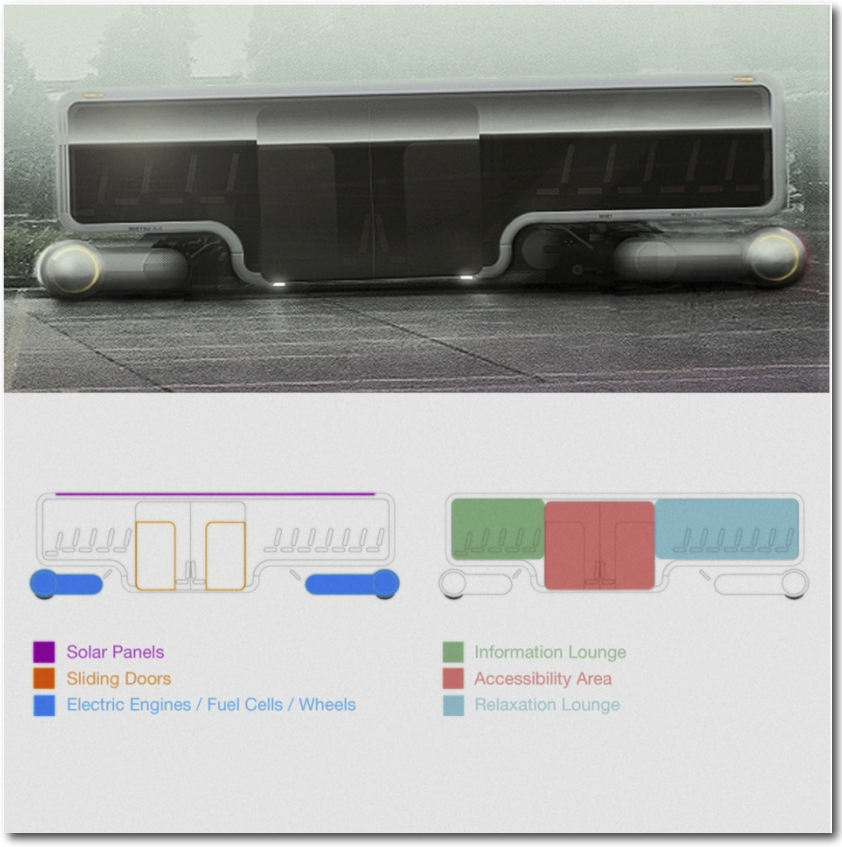
SVENSKKOLLEKTIVTRAFIK

BUS 2010
COMMON SECTOR FUNCTIONAL REQUIREMENTS FOR BUSES



Design by Joakim Oscarsson

Version 1.2 2012-01-25

A sub-project within the framework of the Doubling Project

INSTRUCTIONS – HOW TO USE THE DOCUMENT

Bus 2010 specifies the functional requirements that apply over and above current legislation, and which the sector has jointly agreed as being of interest to passengers.

One of the goals of Bus 2010 is that it shall serve as the standard for procurements of bus traffic in Sweden. The Swedish Public Transport Association and the Swedish Bus and Coach Federation therefore recommend that purchasers use this document in its entirety.

Common sector recommendations and how to make your choice

Unlike the previous version, Version 1.1, the purchaser specifies on a running basis in the document, which requirements apply in the case of the procurement in question by marking his or her choice after each item. For each item, the common sector recommendation is also specified. This could, for example, appear as follows:

Common sector recommendation:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

☐ *All buses with respect to Class:*

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

☐ *All buses with respect to Class:*

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

The purchaser ticks off what he/she wishes to apply in the case of the procurement under the heading ***Requirement in this procurement***. In those cases where certain requirements are not relevant for particular bus classes, the classes in question (alternatives) have been deleted from both the recommendation as well as from the heading ***Requirement in this procurement***.

Common sector recommendation: Option for buses with respect to Class:

In certain cases, no general recommendation is made. In this context, ***Option for buses with respect to Class*** has been inserted in the common sector recommendation, see example below. The Client ticks off the specific requirements he/she wishes to be applicable in the procurement concerned under the heading ***Requirement in this procurement***.

Common sector recommendation:

Option for buses with respect to Class:

A B I II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

☐ *All buses with respect to Class:*

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

When you have decided on your requirements

Once you have decided which requirements are to apply in the procurement and you feel that you are ready, we recommend that you re-save this form as a normal *.pdf document. Then you can attach it to the other procurement material and tender enquiry documents that are sent out.

Environmental requirements, etc.

For common sector recommendations with respect to environmental requirements, such as fuel, emissions, energy efficiency and noise, etc., reference is made to the most recently published common sector document entitled *Environmental requirements in connection with transport procurement* which can be downloaded from Fördubbling.se.

Enclosures

Enclosure 1 contains definitions.

Enclosure 2 contains a collection of links.

Enclosure 3 contains a list of functional requirements that are considered by the members of this project group as being important to work into future versions of Bus 2010 and which we also wish to drive internationally together with the Swedish Transport Agency.

Enclosure 4 is a descriptive document that is primarily directed at vehicle suppliers in which we describe in more detail what should be considered applicable with respect to different functional requirements.

CONTENTS

FOREWORD

The bus is an extremely important means of transport in the Swedish public transport system. Almost every other journey within public transport is made by bus. It is consequently clear that the functional requirements we place within the sector on buses must be based on the needs of the passengers. They must be requirements which mean that it feels secure, safe, comfortable and simple to make a journey by bus.

Many requirements for fulfilling these goals are regulated by provisions in current legislation. The principal legislation is the so-called Bus Directive 2001/85/EG, but several other directives and regulations also contain rulings on basic safety requirements. For buses, ECE Regulation 107 is used instead of the Bus Directive. In 2014, ECE Regulation 107 will replace the Bus Directive, which will then cease to apply.

Bus 2010 is the sector's joint recommendations regarding functional requirements for buses from the passenger point of view, and it is our aim that this document should serve the same function as an agreement enclosure in a transport procurement for specifying the requirements for a company intending to purchase a bus.

The purpose of Bus 2010 is to drive vehicle development forward and create even more attractive buses in a cost-effective way. The goal is that a bus which meets these common sector recommendations shall be accepted and function equally well throughout the whole of Sweden, regardless of the agreement area.

In the transformation that public transport is currently undergoing, with a stronger focus on a greater market share for public transport and the introduction of new forms of agreement that drive development towards this goal, it will be a common interest and a basic necessity for the parties to always have buses that meet requirements for quality – irrespective of the age of the buses.

Finally, the project group for Bus 2010 would like to express their gratitude to the following members of the network MERIT: Ylva Preutz Papantoni – SL, Jeanette Ekberg – Skånetrafiken, Nicke Ek – Västtrafik and Thomas Karlsson – Färdtjänsten Göteborg, for their input in connection with accessibility issues.

On behalf of the Bus 2010 project

Claes Annerstedt, Dalatrafik	Klas Sörensson, Skånetrafiken
Alan Björk, Björks Buss	Johan Nordgren, Swedish Public Transport Association
Maria Övergaard, Stockholm Transport SL	Lars Annerberg, Swedish Bus and Coach Federation
Henrik Birath, Nobina	Ove Forsberg, Scania
Anders Hagström, Veolia Transport	Kjell-Arne Lindvall, Volvo

VALIDITY

Bus 2010 shall serve as an agreement enclosure with respect to buses for all types of transport procurements, and function as a means of support for vehicle purchases. The document specifies the functional requirements that apply over and above the regulations on current legislation, and which are agreed jointly by the sector to be of interest to passengers. In exceptional cases, reference is made to current legislation.

