

APPENDIX XX.XX.XX

# Experience guide

The bus experience of the future

**Ruter#**

# About this document

This Experience Guide is a supplement to the documents *Appendix 2 - Technical Requirements (Krav til bussmateriellet)* and *Appendix 2.3 - Brand Requirements (Krav til design)*.

In the event of any discrepancy between the specifications set out in this Experience Guide and in the *Appendix 2 - Technical Requirements (Krav til bussmateriellet)*, the latter shall take precedence.

Date: DD.MM.ÅÅ

Appendix 2  
**Technical Requirements**  
(Krav til bussmateriellet)

Appendix 2.3  
**Brand requirements**  
(Krav til design)

Appendix 2.4  
**Experience Guide**

# Document purpose

This guide is intended as a tool to inspire and guide the design process to create a bus that is an attractive alternative for all passengers and others working with or in the bus. Ruter has conducted thorough research on passenger needs related to bus usage to detect and understand desired experiences. This is the basis for this guide.

All illustrations and images in this document are principle illustrations and are intended to help the tenders to understand the owners intentions. All solutions from tenders should be tested and validated before approval and implementation.

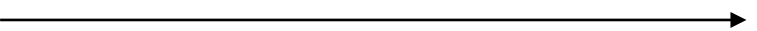
**CHAPTER 1**  
**The bus ecosystem**

Background information about the ecosystem around the bus - the city, the people and passenger needs. Introduces the city of Oslo and considerations that influence the bus design.



**CHAPTER 2**  
**Design strategy**

Describes the overall experience and goals of the new bus, the desired experience and the design guidelines for aesthetics and solutions.



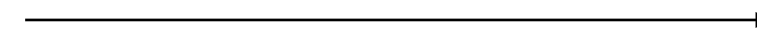
**CHAPTER 3**  
**Design examples exterior**

Inspirational images and practical examples of details for the exterior of the bus. Describes the design of the bus - and exemplifies how the design strategy is applied.



**CHAPTER 4**  
**Design examples interior**

Inspirational images and practical examples of details for the interior of the bus. Describes the design of the bus - and exemplifies how the design strategy is applied.



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CHAPTER 1

# The bus ecosystem

Background information about the ecosystem around the bus  
- the city, surrounding areas, the people and passenger needs.  
Introduces the city of Oslo and considerations that influence the bus design.

# From local areas, to inner city

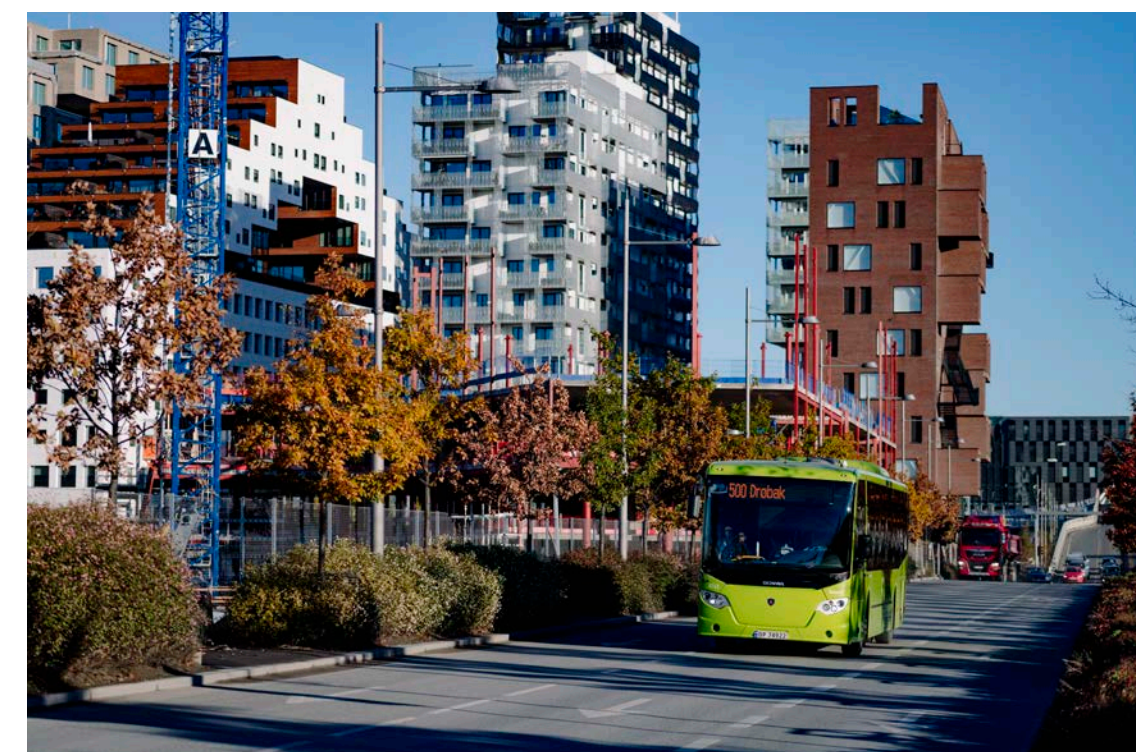
The capital of Norway, Oslo, and its surrounding areas are experiencing rapid population growth.

The region's bus network is part of a complex and integrated transport service. From local bus connections to rush hour commute, school bus and late night weekend services; safety and comfort are crucial to ensure the best experiences for our passengers.

Furthermore, the bus plays an important role in bringing people to the train stations and airports, sporting arenas and schools, hospitals and the great outdoors. In other words, the needs and contexts of our passengers' journeys are always changing.

Surrounded by hills, lakes and fjords, the people of Oslo and Viken spend a lot of time outdoors. They enjoy using nature for a wide range of leisure, cultural and business activities. Conscious of the environmental impact of their actions, our passengers therefore have high expectations of the quality and flexibility of the public transport system.

Our citizens have a long history of using public transport, and the bus network is an integral part of an advanced modern public transport system. The bus has and will continue to have a central role in the continued development of the network that connects people locally, and provides easy access to the capital city.





# Cold winters – Warm summers

Norway has four distinct seasons—from dark, cold, snowy winters to balmy, bright summers. These contrasts are a challenge when operating public transport in Norway, but the citizens expect reliable services regardless of the weather conditions.

The temperature in this region spans between - 30°C and +30°C. When the snow is melting outside, the passengers area can feel damp and fogged up, while when the sun is out, it can create sauna-like conditions. Though autumn brings with it darker, shorter days, when winter arrives, you'll experience the reflective brightness of the crystal white snow.

Due to lower levels of natural light during the winter months, seasonal affective disorder (SAD) is common in the Nordics. Taking this widespread phenomena into consideration is key when designing experiences for Scandinavians.





# Inclusive passenger experience

## Our passengers' needs

The best design solutions puts people at the heart of the experience. Meeting their needs and anticipating the different circumstances they're in when using our services is important to us. Designing predictable, understandable, usable and inclusive solutions lead to better experiences for all.

The public transport customer policy for Oslo and the municipality of Viken encourage new buses to consider the «principles of universal design».

New bus designs should consider how they enable good passenger experiences as part of the public transport service.

## Desired passenger experience

Ruter has conducted thorough research on passengers' needs related to bus travel to identify and understand desired experiences.



«To be able to use the bus, whenever I want and on my own terms, without help from others.»

DESIRED PASSENGER EXPERIENCE



«My commute spent on the bus is my proper-time where I unwind»

DESIRED PASSENGER EXPERIENCE



# Inclusive workers' experience

## Our workers' needs

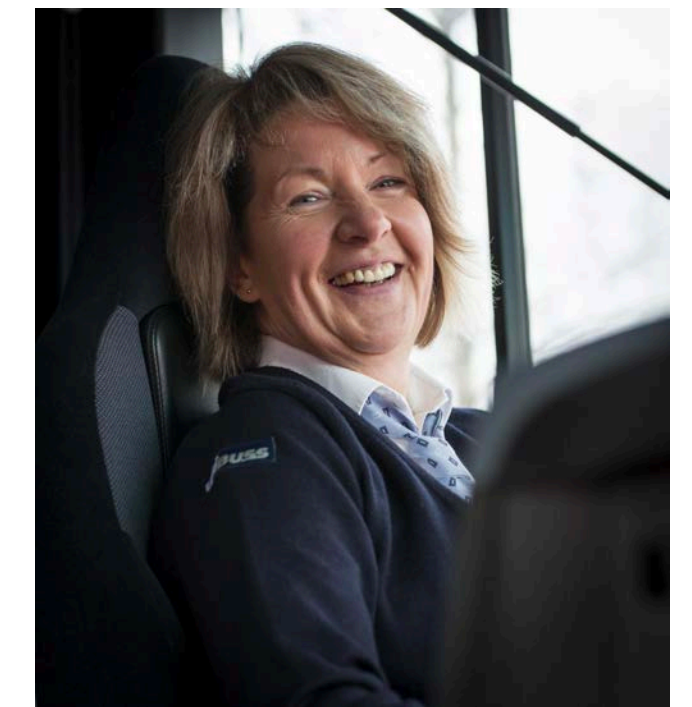
Oslo and Viken's new busses should provide an attractive experience for all – safe, comfortable and stress-free.

The public transport customer policy for Oslo and the municipality of Viken encourage new buses to consider the "principles of universal design". The new bus designs should take into account not just the passengers, but everyone who interacts with the bus – including pedestrians, operators, maintenance staff and bus drivers.

The new bus designs should consider how they contribute to greater work experiences for the people providing the public transport services.

## Desired workers' experience

Ruter has conducted thorough research on workers' needs related to the operation and maintenance of buses to identify and understand their desired experiences.



«Comfortable to drive, modern solutions and adaptable to my personal needs during the workday.»

DESIRED WORKER EXPERIENCE

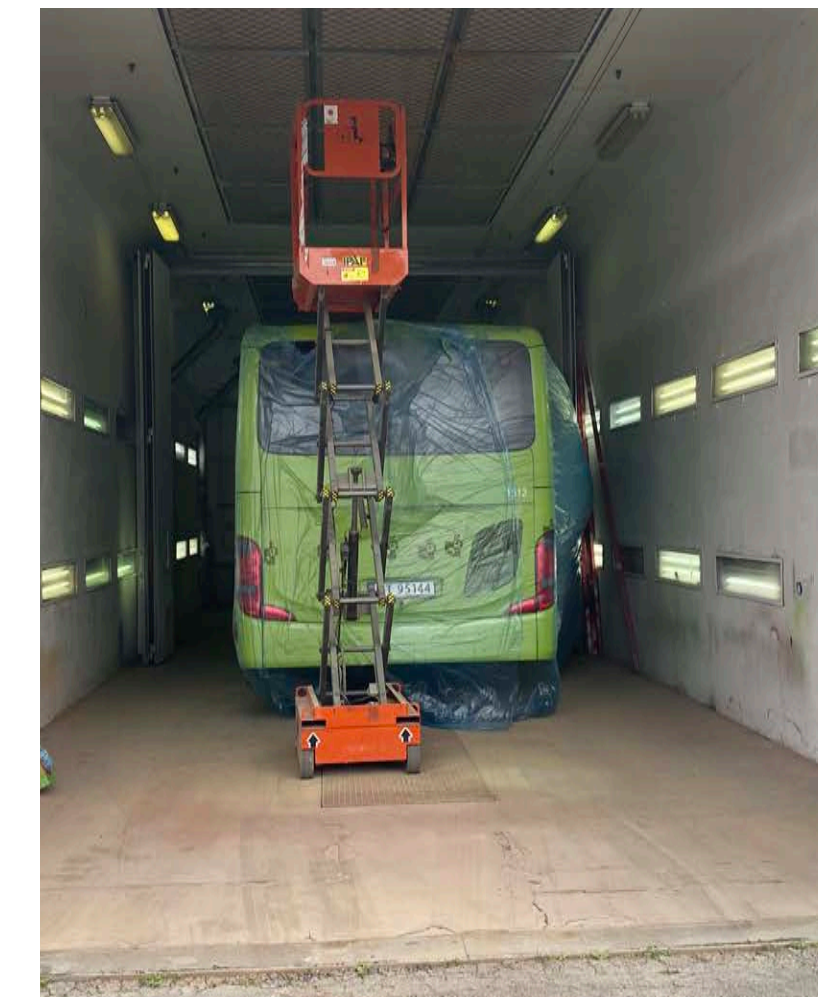
«A bus that helps me prioritise what I need when I need it»

DESIRED WORKER EXPERIENCE



«A bus that is easy to maintain and repair, makes my work safer and enables me to do a better job.»

DESIRED WORKER EXPERIENCE



CHAPTER 2

# Design strategy

Describes the overall experience and goals of the bus.

DESIGN PURPOSE

# An enhanced experience

The bus should ambitiously bring us forward towards  
an electric future – for all passengers, every day.

This will require smart, new solutions designed to meet the  
needs of people – with consideration of the impact on the  
ecosystem around it.

DESIRED EXPERIENCE

# Effortless, trustworthy and calm comfort

A bus designed to serve the needs of all our users, provide good comfort, thorough safety measures and reliable service.





#### DESIGN EXPERIENCE

An effortless experience for everyone interacting with the bus. A smart, intuitive and improved ride, with easy access for all passengers. Digital features integrated so as to feel like a natural extension of the physical bus. Predictable placement of key elements, leaving no room for frustrating obstructions.

Clear informative navigation, signals and overview. Technology supports the driver along the way and reduces potential distraction. Alerts, signals and other key pieces of information are in the right place, at the right time – throughout the day. It all just works.





# Trustworthy

## DESIGN EXPERIENCE

A trustworthy experience, uniting our skilled bus drivers with leading technology. Our aim is to make every journey reliable and safe – regardless of the weather conditions and passengers' diverse needs. A smart and dependable bus that puts the safety of our passengers and workers first in all aspects of its design.

A trustworthy bus bringing people closer to nature – and each other. A bus that fills the gap between other modes of transport, taking you from the inner city to the outer suburbs. A bus that creates connections across Oslo and the surrounding region.





# Calm comfort

## DESIGN EXPERIENCE

A calm, comfortable bus experience for all our passengers – taking into consideration the duration of regional bus trips, and passengers' desire to unwind. A bus that offers a tranquil atmosphere by reducing noise and potential interruptions, using smart and intentional sound signals, and providing adjustable lighting for both passengers and drivers.

An experience to enable a calm state of mind while traveling, free of distractions, and disturbing stimuli. An ergonomically designed space with good air quality, pleasant temperatures, and a relaxing ambience – making our passengers and drivers feel at ease.

# Design principles

Our design principles should be used as guidelines for developing exterior and interior examples, keeping in mind our overall design purpose.



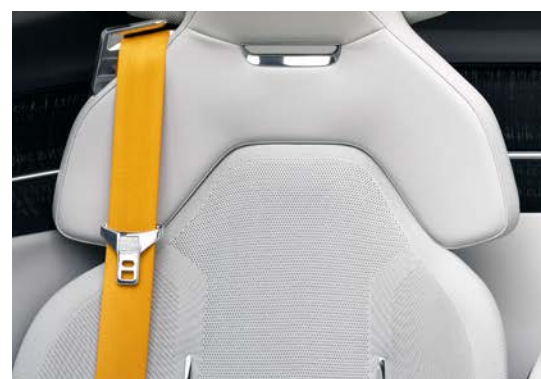
## Human centered

Soft shapes and forms for a friendly design with rounded corners and seamless transitions. Preventing passengers from hurting themselves, or the interior. Open areas that facilitate safe interaction between people.



