

<b>ID</b>	<b>CH-TSI-SRT-024</b>	<b>State:</b>	Switzerland	<b>Status</b>	<b>In force</b>	<b>since:</b>	June 2015
<b>Title:</b>	Fire reaction of building material						
<b>Office responsible:</b>	Federal Office of Transport FOT Approvals and Rules Section			<b>Address:</b>	3003 Bern SWITZERLAND		
<b>E-mail:</b>	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
<b>Referenced TSI article:</b>	<p>SRT TSI (1303/2014/EU) Section 4.2.1.3</p> <p>This specification applies to all tunnels.</p> <p>(a) This specification applies to construction products and building elements inside tunnels.</p> <p>(b) Tunnel building material shall fulfil the requirements of classification A2 of Commission Decision 2000/147/EC. Non-structural panels and other equipment shall fulfil the requirements of classification B of Commission Decision 2000/147/EC.</p> <p>(c) Materials that would not contribute significantly to a fire load shall be listed. They are allowed to not comply with the above.</p>						
<b>Reference in Swiss regulation:</b>	<p>SN EN 13145:2012-01 Section 1:</p> <p>This European norm defines types of wood, quality requirements, origin, processing conditions, shapes, dimensions, tolerances, durability and preservation of wooden track and switch sleepers used in track construction.</p>						
<b>Current NNTR classification:</b>	<input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI <input type="checkbox"/> NNTR on an 'open point' in the TSI						
<b>Full description:</b>	<p>In respecting SN EN 13145:2012-01, the classification B requirements of Decision 2000/147/EC regarding the emission of fumes and burning droplets and elements cannot be met.</p> <p>The use of wooden sleepers when retrofitting, renewing and maintaining existing tunnel sections must still be possible, taking into account the safety risk. The requirements in SN EN 13145:2012-01 apply.</p>						
<b>Current applicable norms in Switzerland:</b>	SN EN 13145:2012-01						
<b>Test specification for certificate of conformity:</b>	<p>SN EN 13145:2012-01 Section 1:</p>						