The regulations in current legislation concerning approval and technical requirements for vehicles are common for all countries in the EU. In a framework directive, a harmonised framework is established which contains administrative requirements and general technical requirements for the approval of new vehicles. The framework directive is referred to as Directive 2007/46/EG dated 5 September 2007 on the determination of a framework for the approval of motor vehicles and trailers for these vehicles, and of systems, components and separate technical units that are intended for such vehicles. The intention of the framework directive is to facilitate the registration, sale and use of vehicles in the European Union. The framework directive specifies the technical requirements that are to be met in connection with the approval of vehicles. Technical requirements and testing methods for the verification of requirements are stipulated in EU ordinances, EU directives and ECE regulations. The framework directive contains a list of EU ordinances and EU directives that are to be applied for different vehicles. At present, there are just over fifty directives containing regulations for wheel systems, engines/motors, steering, brake systems and other systems and components in vehicles. The framework directive also contains a list of ECE regulations that will replace corresponding EU directives. The European development work on technical requirements for vehicles is conducted within the ECE work. In the long term, the ECE regulations will replace EU directives. In the case of buses, there is a special directive, Bus Directive 2001/85/EG, which specifies requirements governing the chassis and interior fittings of buses. ECE Regulation 107 can be used instead of the Bus Directive. In 2014, ECE Regulation 107 will replace the Bus Directive, which will then cease to apply.

The regulations in the framework directive are valid in Sweden in that they have been introduced into the Vehicle Act (2002:574) and the Vehicle Ordinance (2009:211). The regulations in the EU Directive and the ECE Regulations are valid in Sweden in that they have been introduced into Vägverket's (the Swedish Road Administration's) Instructions VVFS 2003:22. The Swedish Transport Agency has been responsible since 1 January 2009 for Vägverket's instructions on vehicles. New instructions on technical requirements for vehicles are issued by the Swedish Transport Agency in the Transport Agency Instructions (TSFS).

Directives are drawn up by the European Commission, the Council of Europe and the European Parliament in co-operation. The ECE Regulations are drawn up by the United Nations Economic Commission for Europe. There is formal co-operation between the EC and the ECE. Swedish participation in the work of the EC and ECE takes place through the Swedish Transport Agency. The regulations are available on the Internet via the following links:

Swedish regulations:
www.lagrummet.se
www.vv.se
www.transportstyrelsen.se
EU directives on vehicles:
http://eur-lex.europa.eu/sv/legis/latest/chap133010.htm 13
ECE regulations on vehicles:
www.unece.org/trans/main/wp29/wp29regs.html

Bus 2010 has given due consideration to the pending EU Ordinance on passenger rights for bus users. A concrete example of this is the fact that all new buses, regardless of class, shall be able to take on board

passengers with wheelchairs. Vehicles of Classes II, III and Classes A and B shall be accessible for passengers with impaired mobility, including people who use wheelchairs, pursuant to the technical regulations in Enclosure VII of the EU Bus Directive.

1 SAFETY

Passengers shall experience a bus journey as being secure, safe, comfortable and simple. Basic safety requirements are regulated in current legislation through directives and regulations, as well as in the instructions issued by Vägverket and the Swedish Transport Agency. The fact that their journey is safe and secure is important for all passenger groups. The sector has therefore reached joint agreement on the following recommendations which, in addition to the regulations in current legislation, contribute further towards increasing the safety for bus passengers and drivers.

1.1 1.1 ROAD SAFETY

1.1.1 SEAT BELTS

In Bus 2000 (Version 2006) the common sector requirement for three-point seat belts in buses was introduced. We now intend to go one stage further and make it possible for all people, regardless of their height and size, to be able to use three-point seat belts in buses in a safe way. Therefore, we are now introducing the following common sector requirement:

Buses shall be provided with three-point belts so that all passengers, including young children, can sit safely. Young children, in this context, refers to children who are transported in a forward-facing position seated on a personally-owned seat belt cushion.

Common sector requirement:

[X] *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

[ ] *All buses with respect to Class:*

[X] *B* [X] *II* [X] *III*

Requirement in this procurement:

[ ] *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

[ ] *All buses with respect to Class:*

[ ] *B* [ ] *II* [ ] *III*

1.1.2 AUDIO SEAT BELT REMINDER

Buses in scheduled service shall be fitted with audio seat belt reminders. The reminder signals shall be emitted recurrently with the possibility to regulate the interval between signals. Seat belt reminders cannot be compared with those installed in cars, which sense when someone is sitting in a seat and is not wearing a seat belt, but should be seen rather as a basic information function for the bus.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☒ *B* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class ☐ *B* ☐ *II* ☐ *III*

If the transport purchaser prefers the function to be integrated in a separate sysstem for passenger information, such as ”Bus PC”, automatic bus-stop announcement, etc., Item 1.1.2.1 below shall be selected.

If the transport purchaser wishes to transfer responsibility for securing the function to the transport company, Item 1.1.2.2 below shall be selected.

In order to secure the function and thereby follow the common sector recommendation, the transport purchaser must make an active choice between Items 1.1.2.1 and 1.1.2.2 below.

1.1.2.1 AUDIO SEAT BELT REMINDER – THROUGH THE AGENCY OF THE TRANSPORT PURCHASER

Requirement in this procurement: ☐ *Yes* ☐ *No*

1.1.2.2 AUDIO SEAT BELT REMINDER – THROUGH THE AGENCY OF THE TRANSPORT COMPANY

Requirement in this procurement: ☐ *Yes* ☐ *No*

1.1.3 ARM RESTS

Buses shall be fitted with retractable arm rests for seats in the central aisle.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

☐ *All buses with respect to Class:*

☒ *B* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

☐ *All buses with respect to Class:*

☐ *B* ☐ *II* ☐ *III*

1.1.4 ALCOLOCKS – IN THE FORM OF AN ALCOLOCK OR AN ALCOBOX

Buses shall be fitted with alcolocks. Alternatively, use shall be made of a system of alcoboxes.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

1.1.5 ISA

Buses shall be fitted with ISA (Intelligent Speed Adaptation – support for adapting speed).

Common sector requirement:

Option for buses with respect to Class:

A *B* *I* *II* *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

1.1.6 CAMERA SURVEILLANCE – GENERAL

Buses shall be prepared for the simple installation of camera surveillance covering the entire vehicle. This could, for example, take the form of pre-prepared lead-throughs in the entire vehicle.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*

All buses with respect to Class:

☒ *I* ☒ *II*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

1.1.6.1 CAMERA SURVEILLANCE – ROAD SAFETY

Buses shall be fitted with cameras for road safety purposes, which mean that the driver shall be able to monitor the area surrounding all exits from the driver's compartment. See also Section 8.4.

Common sector requirement:

Option for buses with respect to Class:

I II

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

1.1.6.2 CAMERA SURVEILLANCE – SECURITY SURVEILLANCE OF PASSENGER AREA

Buses shall be fitted with a camera for the security surveillance of the passenger space, which means that it is possible to video record events taking pplace in the passenger area.

Common sector requirement:

Option for buses with respect to Class:

I II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☐ *I* ☐ *II* ☐ *III*

1.2 EMERGENCY EQUIPMENT – FIRE SAFETY

1.2.1 EMERGENCY EQUIPMENT

Buses shall contain basic equipment for safety and assistance in emergency situations. The basic equipment shall consist of a fire extinguisher and a first-aid box[1].