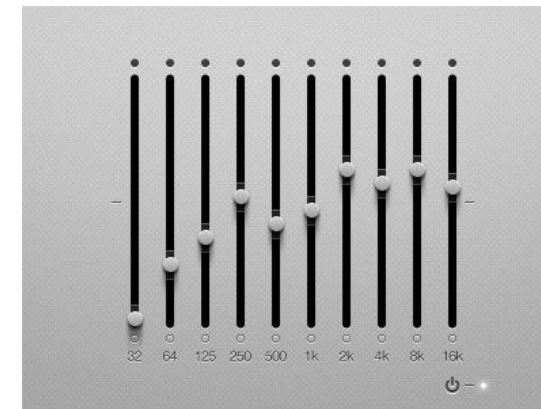
## Holistic and integrated

Smart deliberate and built-in solutions, not installed as ad hoc add-ons. This is to avoid obstacles that could prevent easy maintenance and clear lines of sight.



## Safety first

Safety is an integrated design principle in the bus and, the starting point of all design elements. This is to emphasise the bus' safety equipment and encourage the use of it.



## Adaptable ambience

Smart solutions for light, air, temperature and sound that are versatile and adjustable, enabling the bus to adapt to different roles throughout the day.



## Sustainable

Thoughtful choice of materials for a comfortable experience, but also for simplifying cleaning and maintenance. High quality, sustainable materials that minimise wear and tear.



## Automagical

Integrated new technology to create solutions for the future. An effortless experience - easy, intuitive and practical. Digital tools as an extension of the bus increasing the customer experience.

CHAPTER 3

# The bus exterior

Inspirational images and practical examples of details for the exterior of the bus. Describes the design of the bus - and exemplifies how the design strategy is applied.



# Exterior experience

The bus should provide a robust and trustworthy experience, and visually stand out on the roads.

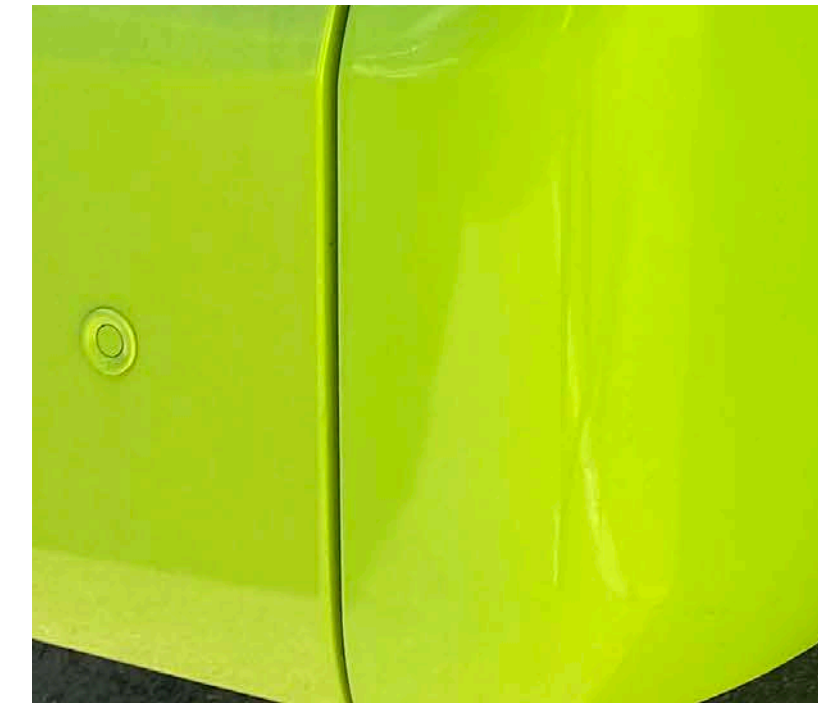
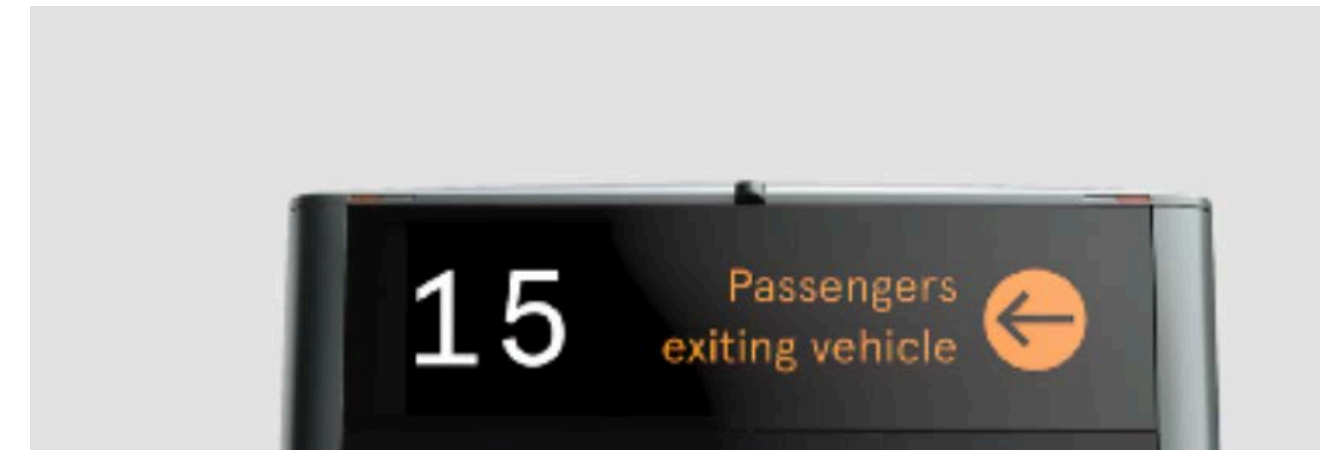
- Clear and informative
- Strong, solid and safe
- Integrated, seamless and clean.

## Colour experience

Solid green colour that looks consistent across vendors and bus types. The colour of the exterior must comply with Ruter's brand requirements.

## Protected and robust

The design language of the bus should be minimal and clean, with safety measures incorporated into the designs. The bus often operates in the dark, which means that lighting is an important design feature for the exterior. Finally, we invite smart solutions for the more exposed areas of the bus, with the aim of preventing damage to the exterior.



# Coherent exterior

The bus needs to maintain a unified form, regardless of the length of the vehicle and different levels on the inside. We seek a holistic appearance, communicating the solid and trustworthy performance.

## Connected, large window spaces

Large windows emphasise the experience of calm comfort and maximise the use of natural lighting. Connecting the windows with the doors and the driver's cab creates a simple, uniform shape. By masking the structural support pillars, the bus takes on a continuous and clean appearance, expressing effortlessness.

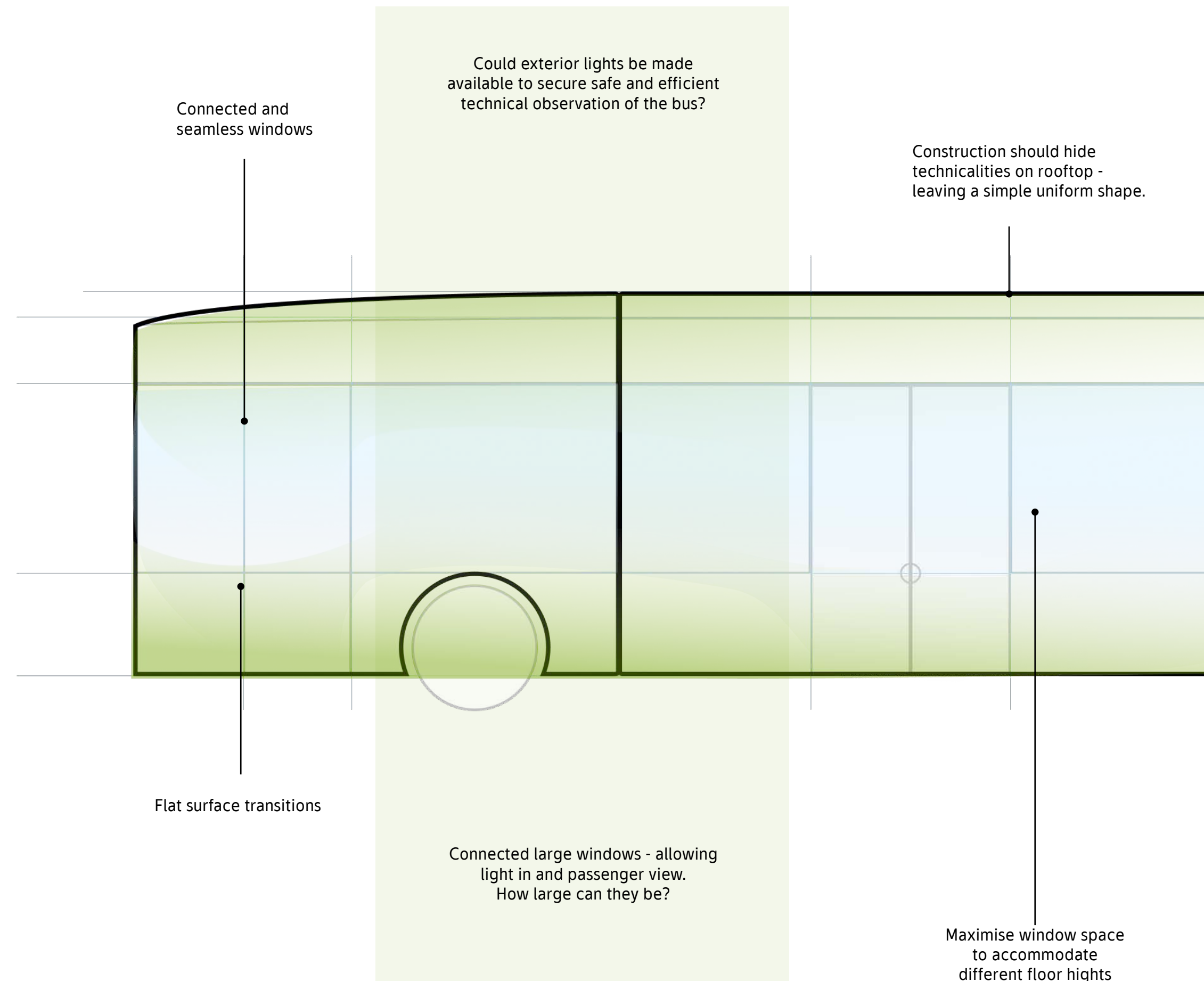
The windows connect passengers to the external view whilst in transit. They will also provide passengers waiting to enter the bus a possibility to observe available capacity and free spaces prior to boarding.

## Roof and chassis

A strong roof construction is necessary to ensure the possibility of mounting other equipment on the roof. The exterior roof should be integrated and with clean lines. Sturdy chassis with robust shielded sensors that tolerate large temperature variations and varying road conditions, minimising potential downtime in usage and maintenance costs.

## Bellow section

Some buses will also have a bellow incorporated to the body of the bus. The bellow should look as strong and solid as the rest of the bus. The material should be durable, easy to clean requiring minimal maintenance.





# Informative exterior

The exterior of the bus should be informative and give passengers relevant and to the point travel information. The bus needs to have clean surfaces with integrated solutions that will enable *placement* of this information.

## Integrated displays and lighting

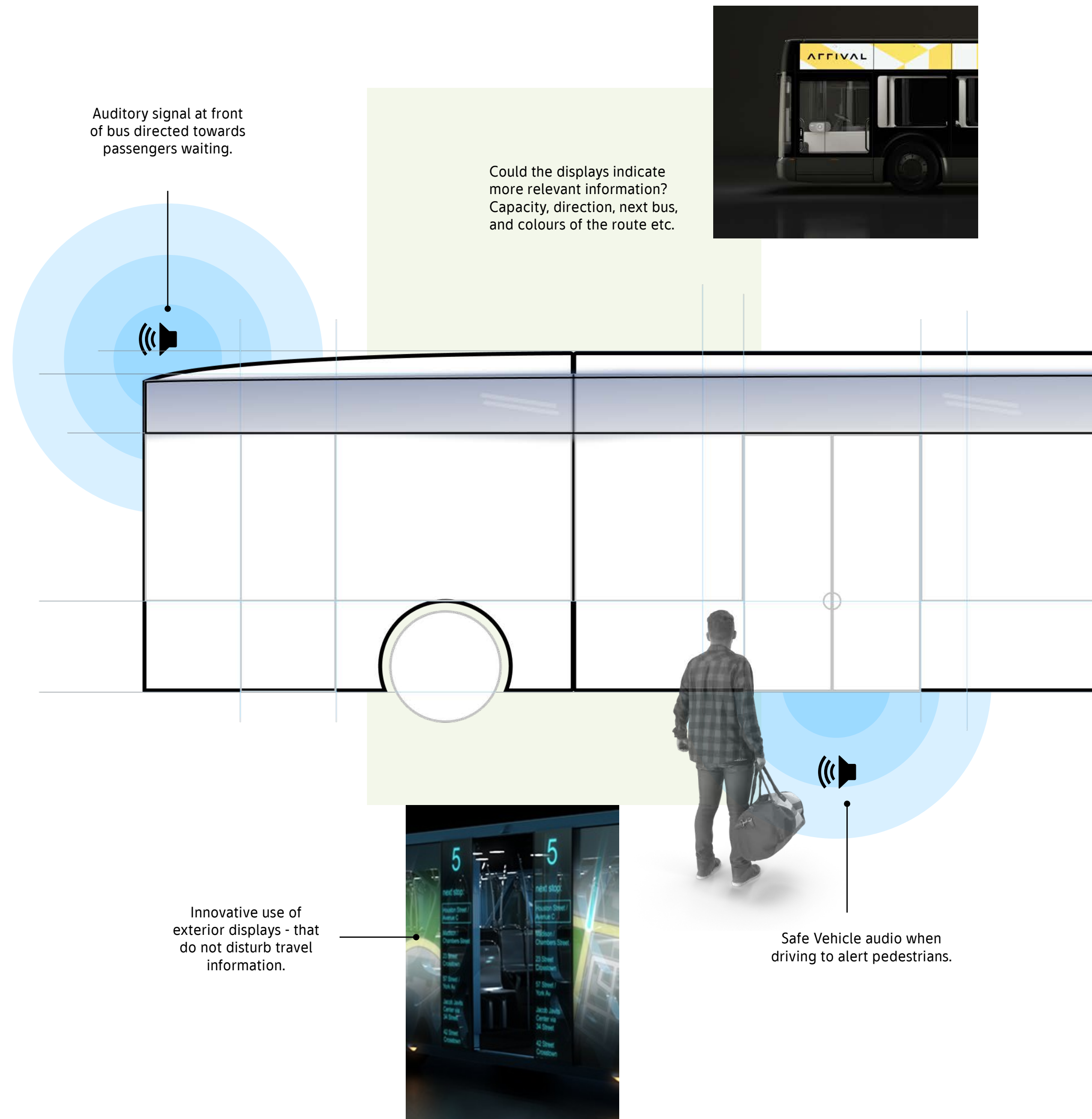
Exterior destination displays should be integrated into the bus above the windows, while at the same time providing sufficient readability and visibility at the front, rear and sides of the bus to all passengers.

## Audio messaging

The bus should aim to integrate smart technology to signal the bus number and route clearly to all passengers. Exterior speakers should be mounted in a manner which provides direct audio messaging to the waiting passengers.

## Distinct sound

Electric vehicles are generally quiet, which can lead to potential safety issues in regard to proximity awareness for the public. The new bus should integrate smart technology to address the need for sufficient proximity sound, ensuring the safety for both passengers and pedestrians. Such solutions need to be in adherence to Acoustic Vehicle Alerting Systems (AVAS) Regulations.





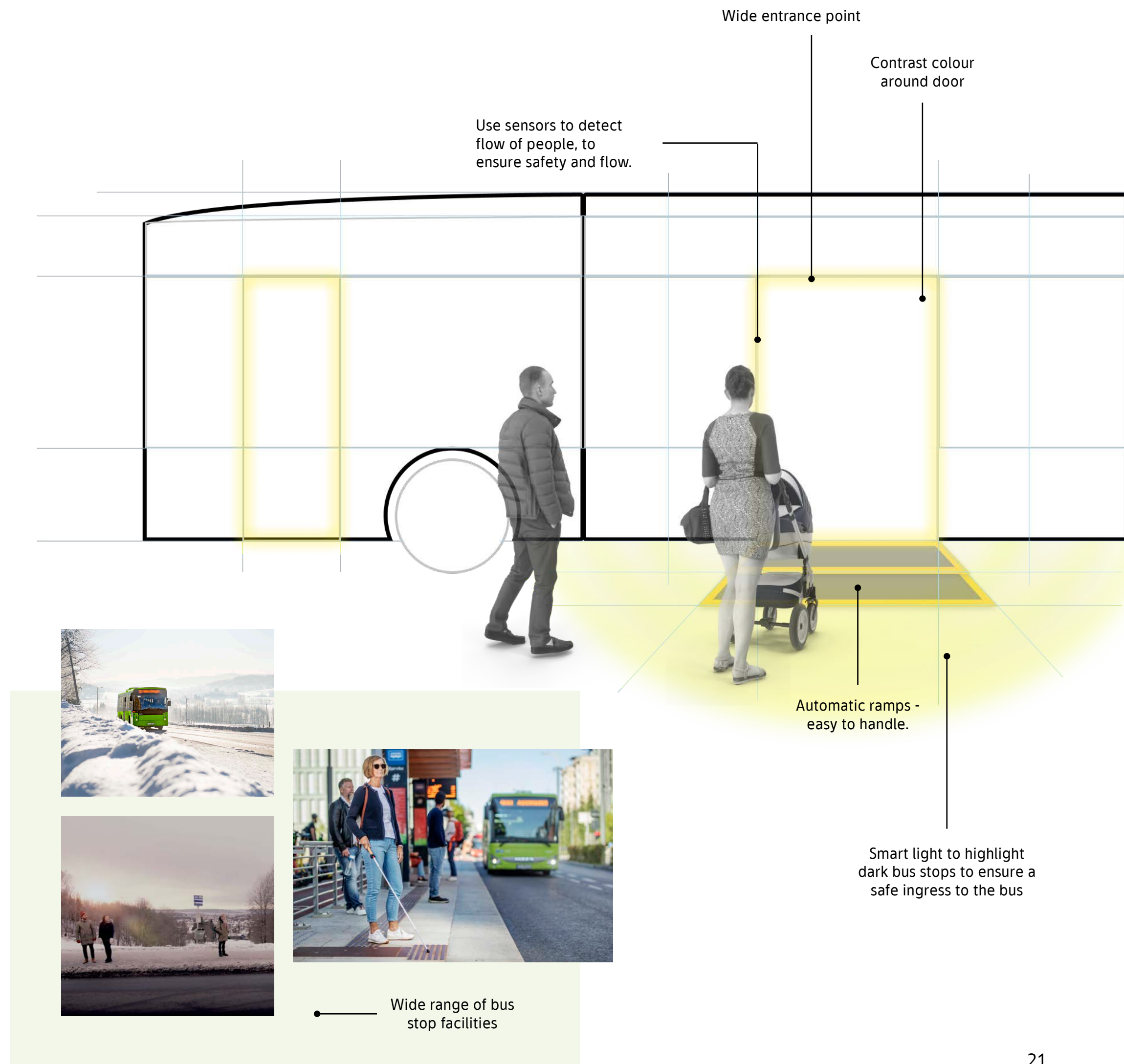
# Safe and informative entrance

Bus stops in rural areas might present some additional challenges, as the availability of different facilities such as shelters or sidewalks can vary greatly. The bus must therefore accommodate these different challenges for passengers using these stops.

The doors should be easily accessible for all passengers and accommodate different boarding patterns.

## The new buses should have

- Low entrance points, allowing easy access for all.
- Multiple entrance points, wide doors that opens automatically – facilitating increased passenger flow.
- Clear and recognisable doors. Transparent doors enable communication between passengers and increases passenger flow. They also provide passengers waiting to board the possibility to observe available capacity and free spaces prior to boarding. The door frame and potential moving elements should be clearly marked in contrasting colours.
- Exterior lighting for easy navigation in areas with low light conditions. Lights should be placed in a smart manner to ensure sufficient light during boarding and alighting regardless of the weather conditions and time of day.
- Automatic ramps for convenient access connected to all areas with handicap spaces. Ramps need to be robust and withstand snow and harsh conditions.
- There should always be an alternative available for when the automatic ramps cannot be used due to issues with for example sensors, electrical problems or unstable surfaces such as snowbanks.



# Front and rear section

The bus needs to be easily recognisable, expressing safety and highlighting the bus driver. The bus should provide information using large displays with sufficient readability and visibility. Furthermore, the bus should be distinctly green when seen from the front.

## Connected with the driver

The bus driver should be highly visible from the outside, and the drivers themselves need to have a good overview from the inside. Optimising the possibility for eye-contact with passengers, pedestrians and other vehicles is important for safety.

## Light

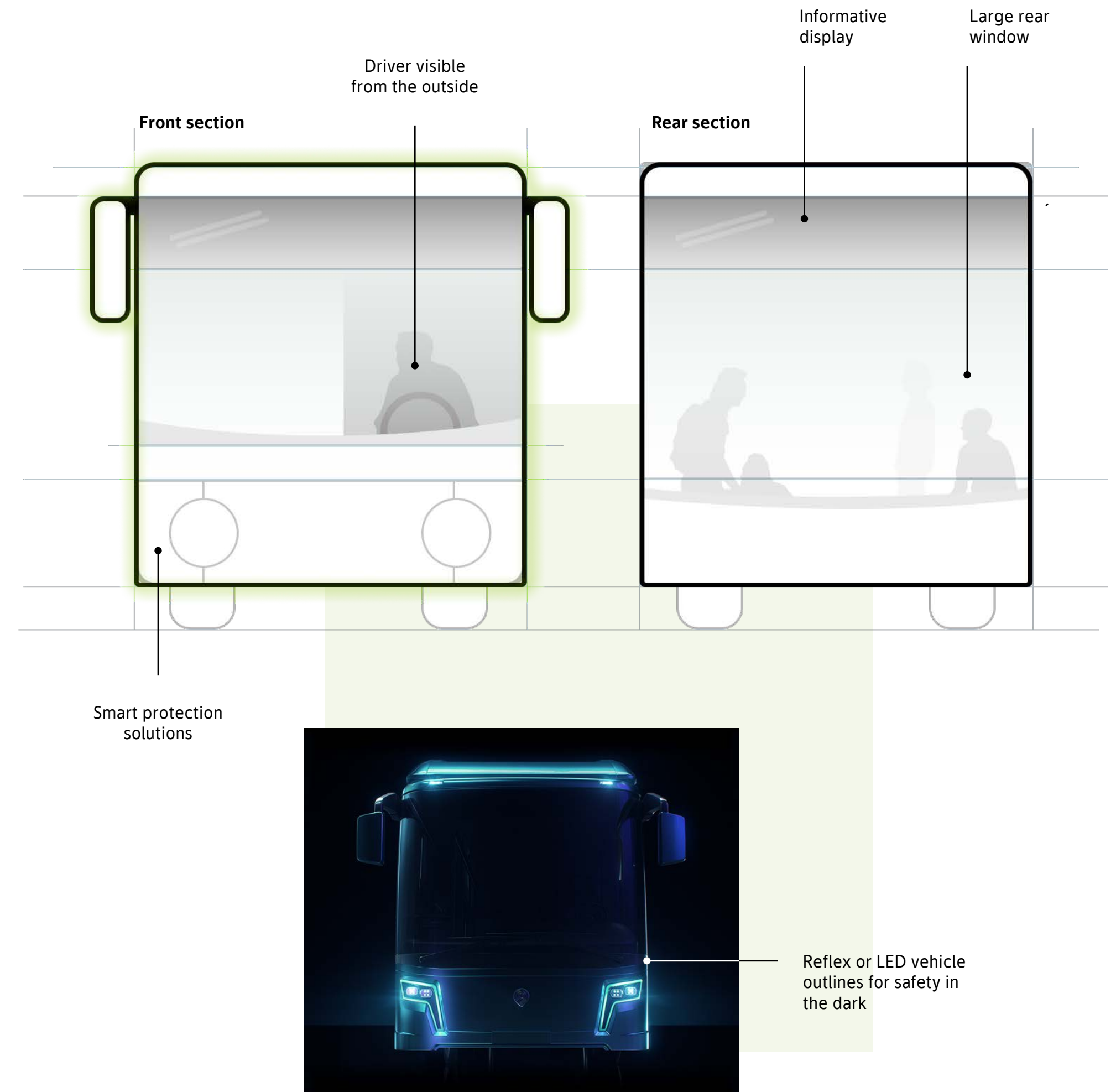
Lights should be flush and integrated into the exterior. Furthermore, the edges of the bus and mirrors should be highlighted for traffic safety in a holistic, integrated way. This will increase the safety of both approaching traffic and passengers at the bus stops.

## Rear section

There should be a clear difference between the inviting front and the informative rear section of the bus. However, the rear should also include a large window – providing passengers an open view in all directions. Informative displays with good readability and visibility should also be present on the rear of the bus.

## Protected

The bus is vulnerable and exposed for damage, especially the front and back corners on the right hand side of the bus. This is an ongoing concern for both mechanics and drivers, as the drivers need to stop the bus as close to the pavement as possible to minimise the gap for the passengers. We invite smart design solutions for this challenge, with the aim of reducing potential downtime in use and maintenance costs.



# The bus interior

Inspirational images and practical examples of details for the interior of the bus. Describes the design of the bus – and exemplifies how the design strategy is applied.

- Interior experience
- Interior color

## **Interior areas**

- Flexible
- Exit
- Seating
- Connector

## **Adaptable environment**

- Air quality
- Lighting
- Noise

## **Communication**

- Holistic communication experience
- Informative screens
- Tangible interactions
- Audio

## **Equipment**

- Seats
- Handrails and handles
- Safety features

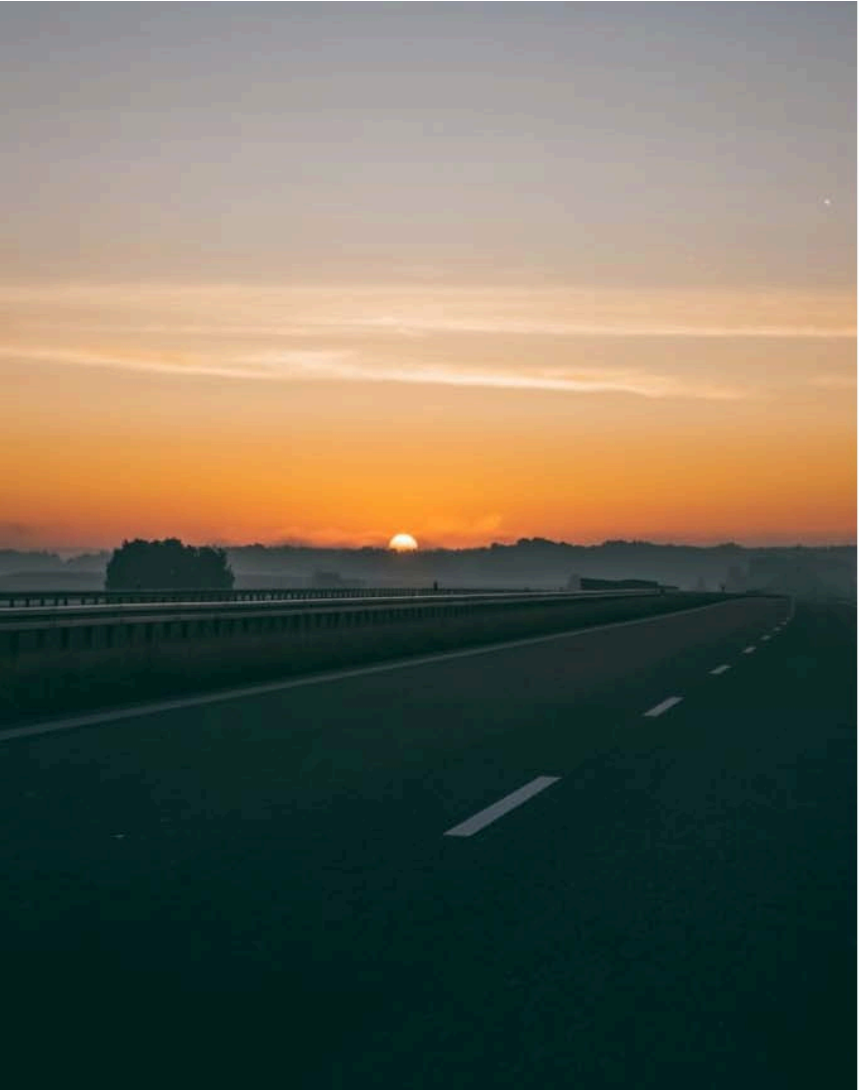
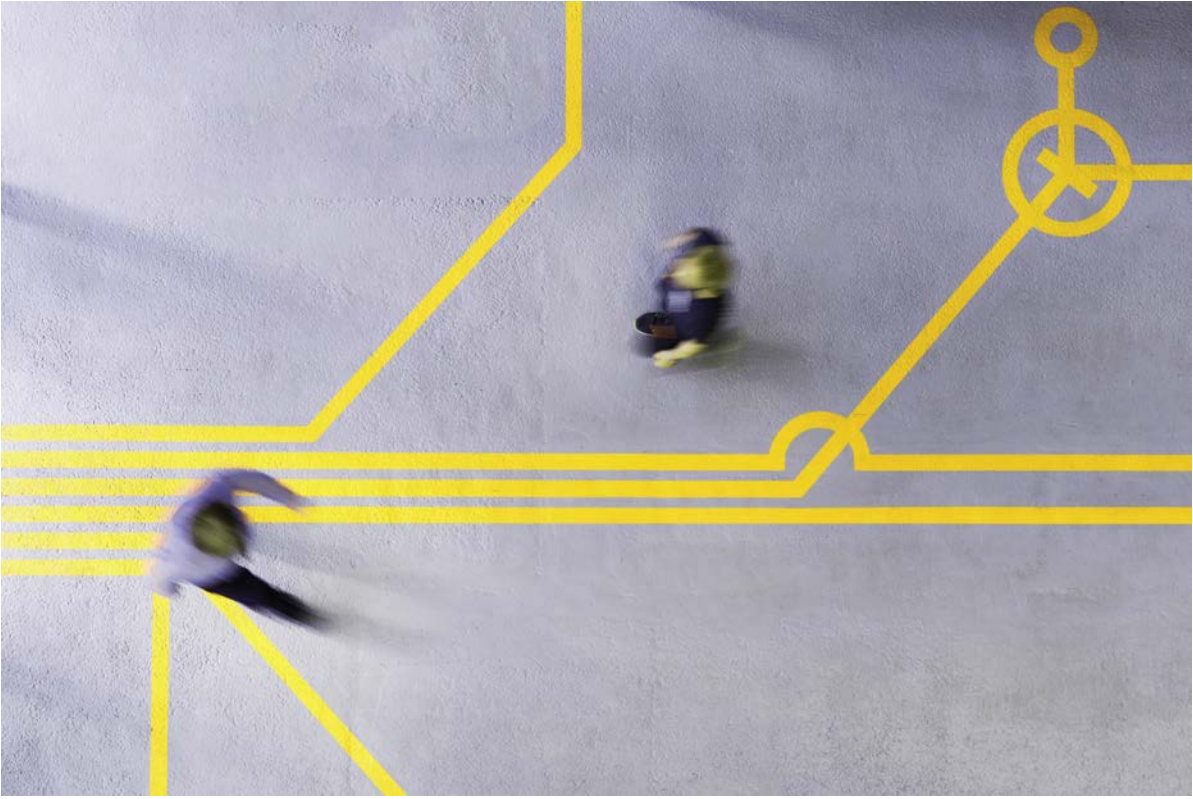
## **The bus as a workplace**

- Professional working environment in the drivers cab
- Drivers safety
- Clever tools for a new driving standard
- Clean bus and easy maintenance



# Interior experience

The interior should feel calming and attractive, and provide a comfortable atmosphere throughout the entire bus. Design solutions should be perceived as effortless and flexible, and increase passengers' feeling of comfort and spaciousness.