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

1.2.2 AUTOMATIC FIRE EXTINGUISHING SYSTEM IN ENGINE COMPARTMENT

Buses shall be equipped with an automatic fire extinguishing system in the engine compartment that meets the requirements of Swedish Fire Protection Standards: SBF-128 Permanent automatic fire extinguishing systems on buses. This requirement applies also to supplementary heater units mounted outside the engine compartment.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

[1] *For information on fire extinguishers, reference is made to TSFS2010:2, Chapter 3, § 2*

[2] Should you require more information about wheelchairs in public transport, we recommend you consult the following information sheets

2 ACCESSIBILITY

Passengers shall regard bus journeys as being secure, safe, **comfortable** and **simple**. Fundamental requirements for accessibility are regulated in legislation by means of directives and regulations, as well as the instructions issued by Vägverket and the Swedish Transport Agency. Good accessibility before, during and after the journey not only facilitates matters for the functionally impaired but also for all passenger groups. The sector has therefore agreed jointly on the following recommendations which, in addition to the regulations in current legislation, contribute further towards increasing accessibility and facilitating matters for bus passengers[2]

2.1 EMBARKING AND DISEMBARKING

2.1.1 DOOR ARRANGEMENTS

The choice of door arrangement should be adapted to the traffic area in which the buses are to be used. Buses equipped with the number of doors specified in the options listed in the points below shall not be disqualified for traffic in other agreement areas.

2.1.1.1 TWO DOOR OPENINGS

Buses shall have two door openings.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*
All buses with respect to Class:
☒ *I* ☒ *II* ☒ *III*

☐ ***Requirement in this procurement:***
☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*
All buses with respect to Class:
☐ *I* ☐ *II* ☐ *III*

[2] Should you require more information about wheelchairs in public transport, we recommend you consult the following information sheets

2.1.1.2 THREE DOOR OPENINGS

Buses shall have three door openings.

Common sector requirement:
Option for buses with respect to Class:
I II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☐ *I* ☐ *II* ☐ *III*

2.1.1.3 ARTICULATED BUS WITH THREE DOOR OPENINGS

Articulated buses shall have three door openings.

Common sector requirement: *Yes* *No* ☒ ☐

Requirement in this procurement: ☐ *Yes* ☐ *No*

☐ *The requirement in the procurement refers to articulated buses brought into service for the first time on*
☐ *commencement of the contractual operations.*

The requirement in the procurement refers to all articulated buses.

2.1.1.4 ARTICULATED BUS WITH FOUR DOOR OPENINGS

Articulated buses shall have four door openings.

Common sector requirement:
Optional choice.

Requirement in this procurement: ☐ *Yes* ☐ *No*

☐ *The requirement in the procurement refers to articulated buses brought into service for the first time on*
☐ *commencement of the contractual operations.*

The requirement in the procurement refers to all articulated buses

2.1.2 CONTRAST MARKING ON ENTRANCE AND EXIT STEPS

All steps at bus entrances and exits, as well as inside the bus, shall be carefully contrast marked. The steps shall be contrast coloured with at least 0.4 NCS in relation to the remainder of the bus interior.[3]
See also Enclosure 4.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

[3] *For further information concerning NCS, reference is made to www.ncscolour.com or to the book entitled Bygg ikapp handikapp (Build to Adapt to Handicap) published by Svensk Byggtjänst.*

2.1.3 FLOORS AND DOORS IN CLASS 1 AND 2 LOW-FLOOR BUSES

In buses of Class I and II of a low-floor design, the floor structure of the bus shall make it possible for passengers with wheelchairs, with dimensions as per the Bus Directive, to embark via both the front and centre doors of the bus and from there be able independently to move to the designated wheelchair area and thereafter to exit the bus via the middle doors.The highest and lowest height of a step inside the vehicle shall be 120-200 mm.

The arrangement of seats in the low-floor part of the bus shall be flexible to the extent that it shall be simple to change between the seat arrangements in the following Clauses 2.1.3.1 and 2.1.3.2.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☒ *I* ☒ *II*

☐ ***Requirement in this procurement:***

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

In order to guarantee the function and thereby follow the common sector recommendations, it is necessary for the transport operator to make an active choice between Clauses 2.1.3.1 and 2.1.3.2 below.

2.1.3.1 ENTRANCE FOR WHEELCHAIR PASSENGERS THROUGH THE CENTRE DOORS

Wheelchair passengers are to embark through the centre doors. This solution permits a larger number of seats in the low-floor section of the vehicle than in Clause 2.1.3.2.

Requirement in this procurement:

Yes ☐ *No* ☐

2.1.3.2 ENTRANCE FOR WHEELCHAIR PASSENGERS THROUGH THE FRONT DOOR

Wheelchair passengers are to embark through the front door. This solution means there are a smaller number of seats in the low-floor section of the vehicle than in Clause 2.1.3.1.

Requirement in this procurement:

Yes ☐ *No* ☐

2.2 WHEELCHAIR AREA

Buses of Class A, B, II and III shall fulfil the requirements of Enclosure VII of the Bus Directive or Enclosure 8 of ECE Regulation 107.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *III* ☒

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *II* ☐ *III*

2.3 DESIGN OF WHEELCHAIR AREA IN CLASS A, I AND II

The figure below illustrates how the wheelchair area is to be designed in a bus which, according to law, does not need to be fitted with seat belts and travel in the wheelchair takes place backwards with respect to the direction of travel. The side protection in the wheelchair area shall meet the dimensions specified in Figure 1 below. In those cases where wheelchair areas are positioned in the direction of travel, see Enclosure 4 for further information.

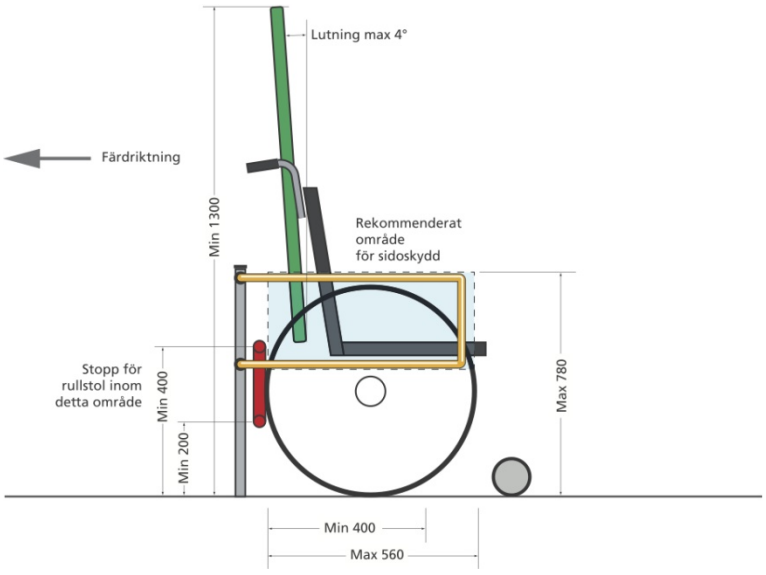


Figure 1 A retractable rail or similar device shall be mounted on the opposite side of the wheelchair area in order to prevent the wheelchair from moving in a sideways direction and so that the wheelchair user can easily grab hold of it. For further

information, reference is made to Bus Directive Enclosure VII, Clause 3.8.3 or ECE Regulation 107 Enclosure 8, Clauses 3.8.4-3.8.6.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *I* ☒ *II*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *I* ☐ *II*

2.4 MANDRAILS AND HANDLES

Hand rails and handles shall be contrast painted with at least 0.4 NCS in relation to the remaining interior surfaces of the bus. [4]

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

[4] For further information on NCS, reference is made to www.ncscolour.com or the book entitled Bygg ikapp handikapp *(Build for adapting to Handicap)* published by Svensk Byggtjänst.

2.5 PRAMS AND PUSH-CHAIRS

There shall be sufficient room for prams and push-chairs. The width of a pram/push-chair shall be assumed to be 600 mm. Anti-tip protection shall be provided for prams/push-chairs (so-called pram straps). Note that the pram/push-chair area can be part of the wheelchair area.

2.5.1 BUSES CLASS A, I AND II – LOW-LEVEL FLOOR

- Buses of Class A shall have at least one pram/push-chair place in the low-level floor section.
- Buses of Class I shall have at least three pram/push-chair places, two of which in the low-level floor section. Buses of Class I shorter than 11.5 m shall have at least two pram/push-chair places in the low-level floor section.
- Buses of Class II shall have at least 2 pram/push-chair places in the low-level floor section.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *I* ☒ *II – low-floor level*

☐ ***Requirement in this procurement:***

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *I* ☐ *II – low floor*

2.5.2 SUPPLEMENT

Supplement – Buses shall have __ pram/push-chair places.

För beställare:
Ange antal barnvagns-platser här.

For purchasers:

Specify the number of places for prams/push-chairs here.

3 COMFORT

Passengers shall experience a bus journey as being secure, safe comfortable and simple. The basic requirements regarding comfort and simplicity are regulated in current legislation by directives and regulations as well as by Vägverket and Swedish Transport Agency instructions. The fact that travel is comfortable and simple is important for all passenger groups. The sector has therefore reached joint agreement on the following recommendations which, in addition to the regulations in current legislation, contribute further towards increasing the comfort for bus passengers.

3.1 VISIBILITY THROUGH WINDOWS

There should be good visibility through windows for all passengers, both short and tall, and regardless of whether they are seated or standing.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.2 INTERIOR TEXTILES AND OTHER INTERIOR DESIGN

The material used in seat coverings and other fittings shall be such that the problem of allergies is minimised. See also Enclosure 4.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.3 POSITIONING OF SEATS

No more than 50 % of the seats in buses may be positioned on raised daises that exceed the height of the central aisle by more than 250 mm.

If raised daises are used, their height shall be more than 120 mm in relation to the central aisle.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.4 SEAT HEIGHTS

The seat height above floor level shall be between 450 and 500 mm. For further information, see Enclosure 4.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.5 SEAT DIMENSIONS

Minimum space between seats (H):

Buses of Class I, A and B	680 mm.
Buses of Class II	710 mm.
Buses of Class III	750 mm.

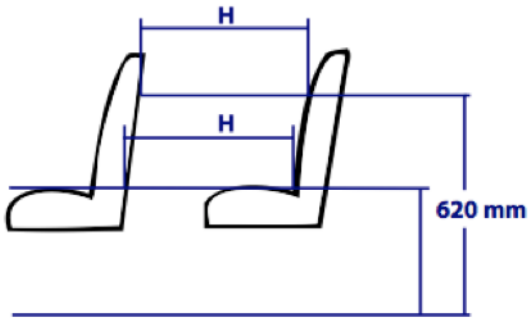


Figure 2

The space between seats (H) facing in the same direction is measured horizontally from the upper section of the seat back to the rear section of the seat back in front at all heights above the floor between the upper surface of the seat cushion and a point 620 mm above the floor. The exception is for space that is impossible to adapt in terms of dimensions. In this case, Bus Directive 2001/85/EG or ECE Regulation 107 shall apply.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.6 RESERVED SEATS AND SPACE FOR PASSENGERS WITH IMPAIRED MOBILITY

3.6.1 DISTANCE BETWEEN RESERVED SEATS

- The distance (H) shall be at least 780 mm.
- In vehicles with low floor levels, the reserved seats shall be positioned in the low floor level area (area without a raised dais). For further information, see Enclosure 4.
- There shall be four reserved seats in Classes I, II and III.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *I (Articulated bus)* ☒ *II* ☒ *II (Articulated bus)*

☒ *III*

☐

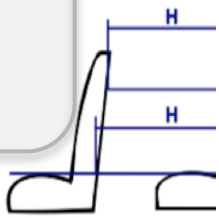


Figure 3

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *I (Articulated bus)* ☐ *II* ☐ *II (Articulated bus)*

☐ *III*

3.6.2 DISTANCE BETWEEN RESERVED SEATS FACING EACH OTHER

- The distance (H) shall be at least 1500 mm.
- In vehicles with low floor levels, the reserved seats shall be positioned in the low floor level area (area without a raised dais). For further information, see Enclosure 4.
- There shall be four reserved seats in Classes I, II and III.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☐ *I (Articulated bus)* ☒ *II* ☐ *II (Articulated bus)*

☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *I (Articulated bus)* ☐ *II* ☐ *II (Articulated bus)* ☐ *III*

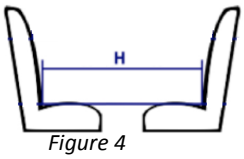


Figure 4

3.7 HIGH SEAT BACK SUPPORTS

In Bus Classes B, II and III, the seats shall be fitted with high seat back supports, i.e. where the neck support is an integrated part of the back support.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☒ *Class:*

All buses with respect to Class:

☒ *B* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *B* ☐ *II* ☐ *III*

3.7.1 INCLINABLE SEAT BACK SUPPORTS

In Bus Classes B, II and III, the seats shall be fitted with high back supports that can be inclined/adjusted.

Common sector requirement:

Option for buses with respect to Class:

B *II* *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☐ *B* ☐ *II* ☐ *III*

3.8 VENTILATION

Buses shall be fitted with heating/fresh air devices so that a good air environment and good climate are provided. This means, among other things, that the ventilation system shall be provided with an air filter against dust and pollen.

Common sector requirement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☒ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

Note! The choice of a ventilation solution in line with the options in Clauses 3.8.1 and **Fel! Hittar inte referenskälla.** below shall not disqualify the bus concerned from operating in other contract areas.

3.8.1 AUTOMATIC CLIMATE CONTROL

Buses shall be fitted with automatic climate control.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

3.8.2 OPENABLE WINDOWS

Buses shall be fitted with openable windows.

Common sector requirement:
Option for buses with respect to Class:
B II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *B* ☐ *II* ☐ *III*

3.9 MISCELLANEOUS

3.9.1 CURTAINS/BLINDS

Buses shall be fitted with curtains/blinds.

Common sector requirement:
Option for buses with respect to Class:
A B II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *II* ☐ *III*

3.9.2 FOLDING TABLES

Buses shall be fitted with folding tables.

Common sector requirement:
Option for buses with respect to Class:
B II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *B* ☐ *II* ☐ *III*

3.9.3 FOOT RESTS

Buses shall be

Common sector requirement:
Option for buses with respect to Class:
B II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *B* ☐ *II* ☐ *III*

3.9.4 TOILETS

Buses shall be fitted with a toilet. Hand-washing facilities shall be provided.

Common sector requirement:
Option for buses with respect to Class:
II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *II* ☐ *III*

3.9.5 LUGGAGE RACKS - CEILING

Buses shall be fitted with luggage racks running along the length of the ceiling. Note that for Class II, this applies provided the bus has a normal floor level.

Common sector requirement:
Option for buses with respect to Class:
II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *II* ☐ *III*

3.9.6 LUGGAGE RACKS – WHEEL HOPUSING – LOW FLOOR

Buses of a low floor-level design shall be fitted with luggage racks in the forward wheel housings.

Common sector requirement:
Option for buses with respect to Class:
I II

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

3.9.7 LOAD DISPLACEMENT PROTECTION FOR LUGGAGE RACKS

Buses shall be fitted with load displacement protection for the luggage racks.