# Interior colour

The experience of the interior should be light, clean and informative. Large windows will help light the interior space with darker colours applied at the floor level, gradually becoming brighter towards the ceiling.

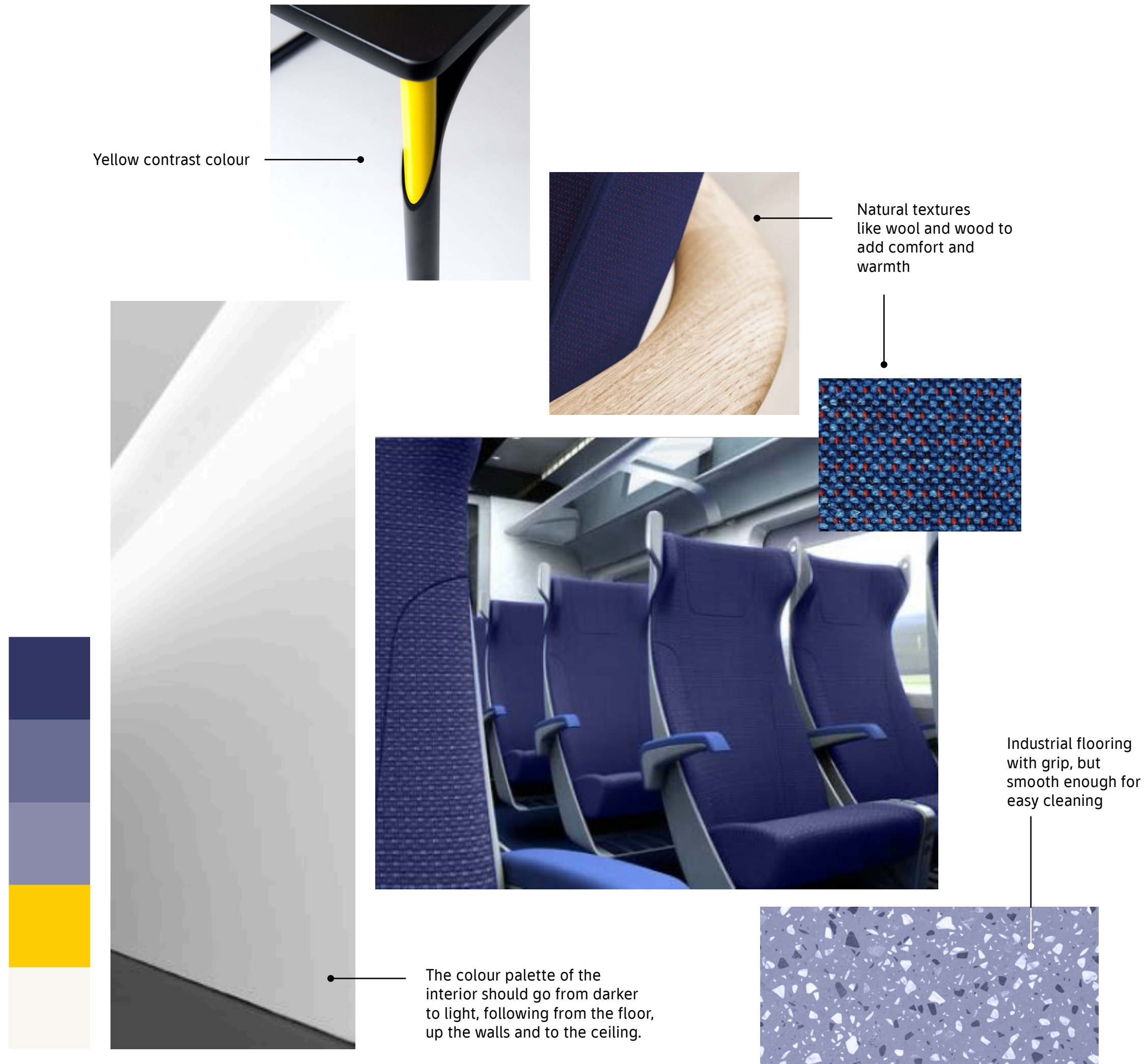
**Practical and maintenance friendly**

Colour palettes for use in the interior must be in accordance with the brand requirements and must withstand dirt and wear. This will help keep the feeling of a bright and clean bus.

**Use of contrast colour**

The bus needs to highlight its functional elements with the use of contrast colours. Critical functions on the bus will need to be highlighted with a high visibility contrast colour to ensure passengers see them easily. Yellow is the preferred contrast colour in the brand requirements, however the exact colour code will need to ensure sufficient contrast to be functional. The contrast colour should be an integrated part of the interior.

We invite design solutions that emphasise comfort while still considering the element of practical maintenance.



# Interior areas

Description of different areas in the bus and their different qualities.

- Flexible area
- Exit area
- Seating area
- Connector area

# Interior areas in the bus

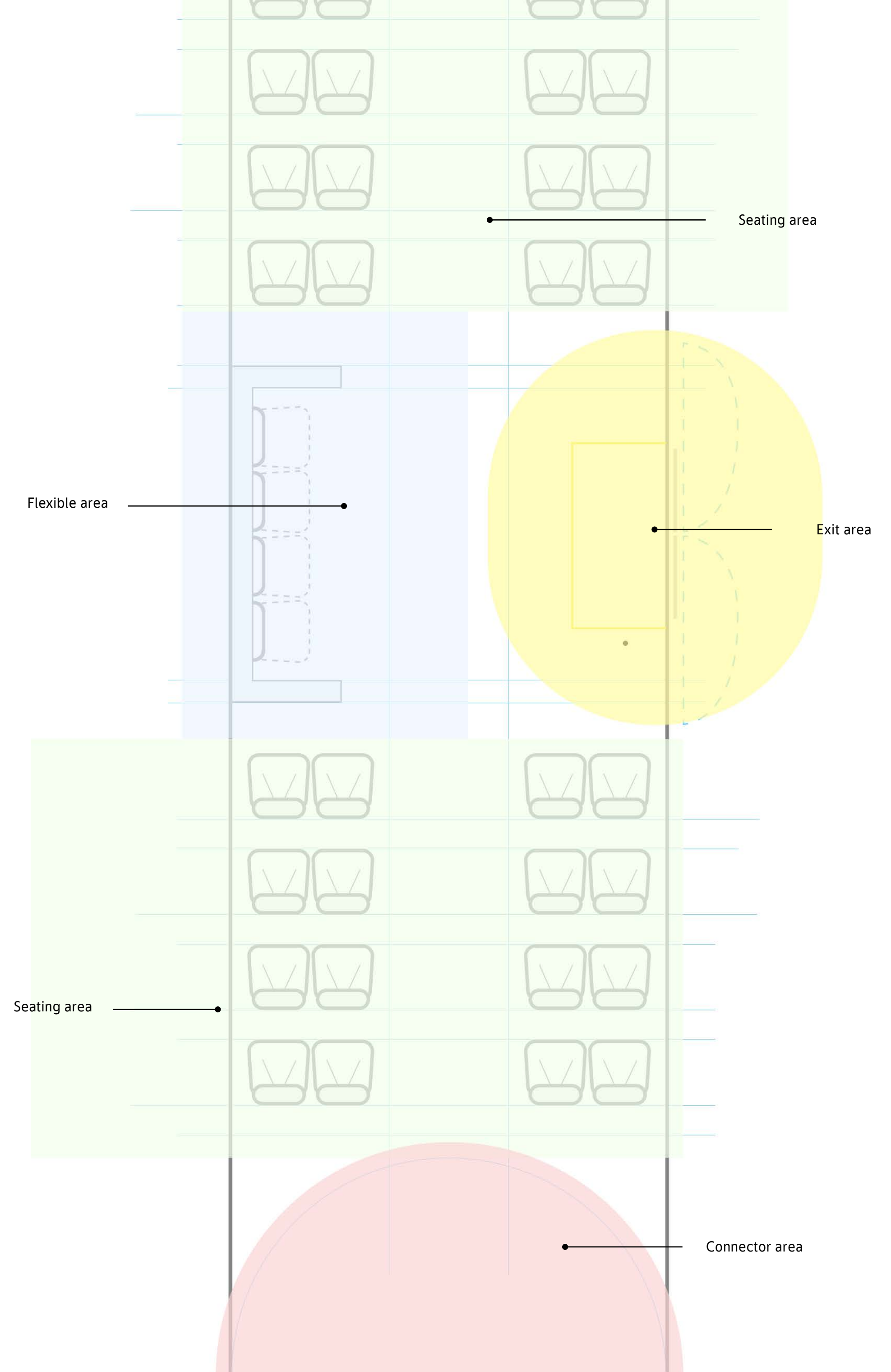
The bus is part of a complex and integrated transport service. The regional buses carry out its services on different types of routes – from local bus connections and rush hour commuting, to school bus and late night weekend services.

Passengers' and drivers' needs vary significantly on these different routes. Hence, the new buses must be versatile enough to be capable of handling these variables throughout the day.

To meet the needs, we have described different areas in the bus and the different qualities they should hold.

## Floor levels

As mentioned previously, the bus designs should follow the "principles of universal design" and make every area of the bus accessible for all passengers. Therefore the bus should have low entrance points and floors.





# Flexible area

The flexible area is an open, spacious area with a flexible space adapted to wheelchairs, strollers, luggage and bikes – always close to the entry / exit doors. The area is also useable as a comfortable space for passengers to stand, sit or lean in with the relevant equipments as seats, handrails and such.

The area should always include critical functional elements needed by passengers, travel information, validation of tickets and similar. The design should ensure as few obstructive elements in this area as possible. The flexible area is placed closely to the driver, or at least in their sight-zone. This area should be designed with the aim to have a great impact on flow for entry / exit – while at the same time securing the needs of different passengers.

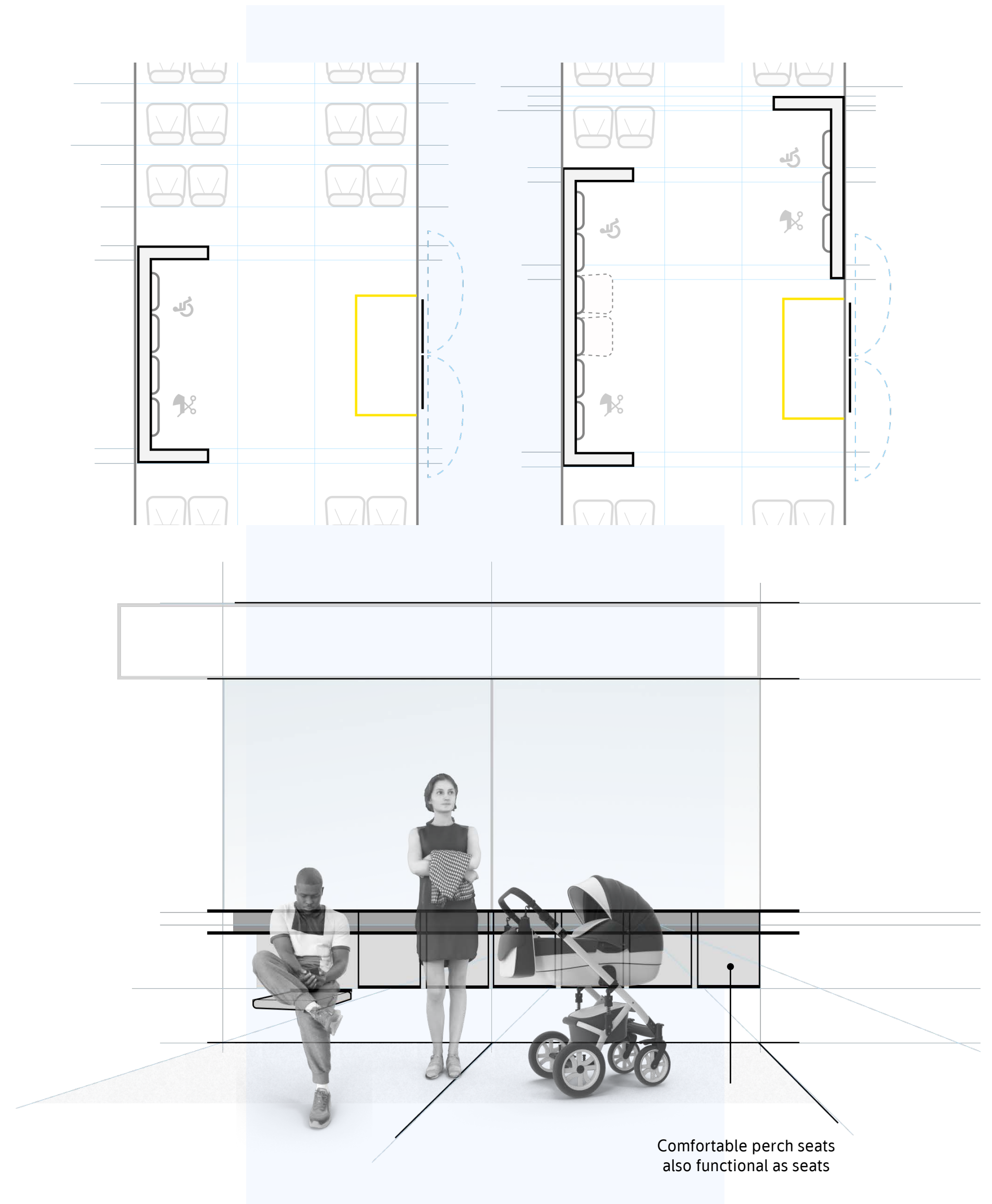
## Wheelchair area

The wheelchair space is placed in the flexible area. Entering and leaving the bus should be made as easy and as effective as possible. The bus should have an open and spacious area with several options for parking a wheelchair, as users' preferences vary. To comply with laws and legislation, the wheelchair needs to be parked safely with handrails easily accessible. This is to ensure sufficient safety and support during the ride.

## Pram and strollers

The area for prams and strollers should always allow for the accompanying passenger to sit next to the securely fastened pram or stroller in the designated area.

We invite smart design solutions for this area that emphasise openness and safety.