Common sector requirement:
Option for buses with respect to Class:
II III

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *II* ☐ *III*

4 INFORMATION & COMMUNICATION

Passengers shall experience their bus journey as being secure, safe comfortable and simple. The basic requirements regarding information and communication are regulated in current legislation by directives and regulations, as well as by Vägverket and Swedish Transport Agency instructions. Good information before, during and after the journey is important for all passenger groups. The sector has therefore reached joint agreement on the following recommendations which, in addition to the regulations in current legislation, contribute further towards simplifying the journey for bus passengers.

4.1 EXTERNAL INFORMATION

4.1.1 ROUTE AND DESTINATION SIGNS - GENERAL

- All signs shall be programmable. In those cases where vehicle computers are lacking, it shall be possible for this to be done from the driver's cab in order to ensure flexibility in connection with route changes.
- All signs shall be clearly legible for the passengers. See Enclosure 4 re. good legibility.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

4.1.2 ROUTE AND DESTINATION SIGNS - FRONT

Route and destination signs shall be displayed on the front of the bus.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

4.1.3 ROUTE AND DESTINATION SIGNS - FRONT DOOR AND REAR OF BUS

- On Bus Classes I, II and III in scheduled service, route number and destination signs shall be displayed at the front door of the bus.
- On Bus Classes I, II and III in scheduled service, the route number shall be displayed on the rear of the bus.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II* ☐ *III*

4.1.4 EXTERIOR LOUDSPEAKERS

Buses shall be provided with external loudspeakers positioned by the entrance door which permit the announcement of route number, destination and other messages. The loudspeaker system shall provide a high level of audibility for passengers. See Enclosure 4 re. good audibility.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

4.2 INTERNAL INFORMATION

Information shall be adapted to suit the requirements of different passenger groups. All information shall be audio-visual.

4.2.1 AUTOMATIC PASSENGER INFORMATION

Buses shall be provided with systems for automatic passenger information, for example bus-stop announcements. It shall be possible, throughout the length of the route, for the system to automatically provide information on connections and traffic disruptions, etc. The system shall provide a high level of legibility and audibility for passengers irrespective of where they are situated in the vehicle.

The contrast between text and background shall be at least 0.7 NCS.

See Enclosure 4 re. good audibility and legibility.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

In order to guarantee function and thereby follow the above common sector requirements, the transport purchaser shall make an active choice between Clauses 4.2.1.1 and 4.2.1.2 below.

If the transport purchaser decides that the function should be integrated into a separate system for passenger information such as, for example, ”Bus PC”, automatic bus-stop announcement, etc., Clause 4.2.1.1 below shall be selected.

If the transport purchaser chooses to transfer responsibility for securing the function to the transport company , Clause 4.2.1.2 below shall be chosen.

4.2.1.1 AUTOMATIC PASSENGER INFORMATION – THROUGH THE AGENCY OF THE TRANSPORT PURCHASER

***Requirement in this procurement**:* ☐ *Yes* ☐ *No*

4.2.1.2 AUTOMATIC PASSENGER INFORMATION – THROUGH THE AGENCY OF THE TRANSPORT COMPANY

Requirement in this procurement: ☐ *Yes* ☐ *No*

4.2.2 SIGNAL BUTTONS

- Signal buttons/Stop buttons shall be red with white text in relief.
- When a signal button /stop button is pressed, both visual and audio signals shall be received.
- Signal buttons shall be located near each reserved seat and in each wheelchair area, and shall be positioned at a height of 700 – 1000 mm above floor level.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

4.2.3 SIGNAL BUTTONS/ATTRACT DRIVER'S ATTENTION

- Signal buttons to attract the driver's attention, e.g. to keep the disembarkment doors open for a longer period of time, shall be blue with the intended function shown in white relief.
- When a signal button/stop button is pressed, both visual and audio signals shall be activated.
- Signal buttons shall be located close to each reserved seat and in each wheelchair area, and shall be positioned at a height of 700 – 1000 mm above floor level

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

4.2.4 SIGNAL BUTTONS OUTSIDE THE VEHICLE

- Signal buttons outside the vehicle to attract the driver's attention shall be clearly visible with a pram/push-chair signal on the actual button. When a button is pressed, acknowledgement shall be received by, for example, diodes around the button in question lighting up.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II* ☐ *III*

5 DRIVER'S ENVIRONMENT

Basically, ISO Standards, SS-ISO 16121-3, 4, Directive 2001/85/EG, Clause 7.6.4.6 or ECE Regulation 107, Clause 7.6.4.6 shall always apply. However, the ISO Standards do not always give due consideration to certain aspects of the driver's environment in low-floor buses. The recommendations for national supplementary requirements presented by the joint sector project known as the Driver's Compartment Project in its final report in Spring 2007 are now being introduced into Bus 2010.

5.1 INTERIOR SURVEILLANCE

It shall be possible to monitor the interior space in buses from the driver's compartment.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

5.2 ERGONOMICS

When driving straight ahead at speeds of up to 10 km/h on a normal carriageway (IRI Value 2.0), the power needed to turn the wheel to its full extent may not exceed 10 daN (100 N). When driving at 30 km/h on a carriageway with an IRI Value of 3.0 (with short wavelengths), the highest level of vibration in any direction measured on the driver's seat cushion may not exceed 0.5 m/s2.[6]

These measurements shall be taken in accordance with SS-ISO 2631-1:1997, SS-EN 1032:2003 and SS-EN 12096:1998. The specified value is for the equivalent value over a period of five minutes. The measurements shall be taken with a driver who weighs 80 kg +/-5kg. At the time of measurement, the tyre pressure of the vehicle shall be that specified by the manufacturer. And the seat settings shall be in accordance with the manufacturer's instructions.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

5.3 CLIMATE

Wintertime: The temperature in the driver's compartment may not fall below + 15 degrees C during continuous driving (after 30 minutes' driving) at a measuring point in the driver's compartment as specified in ISO 6549.

Summertime: At an outdoor temperature that exceeds plus 25 degrees C, it shall be possible for the temperature in the driver's compartment to be lowered by at least 3 degrees C in relation to the outdoor temperature..

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

5.4 SAFETY

In the driver's compartment, space shall be available for equipping the bus with a camera/cameras that can be directed at the entrance door to take pictures of embarking passengers and/or can monitor both the driver's compartment and the area around the driver's compartment so that embarking passengers can also be monitored.

If the driver's compartment is provided with communication equipment, it shall be of the hands-free type, except in the case of activation/connection and de-activation.

There shall be vision enhancement devices, for example mirrors or cameras, which make it possible for the driver, from the driver's compartment, to monitor the area immediately next to all exit doors, irrespective of whether the doors are open or closed. Surveillance shall at least be

activated when the bus is standing still at a bus-stop and when it leaves the bus-stop. (one and the same vision enhancement device can monitor one or more doors.)

The outside areas that are to be monitored are: a two-metre wide area of ground outside the bus extending from the front edge of the door to the centre of the wheel that is closest behind the bus door. If there is no wheel behind the door, the area of ground as far as the rear end of the bus shall be monitored. (See sketch below.)

In the case of articulated buses, the vision enhancement device shall provide the driver with a good overview even when the bus is positioned in such a way that the front section and back section door sides create an angle that is different from 0 degrees.