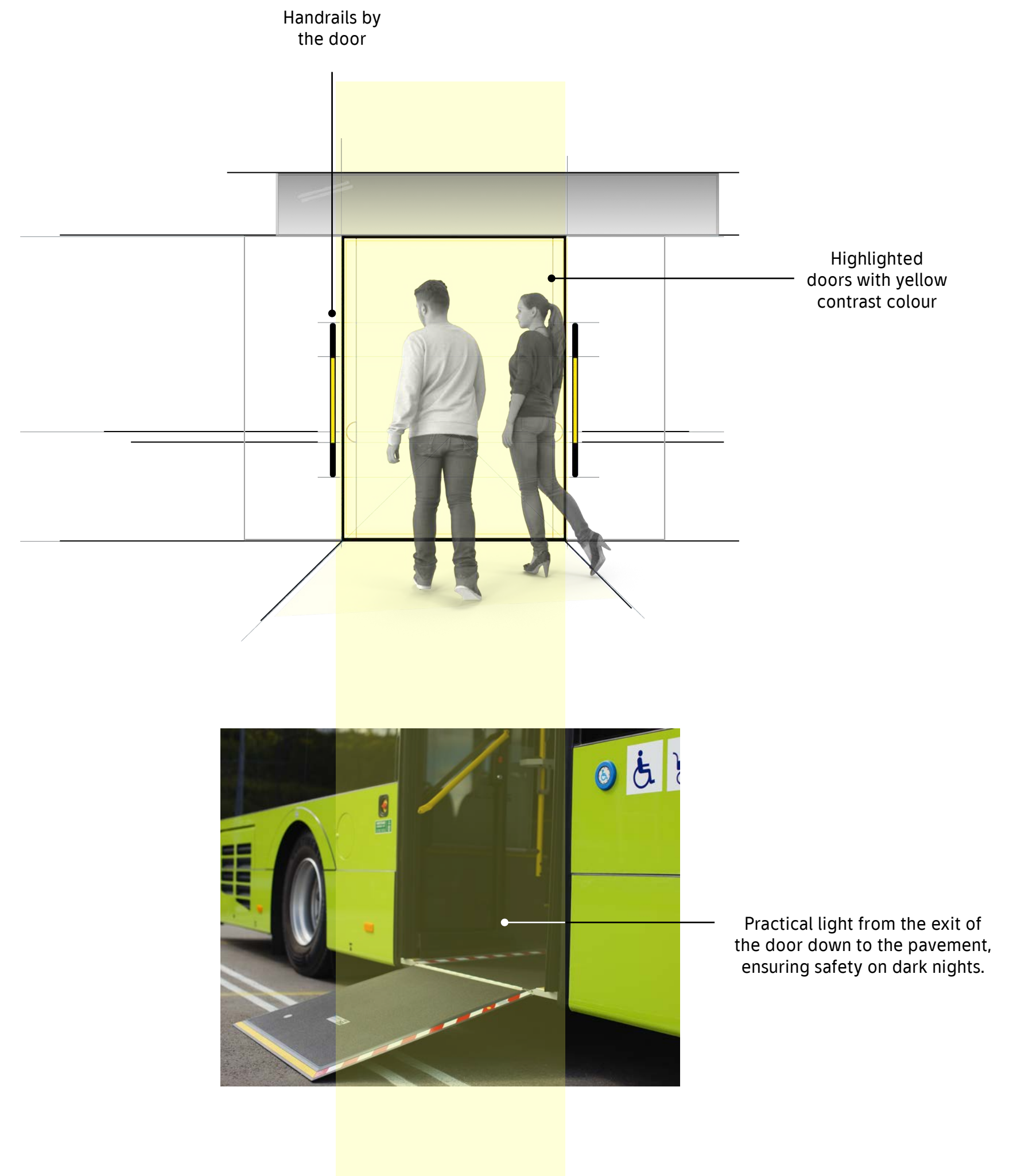
# Exit area

Bus stops in rural areas might present some additional challenges, as the availability of different facilities such as shelters or sidewalks can vary greatly. The bus must therefore accommodate these different challenges for passengers using these stops.

In the regional buses, the process of alighting starts with signalling your exit. Passengers then collect their belongings and move towards the doors to prepare for disembarking. To ensure a safe exit of the bus, doors should be accessible for all passengers and easily recognisable.

## The new buses should aim for

- Guiding lights in the aisle to ensure guidance to the closest door, even when lights are dimmed.
- Spacious areas around and in front of the doors without obstacles.
- Wide doors that opens automatically if possible – to increase passenger flow.
- The doors need to be clearly recognisable as doors. Transparent doors facilitate visibility between passengers (on and off boarding) and increases passenger flow. The door frame and potential moving elements should be clearly marked in contrasting colours.
- Exterior light for making the doorstep and entrance clearly visible in the dark.
- Automatic ramps by all doors for convenient access for everyone.
- Ramps should be connected to all areas with handicap spaces. Ramps need to be robust and withstand snow and harsh conditions.
- There should always be an alternative available for when the automatic ramps cannot be used due to issues with for example sensors, electrical problems or unstable surfaces such as a snowbanks.



# Seating area

The seating zones are dedicated zones for sitting with the aim of transporting people comfortably to their destination. These zones should express calmness and comfort, and offer passengers a fully supported and relaxing sitting position.

Furthermore, good air quality, suitable temperature and a calm environment with little noise and interruptions is key to achieving comfort during the bus ride. The experience of air quality is described in «Air quality» (page 33)

## Comfortable seat

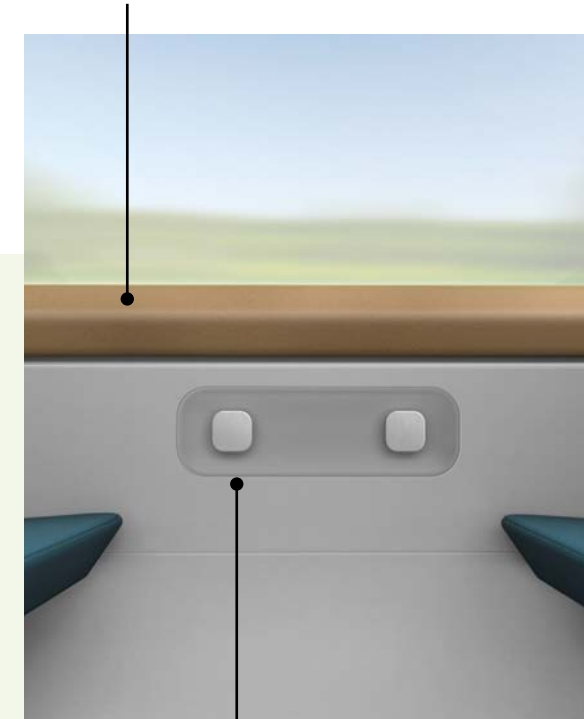
Journeys with the regional buses often take longer time – around 20 minutes, where sitting comfortable becomes important. The seats need to be placed in a manner that ensures the best possible comfort and capacity.

## Standing

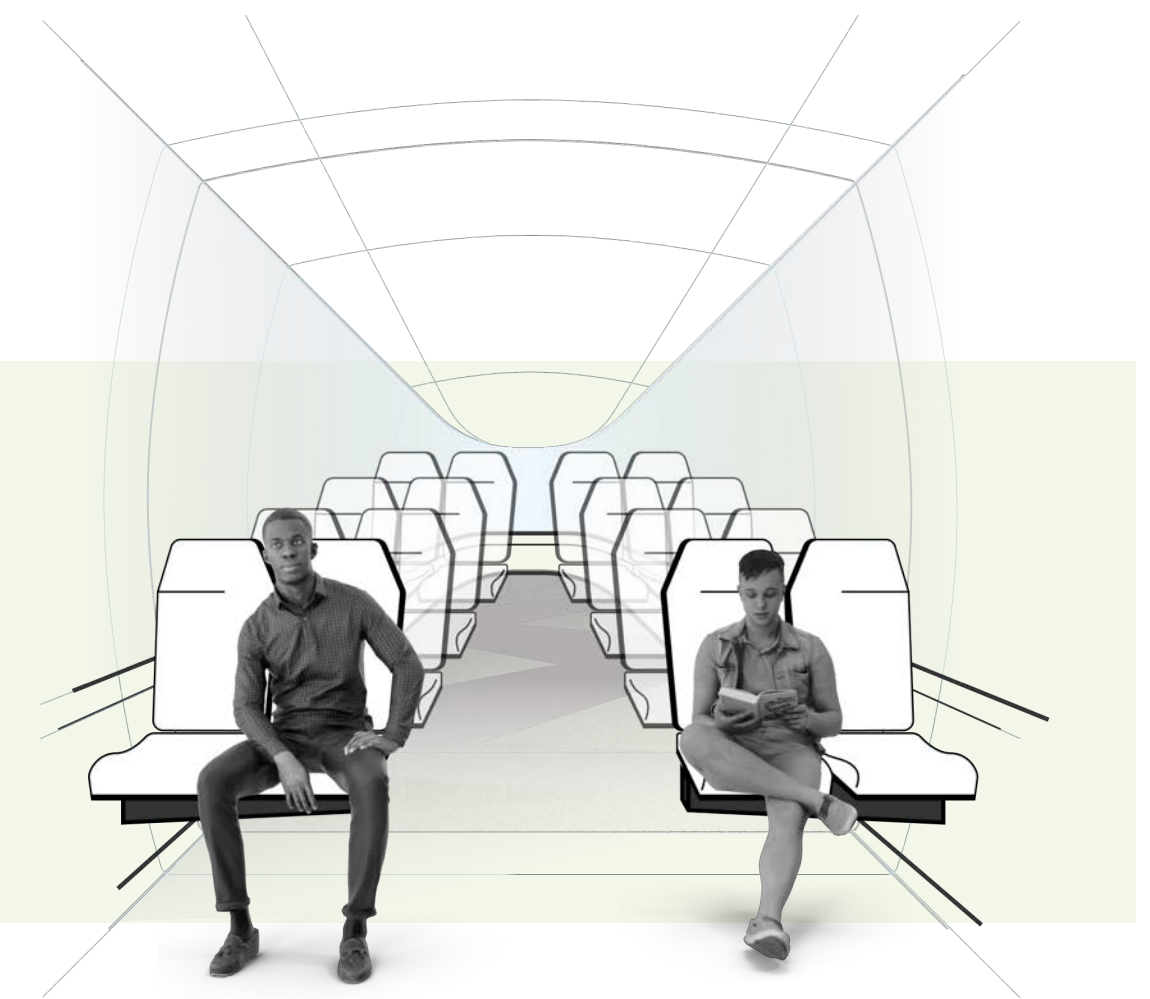
Although being seated is by far the preferred way to travel by bus, some standing room and leaning seats are inevitable. When passengers are standing in a regional bus they need additional support to feel comfortable and secure. This support should be fixed, and not movable. Multifunctional perch seats are a good alternative to meet the need for standing and leaning spaces in the bus.

We invite design solutions that optimise this zone for calm comfort – still considering the element of capacity.

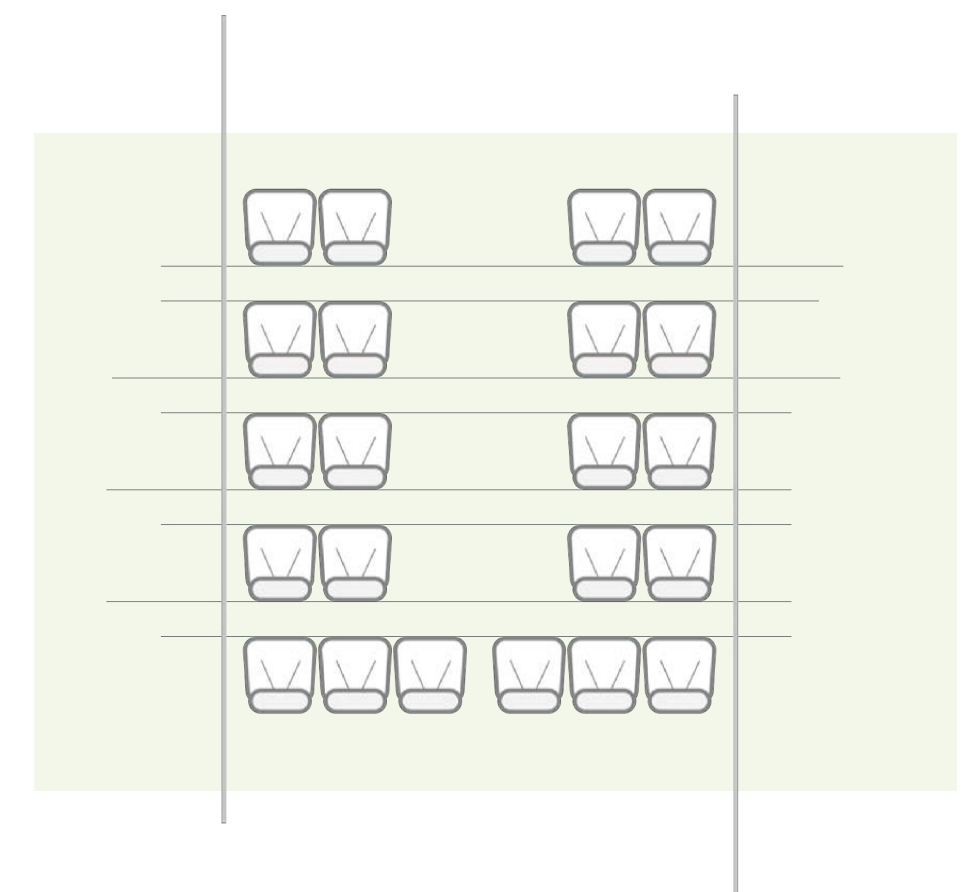
If the window sill is used as an armrest, vendors should consider the angle of the sill to prevent passengers to leave rubbish and belongings on the bus.



Smart solutions for personal belongings e.g. integrated hooks



Headrest, armrest and footrest for added comfort.





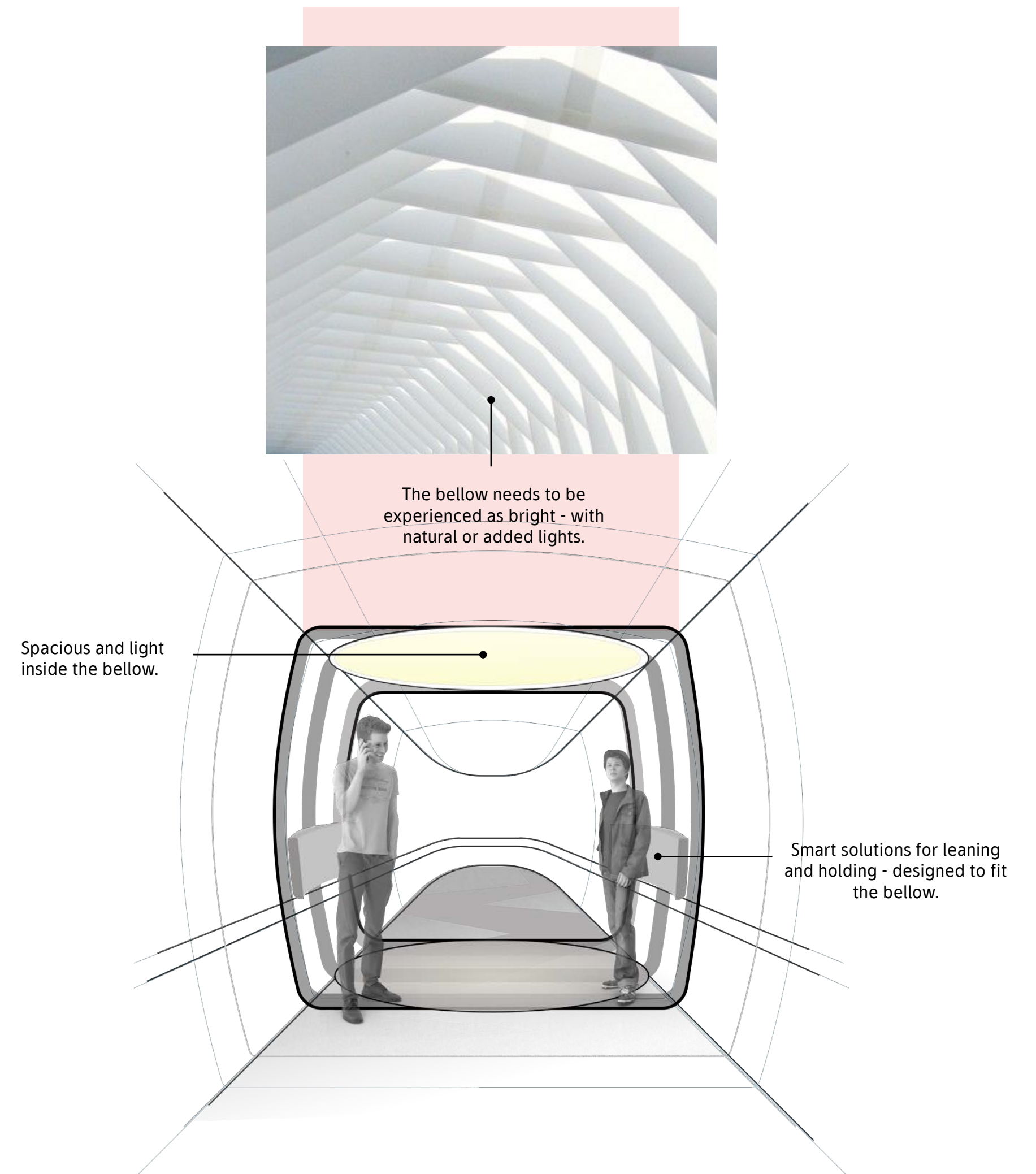
# Connector area

The bellow is a possible feature for some of the regional buses. It is the connector of the bus sections and needs to become an attractive spot for passengers.

## To make this area more attractive for passengers the bellow should

- Be a light area with sufficient natural or added light to communicate a bright environment.
- Have a high ceiling, as wide as possible, good air and temperature conditions. Extra speakers and noise reduction.
- Create the feeling of spaciousness.
- Feel like a natural part of the bus.
- Provide comfortable spots where the passengers are able to hold on to something or lean towards a seat or the side.

Could the connector be the most attractive spot for young people? Enable spaces for traveling socially, smart technology for charging/wifi etc



# Adaptable environment

Environmental qualities that will ensure comfort in the bus

- Air quality
- Lighting
- Noise



# Air quality

To make the new bus attractive, it needs to be clean and fresh. Norway's contrasting conditions are a challenge to operating the buses – and passengers expect a reliable service regardless of the weather.

## Heaters and air condition

The bus needs temperature and air conditioning that can tackle changes in outside temperature (it could span from -30°C to +30°C). This includes melting snow that makes compartments damp and fogged-up and can cause rim iced windows. The heaters and air conditioning should be automatic, or at least quickly adjustable.

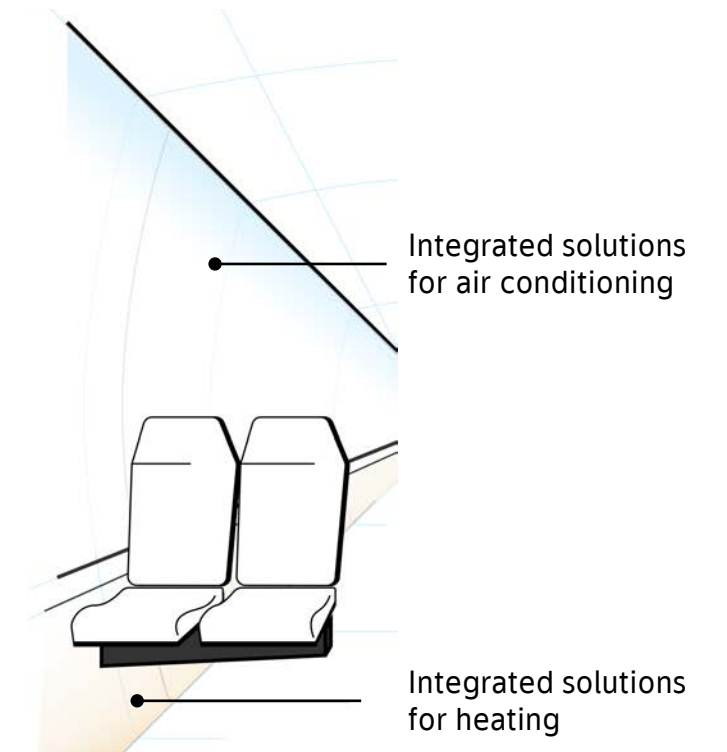
The buses need to ensure a good quality of air – adjusted to passengers' requirements. A clean and healthy environment inside the bus will create satisfying conditions for both passengers and the driver. The bus should have smart solutions to measure outside air quality.

## Windows

The windows need to provide a comfortable experience for passengers under different light conditions. Shading in summer, heat reduction and maximum light entry in winter, as well as consideration of reducing maintenance needs.

## Materials

The materials selected for the bus should consider contrasting environmental conditions such as damp so as to prevent odours and keep surfaces clean.



# Lighting

The lighting inside the bus should be thoughtfully designed to enhance the feeling of space, safety and accessibility. It should assist them on to and within the bus, and actively lead passengers further into the bus to free up space near the doors.

## General lighting

Good lighting design should be able to adapt to dark winter nights and light summer days. A continuous light band in the ceiling should provide sufficient amounts of overall light and visibility needed for navigation. Indirect light sources that reflect onto lightly coloured surfaces are preferable, rather than direct lighting.

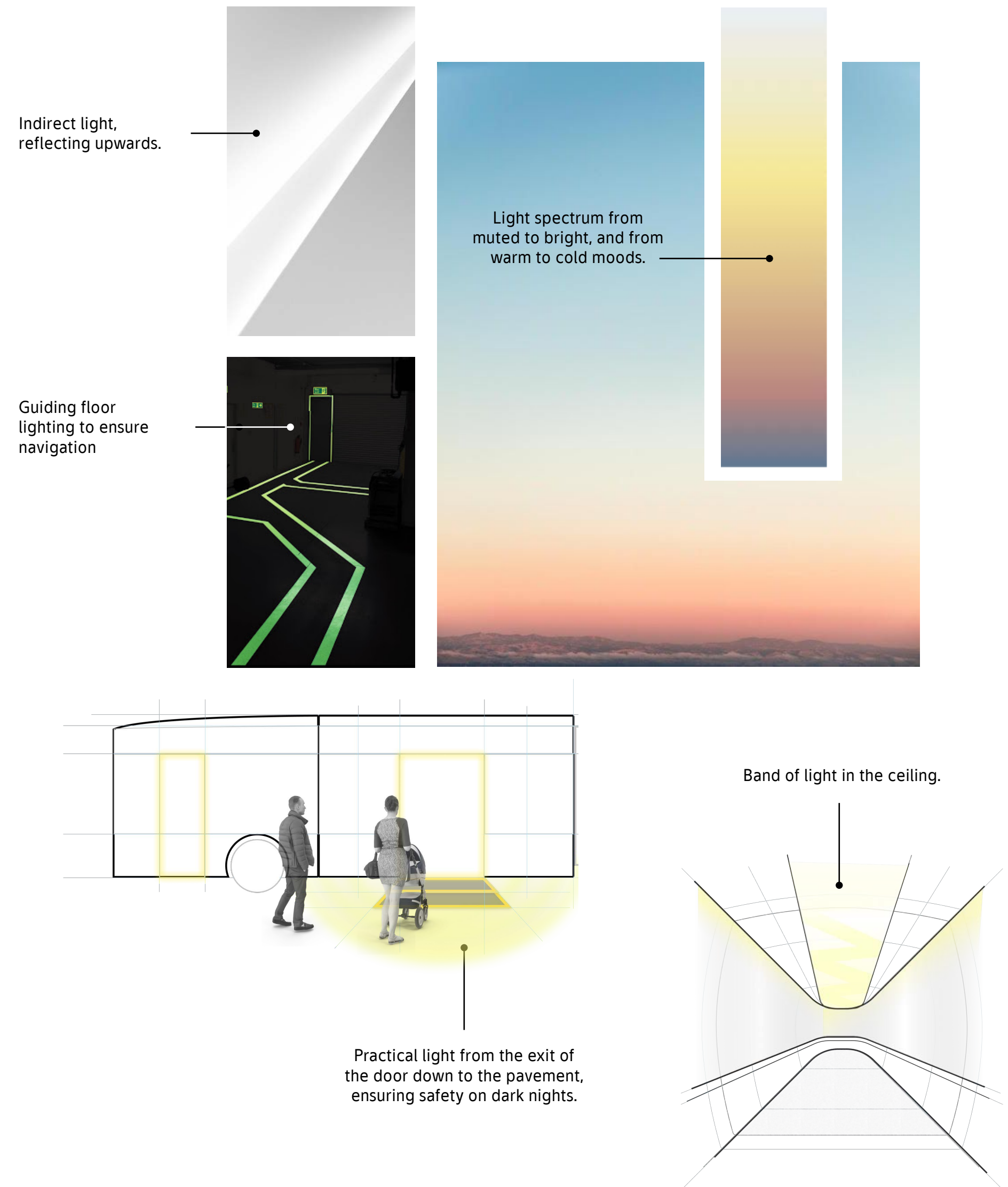
The general lighting should be adjustable from the drivers cab area. Passenger area lighting should not distract the driver.

## Informative and functional light

Lighting should mark out areas of access, such as doors and emergency exits. Lighting above entry and exit points, as well as floor lighting is necessary to ensure passengers' safety when entering and alighting the bus. The bus should have guiding lights in the aisle to ensure safe and predictable navigation to or from the sitting area or the nearest exit – even when the lights are dimmed. Signal lighting, such as a stop signal should be in a contrasting colour, so as to be highly visible and easily understood.

## Smart mood light

Lighting design that have a calm and relaxing effect could be useful in the regional buses. A stress-free environment with soft light and calm ambience, adjustable to the time of day, season, or type of bus journey. The ability to adjust the levels of lighting could also be helpful for staff during cleaning or other maintenance.





# Light temperature

The lighting inside the bus should be feel soft, warm and natural. Ideal light temperature is around 3500 K, or from 3000 - 4000 K. The light should be perceived as neutral, soft white or warm white, depending on the outside lighting conditions.

Too warm

Ideal light color: from 3000 - 4000k

Too cold





# Noise

To achieve a sense of comfort, the soundscape should be calm and softened. This experience will be achieved by deliberate and directional audio signals, reduced general noise, and the use of an electric motor. The audio signals should ensure every passenger is able to hear the announcements.

## Sound absorbing materials

Thoughtful use of materials could help reduce the level of noise in the bus, especially in more exposed areas. This can help ensure a better soundscape, and hence a more comfortable experience.

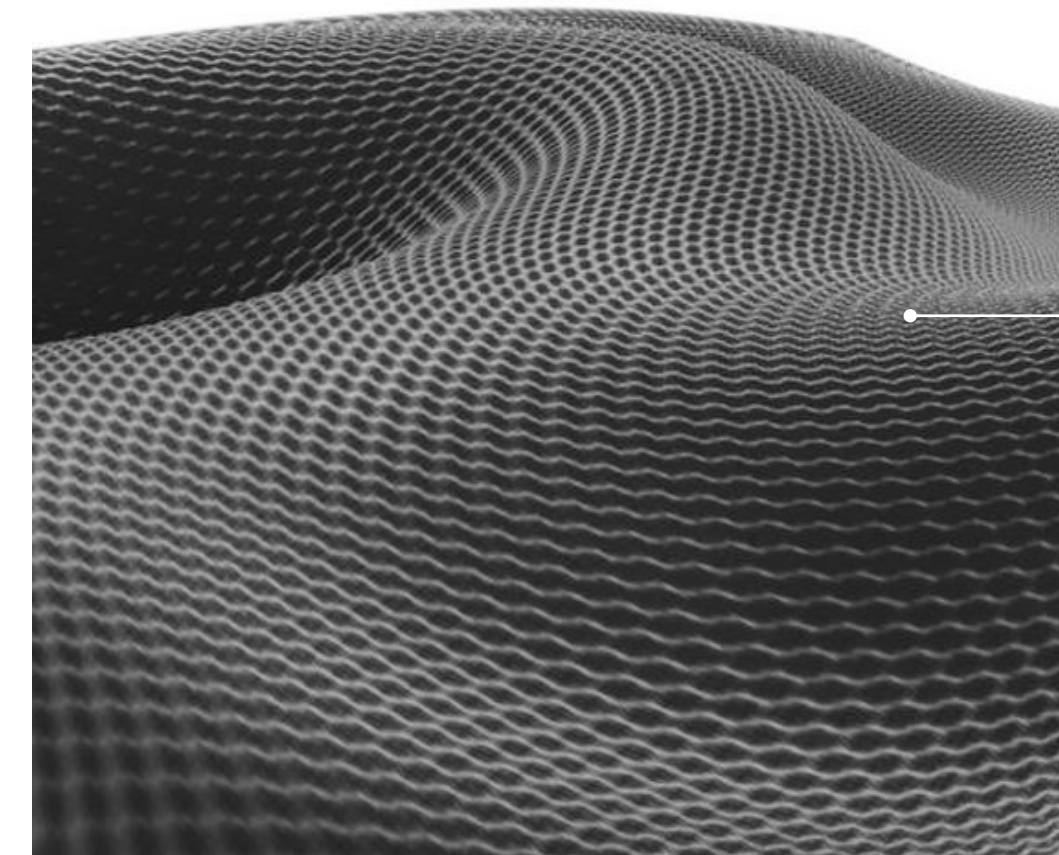
## Muted passenger noise

Passenger noise is a challenge for both passengers and drivers. Some passengers like to spend their time on the bus relaxing, while others like to talk, either with other passengers or on the phone. For the driver, however, it's important to stay focused and not be disturbed by loud, disruptive noise from passengers. We invite smart design solutions to tackle this challenge.

## Noise pollution

By reducing the overall sound of electric buses, including functions such as muted ramps, doors and pumps, the sound of the bus won't be as bothersome for passengers or people nearby.

Could the sound automatically adjust to the sound level in the bus?



Sound absorbing materials



Reduce noise pollution for the bus



Could noise from pumps and other components be muffled or reduced even further?



# Communication

An holistic approach to the design and coordination of communication in the bus.

- Holistic communication experience
- Informative screens
- Tangible interactions
- Audio

# Holistic communication experience

To succeed in creating an inclusive bus experience, it's important that the communication between the bus, the driver and passengers is clear and understandable for everyone involved. This requires a holistic approach to the design and coordination of the communication elements and functionalities.