Reference: SS-ISO 16121- 3, 4. Directive 2001/85/EG, Clause 7.6.4.6

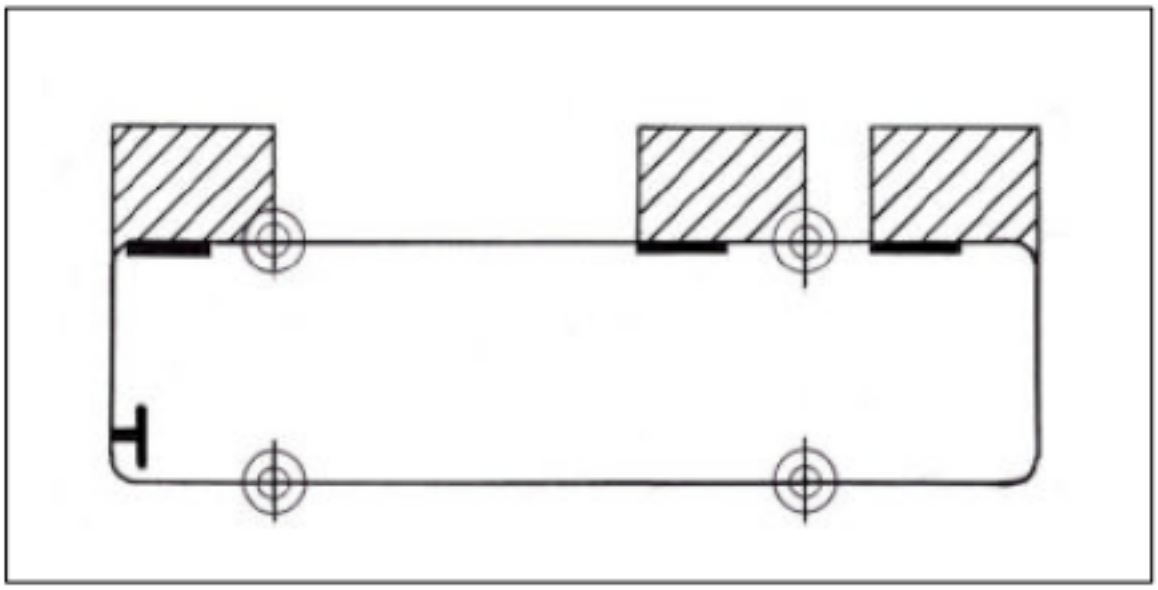


Figure 5. It shall be possible for the shaded areas outside the bus to be monitored.

Warning systems that indicate serious faults shall only be possible to reset manually. Serious faults in this context refers to faults that are normally indicated with a red warning light that could adversely affect the bus stability and braking, communication and control systems in such a way that there is a risk of personal injury.

Door brakes shall have three independent warning systems that warn the driver if he/she exits the bus without having applied the parking brake.

1. The system shall warn the driver with a buzzer signal when the engine is switched off if the parking brake has not been applied.
2. An additional buzzer shall warn the driver if he/she has left the driver's seat without applying the parking brake.

3. If the driver leaves the bus without having applied the parking brake, and from outside the bus performs an action that normally activates the door brakes, for example breaks the main current or closes the front door, the door brakes shall not be activated, the doors shall remain open, the signal horn shall be sounded and all the bus indicators shall be activated.

Buses of Class I shall be fitted with a three-point seat belt in the driver's seat. It shall be possible for the upper fixing point of the belt to be vertically adjusted.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *I* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *I*

5.5 SECURITY

Buses shall be fitted with an attack alarm in the driver's compartment. The device(s), shall as far as possible, be installed easily accessible for the driver, but concealed from or not visible to someone standing immediately outside the driver's compartment. It is important that the driver should not be able to activate the alarm unintentionally.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*
☐ *Class:*

All buses with respect to Class:

☒ *A* ☒ *B* ☒ *II* ☒ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

6 MISCELLANEOUS

6.1 PROVISIONS FOR CYCLE HOLDERS

Buses shall be equipped in such a way that it is possible to install cycle holders.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☒ *I* ☒ *II*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

6.1.1 CYCLE HOLDERS

Buses shall be equipped with cycle holders.

Common sector requirement:

Option for buses with respect to Class:

I *II*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☐ *I* ☐ *II*

6.2 FLAG HOLDERS

Buses shall be equipped with flag holders in each front corner.

Common sector requirement:

☒ *Buses brought into service for the first time on commencement of contractual operations with respect to*

☐ *Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☒ *I* ☐ *II* ☐ *III*

Requirement in this procurement:

☐ *Buses brought into service for the first time on commencement of contractual operations with respect to Class:*

All buses with respect to Class:

☐ *A* ☐ *B* ☐ *I* ☐ *II* ☐ *III*

7 ENCLOSURE 1 – DEFINITIONS OF BUS CLASSES

The classification of bus types is used in various circumstances in order to briefly describe the vehicle. In Bus Directive 2001/85/EG, the following five vehicle classes are defined: A, B, I, II and III. Reference: Bus Directive 2001/85/EG, Enclosure I Clause 2.1.1 – Clause 2.1.4.

7.1 MAX 22 PASSENGERS

Vehicles that are fitted out to hold a maximum of 22 passengers are in addition to the driver:

CLASS A

A vehicle designed to hold standing passengers. A vehicle of this class is fitted with seats and shall have space for standing passengers.

CLASS B

A vehicle that is not designed to hold standing passengers. A vehicle of this class shall have no space for standing passengers.

7.2 MORE THAN 22 PASSENGERS

A vehicle that is not designed to carry more than 22 passengers in addition to the driver:

CLASS I

Vehicles that are manufactured with space for standing passengers in order to permit frequent movements of passengers.

CLASS II

Vehicles that are mainly manufactured for the transport of seated passengers and which are designed to permit the transport of standing passengers in the centre aisle and/or in a space that is no larger than the area taken up by two double seats.

CLASS III

Vehicles that are manufactured exclusively for the transport of seated passengers.

LOW-FLOOR BUSES

A vehicle of Class I, II or A in which at least 35 % of the space for standing passengers (or the front section in the case of articulated vehicles, or the lower floor in the case of double-decker buses) consists of an area without steps and provides the opportunity to reach at least one entrance and exit door.

8 ENCLOUSER 2. LINKS

National Courts Administration portal for Swedish legal information
www.lagrummet.se

Swedish Road Administration
www.trafikverket.se

Swedish Road Administration (Vägverket) Instructions
VVFS 2003:22

Swedish Transport Agency
www.transportstyrelsen.se

Swedish Transport Agency Instructions
TFSF

EU Directive on Vehicles
http://eur-lex.europa.eu/sv/legis/latest/chap133010.htm

Bus Directive 2001/85/EG
2001/85/EG

Framework Directive
2007/46/EG

ECE Regulations on Vehicles
ECE-reglemente 107

Final Report from the Common Bus Sector Drivers' Project
www.bussbranschen.se

Swedish Fire Protection Association standards for Automatic Fire Extinguishing Systems in Engine Compartments.
www.svbf.se

Fact sheet on bus travel with a wheelchair
www.svenskkollektivtrafik.se

Skandinaviska Färginstitutet AB - NCS - Natural Color System
www.ncscolour.com

9 ENCLOSURE 3. FUTURE DEVELOPMENT

A list is given below of some of the items we discussed in the working group for Bus 2010 that could be considered as being functional requirements in the next issue.

- ESP for buses (Electronic Stabilisation Programme)
- Collision warning, including braking assistant
- Under-drive protection (to prevent cars from being forced under buses in the event of a head-on collision)
- Emergency evacuation: there are more models than the one we use in Sweden, which requires the use of a hammer to smash glass windows These include, for example, the model used in North America with openable windows and in Great Britain where it is common to have emergency exit doors.
- Luggage space in Class II and III buses.