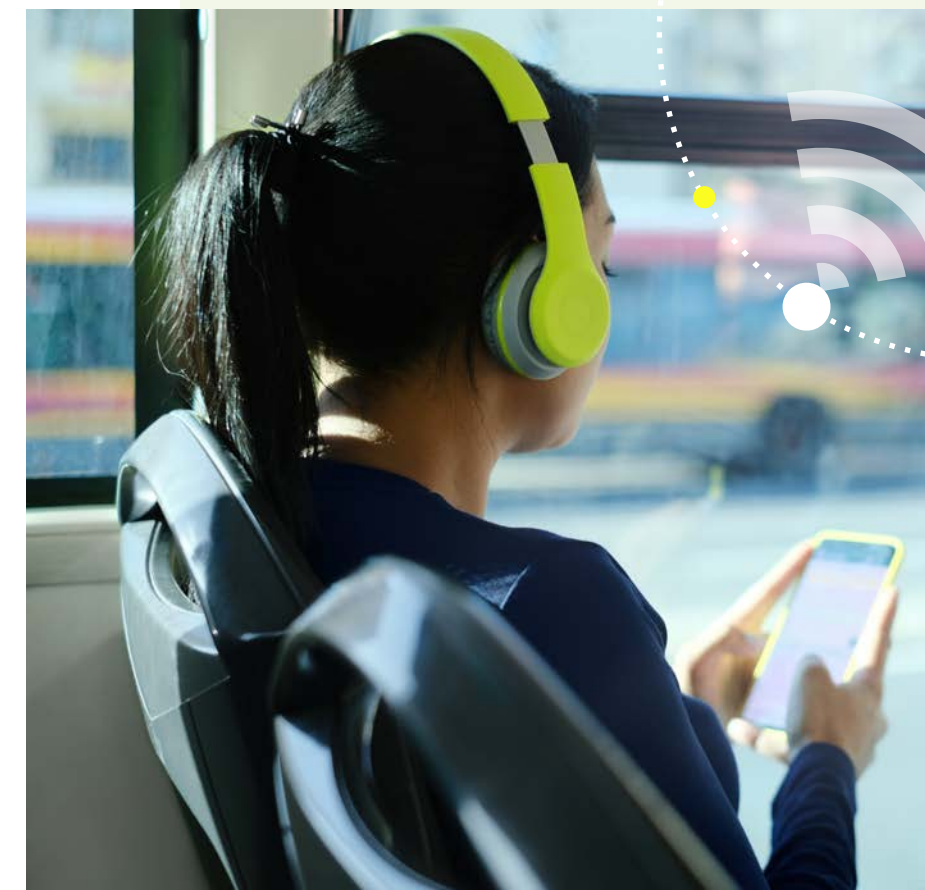
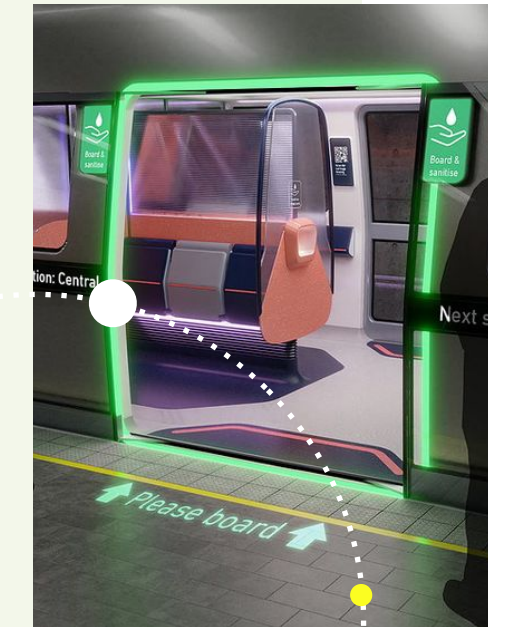
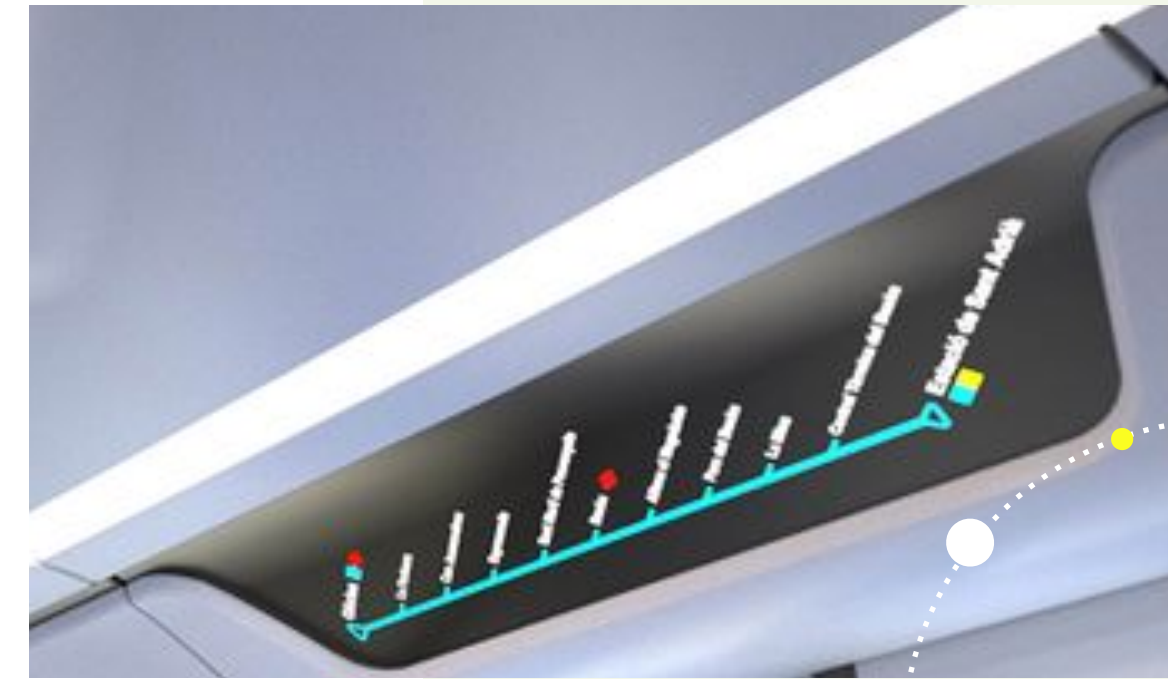
Functionality intended for communications include visuals on screens, coloured lighting, and the use of audio and tactile elements. We invite the tenders to explore the use of technology to connect with passengers' personal devices to enhance the experience – and make it more accessible.

## Signal experience

The most important form of communication throughout the journey is the passengers' need to signal for the bus to stop. When signalling, the passenger should experience visual, audio and tactile feedback that the signal has been received and activated. The experience should be enhanced with solutions like coloured light above the doors and on buttons, specific signal sounds and visuals on screens.

## Integrated

Visual and audio information can be integrated into the interior and exterior to help increase a seamless effect and to present information clearly. The surfaces should be easy to clean, repair and exchange.





# Informative screens

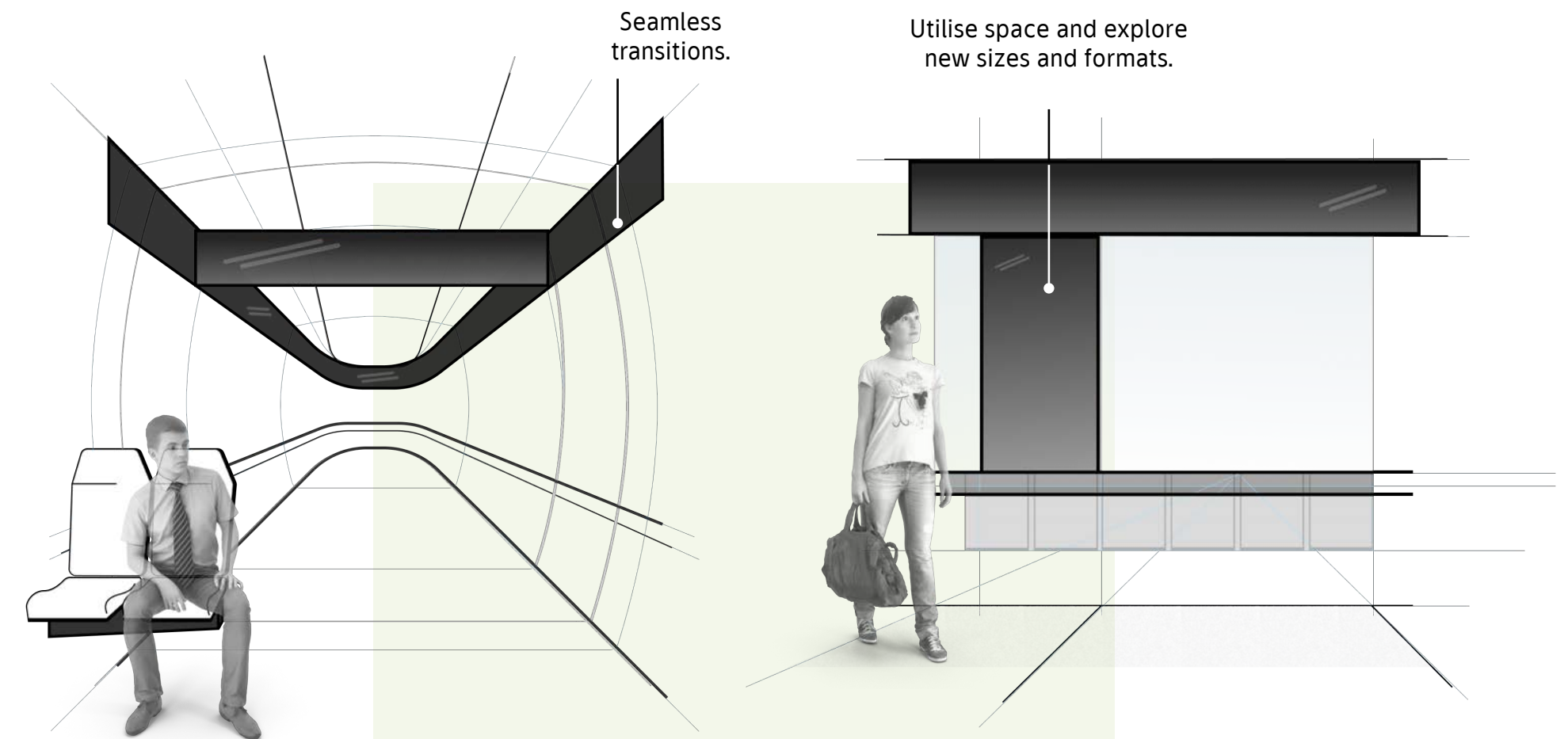
Large, clear and integrated screens for key travel information are necessary. The screens should be viewable from the entire bus with sufficient space for travel information. Screens should be placed in a manner that are visible to everyone. We invite solutions that demonstrate best practice for optimised visibility.

Suggestions for multiple displays in the interior - for travel information, advertising e.g is appreciated. The tenders should aim to integrate displays into the interior surfaces in a way that is seamless and avoids protrusions. This creates a clean, seamless look and minimalistic feel by reducing visually disturbing elements.

## Visual signals

The visual communication of stop and deviation signals should be coordinated with the lighting. The signal should always be in a noticeable contrast colour. The signal could also include a visual timer indicating the time remaining before the doors shut. This will also make it more evident that pressing the «extra help» button gives you more time.

All tendered solutions will be subject to testing and validation before implementation.



Could innovative technology be used?



Generous screen areas integrated in the interior.



Visual indication of time the door remains open.

# Tangible interactions

Every passenger must be able to signal the bus driver to stop or ask for assistance, open doors, and validate tickets. These interactions must be accessible to all, regardless of their location within or outside the bus.

## Tactile buttons

Physical interfaces should be easy to discover and interact with for all users – and users must be able to differentiate between the types of interactions. The placement of these interaction points should be predictable and repetitive regardless of the bus type.

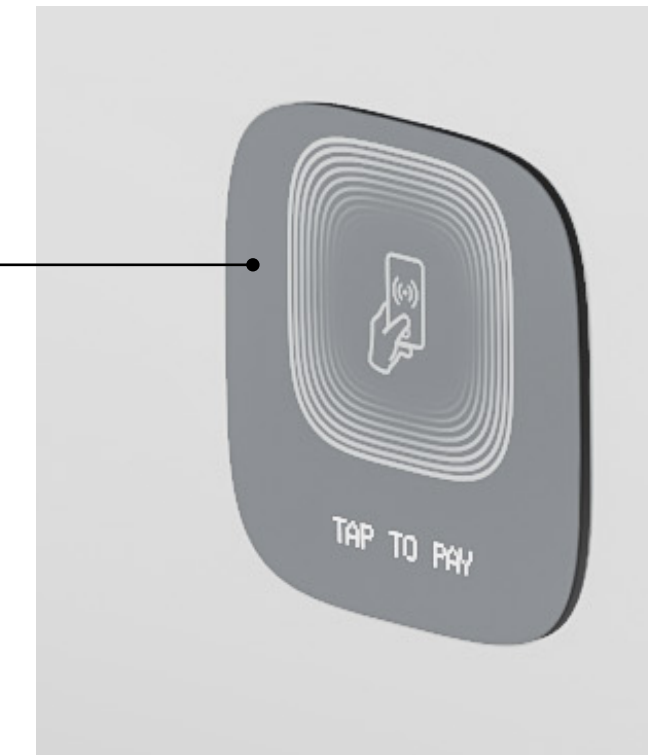
## Contrast

The appearance of an interaction point should stand out from its surroundings. To avoid misinterpretation of their different functionalities, use of contrasting colours, sizes and placements should be considered. All tendered solutions will be subject to testing and validation before implementation.

## Signal button

A crucial interaction between passengers and drivers is the stop-signal button. When signalling, the passenger should receive both visual and tactile feedback from the button to confirm that the signal has been activated. When it is activated, all stop buttons on the bus should communicate that the stop signal has been activated. The stop signal button is part of the holistic experience, and its functions should be coordinated with lights and screens.

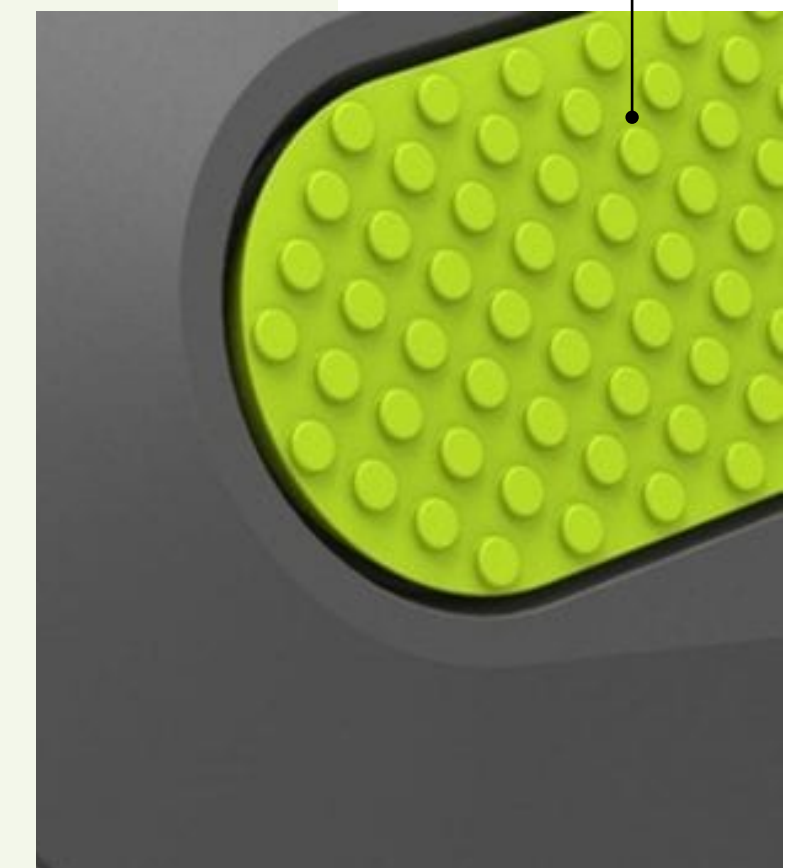
Automated and touch free solutions for validating tickets.