10 ENCLOSURE 4. DETAILED DESCRIPTION OF CERTAIN FUNCTIONAL REQUIREMENTS

Foreword

The Swedish Public Transport Association and the Swedish Bus and Coach Federation (BR) have produced a new version of the previously published Bus 2000, now entitled Bus 2010. Bus 2010 is the sector's common national document regarding functional requirements for buses in connection with functional requirements for transport procurements and bus purchases.

The purpose of Bus 2010 is to create the preconditions necessary for a cost-effective and rational system of public transport. By using common sector procurement documents resources can be released in the sector for increasing the range of services and products offered and increasing the quality. Bus 2010 came into force on 1 February 2010.

In Bus 2010, it is stated that "It is clear that the functional requirements we in the sector impose on buses must be based on the requirements of our passengers. They shall be requirements which mean that people find it secure, safe comfortable and simple to make journeys by bus". It is important that these words should also cover passengers with some form of functional impairment. In the coming reverse order, where it is proposed that passengers should be entitled to be able to use public transport instead of today's obligation to make transport accessible to people with functional impairments, this document could prove to be a support.

Within Swedish public transport, there is a group called MERIT (Meeting place for the exchange of experience on integrated traffic). MERIT deals with questions concerning accessibility for passengers with functional impairments, mobility services, local transport services, etc. Within MERIT, there is a special accessibility group. The group consists of representatives from AB Storstockholms Lokaltrafik, Västtrafik AB, Skånetrafiken and the KOLLA (public transport for all) Project in Gothenburg.

The accessibility group has produced this enclosure for accessibility for the elderly and for passengers with some form of functional impairment in buses and has provided the Bus 2010 group with increased demands for accessibility in Buss 2010, Version 1.2, in order to be able to begin improving the degree of accessibility in public transport but also in order to encourage mobility service passengers to choose public transport rather than the mobility services to an increasing extent in the future.

Unambiguous design requirements make it easier for passengers, transport contractors and bus manufacturers to recognise and learn to deal with different problems. We trust that this enclosure will be of assistance to everyone, such as transport principals, operators and manufacturers, in their continued efforts to create a more accessible society.

Jeanette Ekberg, Skånetrafiken
Nicke Ehk, Västtrafik
Ylva Preutz Papantoni, SL
Thomas Carlsson, the KOLLA Project
Jenny Carlsson, Sweco

10.1 GUIDELINES FOR ACCESSIBILITY

This enclosure is a descriptive document that is primarily directed at vehicle manufacturers. It describes various functional requirements in greater detail.

Vehicles of Class I shall be accessible for people with impaired mobility, including wheelchair users, in accordance with the technical regulations of Enclosure VII (the Bus Directive).

Vehicles of Class II, III and Classes A and B shall also be accessible for persons with impaired mobility, including wheelchair users, in accordance with the technical regulations of Enclosure VII in the EU Bus Directive (Bus 2010).

10.1.1 ENTRANCE STEPS

To guarantee good accessibility for passengers with wheelchairs, zimmer frames, prams, pushchairs, etc. every effort shall be made to apply the minimum possible distance in both the horizontal and vertical directions between the bus-stop and the floor of the bus..

Ramps should be provided on all buses with a low floor-level design. The ramp shall bridge the gap between the floor of the passenger area and the ground or pavement.

Contrast marking at door openings shall be at least 100 mm wide. Other contrast markings shall be at least 20 mm wide. Contrast in this context means a difference in the degree of lightness of at least 0.4 according to NCS (Bus 2010).

All steps at entrance and exit doors, as well as inside the bus, shall be clearly contrast-marked. Thew stairs shall be contrast coloured with at least 0.4 NCS in relation to the remainder of the bus interior (Bus 2010).

The height of the first step from the ground in at least one embarking or disembarking door may not exceed 250 mm for vehicles of Classes I and A, and 320 mm for vehicles of Classes II, III and B (Bus Directive, Enclosure VII § 3.1).

As an alternative for vehicles of Classes I and A, the first step may not be situated higher than 270 mm from the ground in two door openings and one disembarkment door. A kneeling or floor lowering system and/or steps can be connected (Bus Directive, Enclosure VII, Chapter 3.1).

Regulations governing the height of steps are regulated in the Bus Directive Enclosure VII, Chapter 3.1 ”Steps”.

10.1.2 LOW FLOOR DESIGN AND KNEELING

All busses of Class I and II shall be of the low floor-level design.

Buses should be fitted with a system by which a vehicle chassis is either fully or partly lowered or raised in relation to its normal level in movement . The bus driver shall, when necessary, adjust the level of the bus vertically with the aim of minimising the difference in height at each bus-stop.

In buses of Class I and II in a low floor-level design, the bus floor structure shall make it possible for wheelchair passengers with a wheelchair, the dimensions of which comply with the Bus Directive, to get on the bus through both the front and middle doors of the bus and from there be able to make his/her own way to the appointed wheelchair place and thereafter get off the bus via the middle door (Bus 2010).

The seating arrangement in the low-floor area shall be flexible to the extent that it shall be easy to rearrange it in accordance with Clauses 2.1.3.1 and 2.1.3.2 in Bus 2010.

Regulations on kneeling systems and ramps are regulated in the Bus Directive, Chapter 3.11 ”Assistance with embarking”.

10.1.3 PASSENGER SPACE

From the passengers’ point of view, it is important that the bus fittings are designed to facilitate moving around the bus. There should always be enough grip supports in the bus to minimise the risk of falling over while the bus is in motion. The bus fittings should have a high level of contrast to make it easier for passengers with impaired sight to move around. The most important factor is that seats should contrast with both floors and walls. Grip supports shall contrast with floors, walls and seats..

The material for seat coverings and other fittings shall not be of a type that emits substances that are dangerous to health or could cause allergies. The coverings and surface claddings selected shall be easy to clean and collect particles, animal hair, etc. to the lowest extent possible.

Hand rails and handles shall be contrast-coloured with at least 0.4 NCS in relation to the rest of the bus interior (Buss 2010).

The material used in seat covers and other fittings shall be chosen so that problems in connection with allergies are minimised (Bus 2010).

10.1.4 FLOORS

Floor coverings in buses should be anti-skid treated and not cause dazzle. Floor coverings shall provide a good contrast with contrast markings and other interior features.

Regulations concerning floor slopes are regulated in the Bus Directive, Enclosure VII, Chapter 3.5 ”Floor slope”.

10.1.5 DIFFERENCES IN LEVEL (FOOT STEPS AND DIASES)

Differences in level are frequently a problem for the functionally impaired and shall therefore not occur in the vehicle in such a way that the possibility for the person in question to use the vehicle decreases to any significant extent. It is often difficult for passengers with some form of impaired mobility to take large steps up or down. It is thus important that both daises and steps are not too high.

The transition from the lower-level central aisle to the seating area is referred to in this context as a dais. Daises shall not be regarded as steps.

If daises are used, there height must exceed 120 mm in relation to the central aisle in order to minimise the risk of stumbling (Bus 2010).

Max 50% of the seats in a bus may be located on daises that exceed 250 mm in height in relation to the central aisle (Bus 2010).

According to the Bus Directive, the rise on foot steps (with the exception of the first step from the ground), may not exceed 200 mm for vehicles of Classes I and A, and 225 mm for vehicles of Classes II, III and B.

Provisions governing the rise on steps are regulated in the Bus Directive, Enclosure VII, Chapter 3.1 ”Steps”.

10.1.6 GRIP SUPPORTS

Grip supports are important for all passengers who are not seated or who choose to stand during the journey. Holding on to something reduces the risk of passengers falling over. In the case of passengers with an impaired sense of balance this is even more important. Many elderly and functionally disabled people require a little more time to leave the vehicle and thus need to prepare themselves in time. Grip supports should therefore be positioned immediately adjacent to doors in order to facilitate embarking and disembarking. Poles should preferable extend from floor to ceiling so that they can be reached by all passengers, regardless of how tall they are. Poles beside seats shall be designed so that it is easy to get up and sit down.

It is important for hand rails and push-buttons to have a clear contrast with their surroundings since the background is continually changing.

Hand rails and handles hall be contrast-coloured to at least 0.4 NCS in relation to the remaining interior surfaces of the bus (Bus 2010).

Hand rails and handles shall be installed near reserved seats so that passengers can easily hold on to them (Bus Directive, Enclosure VII, § 3.2.3).

Provisions concerning hand rails and arm rests are regulated in the Bus Directive, Enclosure VII, Chapter 3.2 ”Reserved seats and space for passengers with impaired mobility”.

10.1.7 SIGNAL BUTTONS

Signal buttons shall be evenly distributed throughout the entire vehicle, shall be easily accessible by seated passengers and be easy to press.

Holders/housings should contrast with both rails/poles and their surrounding by at least 0.4 NCS, and the covering plate on the back of button housing shall also contrast with the pole/rail.

Touch-buttons can supplement ”normal” signal buttons at seats reserved for passengers with impaired mobility, but if so a ”normal” signal button which is not a touch-button must also be provided in the same location.

Signal buttons should have a raised pressure surface in relation to the housing and be printed in relief, so that S, STOP or Pram is discernible.

Signal buttons shall be positioned at most 1 200 mm above floor level regardless of bus class. It shall be possible for passengers to reach a signal button without having to move from their seats or places.

Signal buttons/stop buttons shall be red with a white text in relief. On pressing a signal button/stop button, both audio and visual signals shall be activated. Signal buttons shall be located near each reserved seat and in each wheelchair space, and shall be positioned at a height of 700-1000 mm above floor level (Bus 2010).

Provisions concerning the design of communication devices are regulated in the Bus Directive, Enclosure VII, Chapter 3.3 ”Communication Devices”.

10.1.8 RESERVED SEATS FOR PASSENGERS WITH IMPAIRED MOBILITY OR SOME OTHER FUNCTIONAL IMPAIRMENT

In all bus classes, except Class B, at least four seats must be marked as being seats for people with a functional impairment (Bus 2010).

A relatively high seat height makes it easier for people to sit down and stand up. The height of the seats above floor level shall be 450-500 mm, with the ambition being to be as close to 500 mm as possible.

There should be grip supports in the form of horizontally-oriented handles or rails near the reserved seats which passengers can hold on to when they get up or sit down. The reserved seats shall have foldable arm rests adjacent to the central aisle.

Many elderly and functionally impaired people take a longer time to disembark from the bus. By locating reserved seats near the doors it is easier for them to find and reach the seats.

It shall be possible to distinguish seats both when someone is sitting on them and when they are vacant. The reserved seats should be marked with a decal that is at least 126 x 126 mm in size and which is clearly visible.

The distance between seats that are reserved for people with impaired mobility or some other functional impairment shall be larger in order to make it easier for passengers to sit down and get up from the seat. The reserved seats must be positioned in the low floor area so that the seats can be used by passengers with impaired mobility and passengers who have difficulty in taking a step upwards.

There should be sufficient room beneath seats for passengers to insert their legs when getting up from their seat.

The minimum distance between seats that are located behind each other shall be 780 mm in Class I, Class II low-floor design, Class II normal floor design, Class III and Classes A and B (Bus 2010).

The distance between seats that are positioned opposite each other shall be at least 1500 mm in Class I, Class II low-floor design, Class II normal floor design, Class III and Classes A and B (Bus 2010).

The reserved seats shall be positioned in the low-floor area (area without daises) in Class I, Class II low-floor design, Class II normal floor design, Class III and Classes A and B (Bus 2010).

Provisions concerning the design of seats for functionally impaired passengers are regulated in the Bus Directive, Enclosure VII, Chapter 3.2 ”Reserved seats and space for passengers with impaired mobility”.

10.1.9 WHEELCHAIR PLACES

Buses of Class A, B and II shall meet the requirements of Enclosure VII in the Bus Directive or Enclosure 8 in ECE Regulation 107.

The wheelchair area shall be designed so that wheelchair users can be transported without securing the wheelchair, facing backwards against a support or a seat-back in accordance with the regulations of the Bus Directive , Clause 3.8.3.

For those buses that require the wheelchair to be secured in place, the design shall be such that the securing can be done quickly and easily.

Fold-back chairs may not be installed in the wheelchair area which prevent the wheelchair area from being used in the way intended.

Only in those cases where all the seats are fitted with seat belts shall the wheelchair places be fitted with belts.

Provisions concerning the design of wheelchair places are regulated in the Bus Directive, Enclosure VII, Chapter 3.6, 3.7 and 3.8.

10.1.10 ”ORDINARY” SEATS

A relatively high seat height makes it easier to sit down and stand up. There should be sufficient room beneath seats for passengers to insert their legs when getting up from their seat.

The height of the seats above floor level shall be between 450 and 500 mm (Bus 2010).

Max 50% of the seats buses may be positioned on daises that are over 250 mm in relation to the central aisle (Bus 2010).

10.1.11 INFORMATION

In order for passengers with functional impairments to receive the information that is communicated inside and outside the bus in a satisfactory way, it is important for the information to be adapted to suit the specific needs of different groups. The journey will be more difficult to make and will be experienced as being less secure if the passenger cannot receive the information communicated.

The information shall be adapted to suit the requirements of different passenger groups. All information shall be audio-visual (Bus 2010).

The illuminated sign(s) on buses shall provide good legibility for passengers irrespective of where they are seated in the vehicle (Bus 2010).

It shall also be possible for the illuminate sign(s) inside the bus that say ”Stop”, or other illuminated signs, to automatically display the name of the next bus-stop, connections, information on disruptions, etc. along the entire route. The design of the signs shall permit good legibility for passengers irrespective of where they are sitting or standing in the vehicle (Bus 2010).

The contrast between text and background shall be at least 0.7 NCS (Bus 2010).

Buses shall be fitted with an audio communication system for manual bus-stop announcements. The communication system shall provide good audibility for passengers irrespective of where they are sitting or standing in the vehicle (Bus 2010).

10.1.11.1 GOOD AUDIBILITY

Good audibility is what is easy to hear by most people. The sound shall not be too loud or too sharp, but preferably clear and distinct.

The external loudspeaker system shall permit a level of speech understanding that conforms to STI>0.6 (Speech Transmission Index) and can be received over an area near the front door of the bus corresponding to 3 x 2 m at normal ear height for a standing person (approx. 1.5 m). The amplification of loudspeakers for the external announcements shall be independent of other loudspeaker systems inside the bus.

With consideration to the prevailing noise target values, the position, direction and directive ? shall be designed so that minimal disturbance is caused to the surroundings. This can, for example, be obtained with the following solution: The loudspeaker is positioned above the front door opening directed downwards towards the area outside the front door of the bus, with an approximately 30 degree inclination. The loudspeaker shall be placed beneath a screen.

10.1.11.2 GOOD LEGIBILITY

If a display with rolling text (either horizontal or vertical) is used, the horizontal rolling speed shall not exceed 6 characters per second.

The contrast between text and background shall be at least 0.7 NCS. Text that will primarily be read at a distance of 2 metres should be 70-100 mm.

The text for all information shall be large enough for passengers with normal vision to be able to see and read the information from the majority of places in the vehicle.

In general use should be made of:

- A clear font.
- First letters in capitals and other letters in sub-case.
- A clear contrast between wall and sign base.