Could the user connect their personal device to the bus signal system?



Tactile and contrast colour on signal button for visibility.





# Audio

Audio is an important channel for communicating information. The bus needs a holistic sound system with evenly distributed sound and sufficient noise absorbing elements throughout the bus – to ensure clear communication for all passengers.

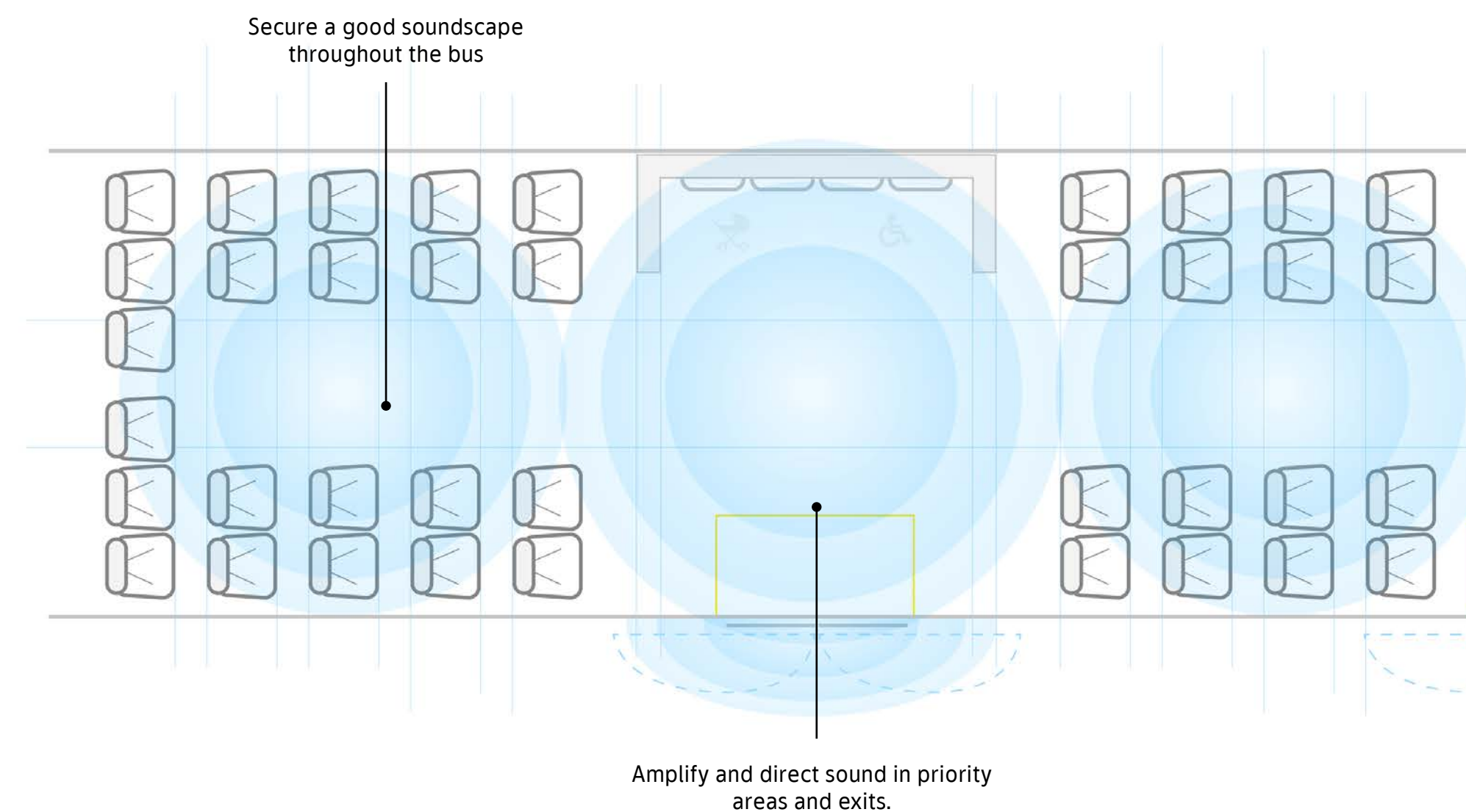
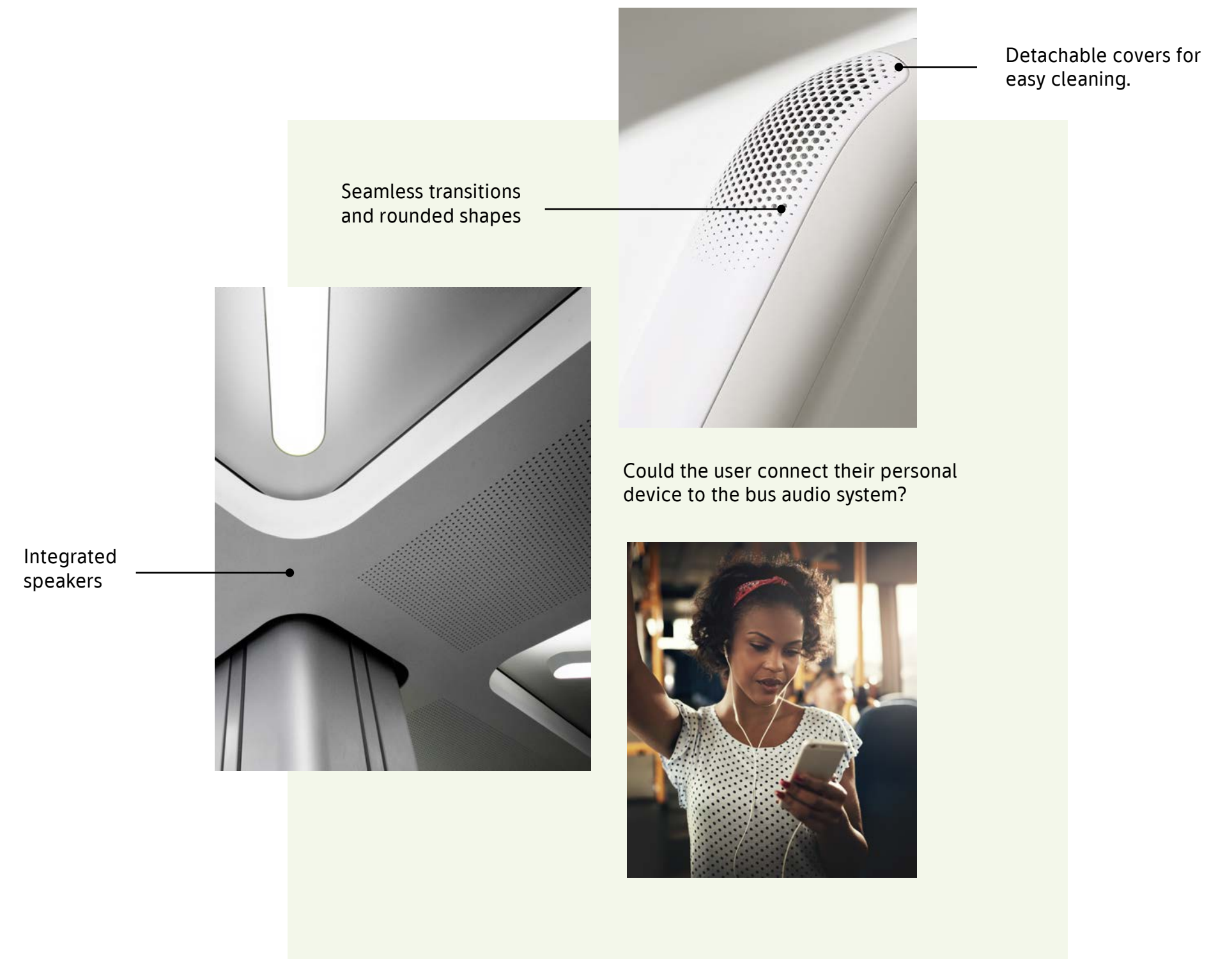
## Audio signal

The bus audio signal should be adaptive to the general level of noise in the bus to make sure every passenger is able to hear the announced information. It is crucial that all signals are correctly perceived by all passengers, especially as the bus doesn't stop if not indicated.

Technology that enables interaction with passengers and increases accessibility should be made available in the bus. It should be possible to connect audio to mobile phones if passengers need extra assistance.

## Directed sound

Sufficient audio should be available throughout the bus. Some areas are more sensitive to noise and will need extra audio. The bellow is particularly exposed to noise, as are the flex areas with priority seats.



# Equipment

Examples and detailed description of equipment in the bus.

- Seats
- Handrails and handles
- Safety features



# Seats

Our aim is to enable more passengers to travel at the same time, safely in a comfortable manner. The experience of sitting in the bus is described in «Area of seating» (page 30)

## Seats

The seats need to be placed in a manner that ensures the best possible comfort and capacity. Connected, uniformly shaped seats create a resource-efficient and visually calm interior. All seats should also have high quality safety belts. Where possible, seats should be mounted to the walls rather than to the floor to support easy cleaning and to create a light and airy atmosphere. Preferably not elevated seats for optimal access for all. The floor mountings must be easy to clean with rounded corners. Seats should be easy to remove, replace and clean.

## Standing space

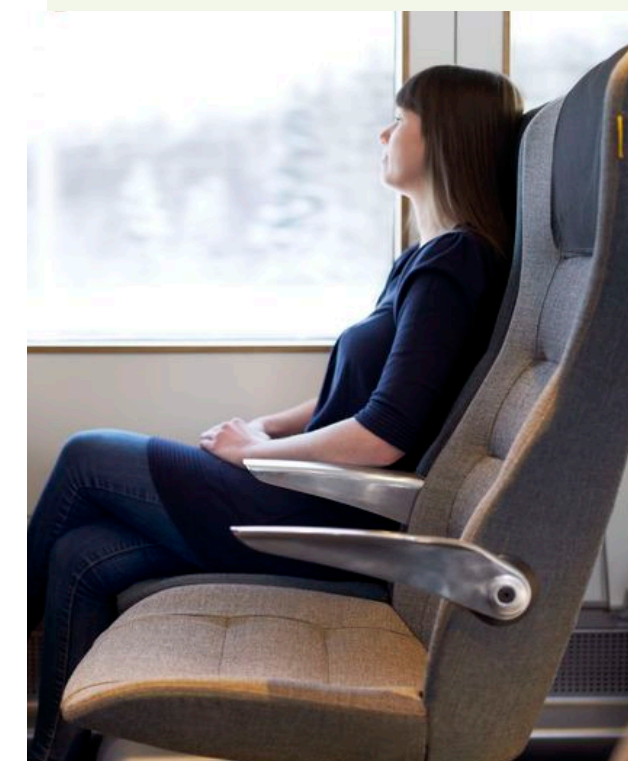
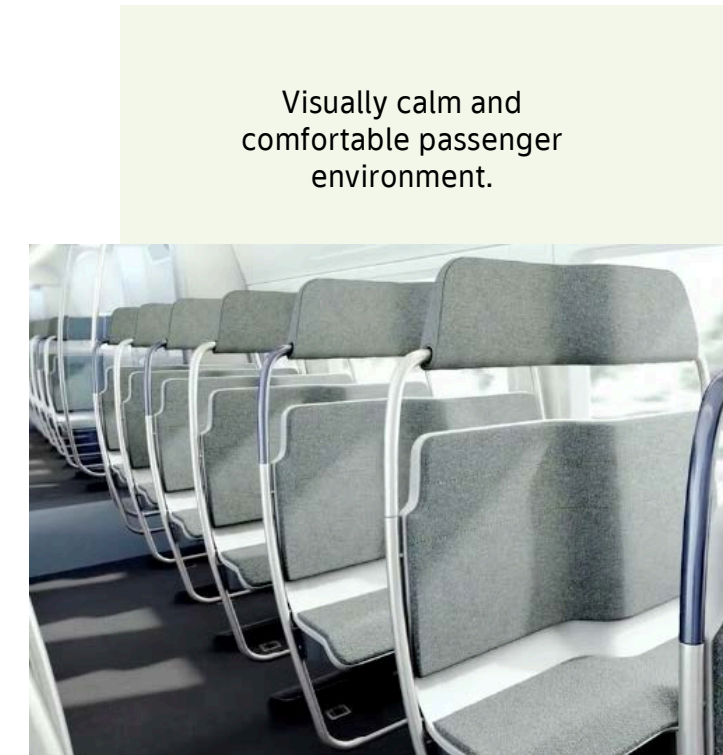
Perch seats is the preferred way to stand comfortably. The support for passengers in the designated standing areas should be fixed, and not movable. Walls and dividers could be considered support.

## Maintenance

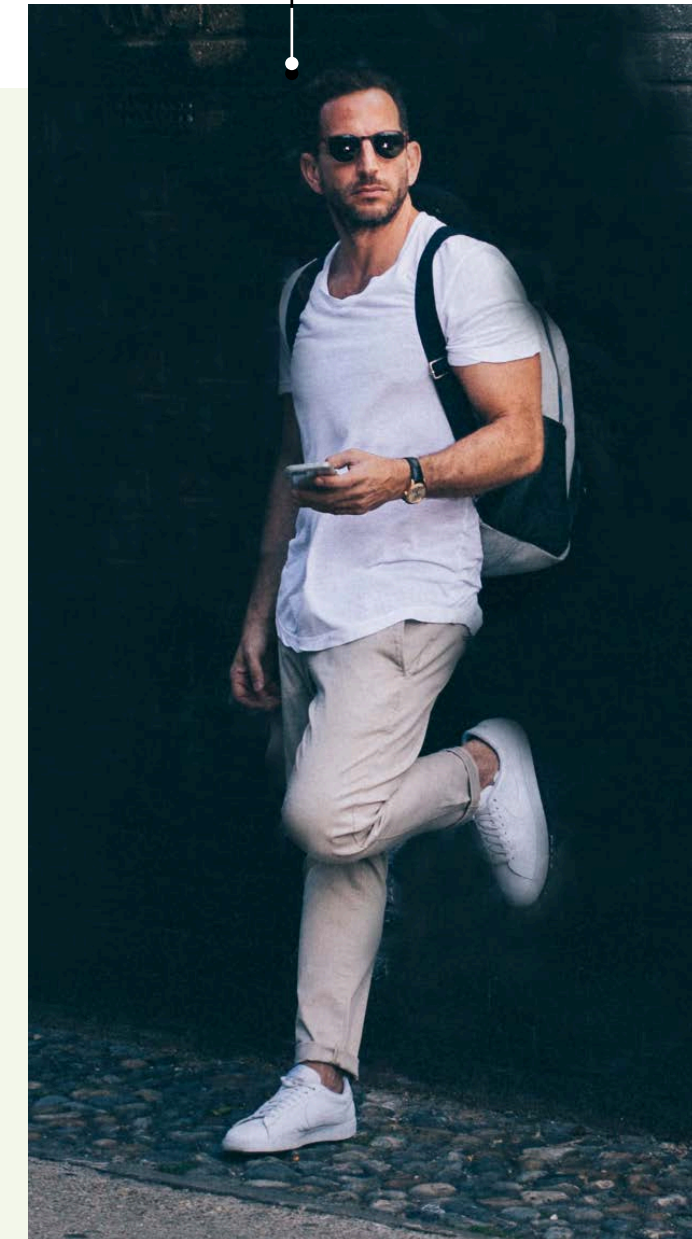
All seats should be similar (modular) and have the same maintenance parts for replacement. The buses will have a high level of usage, this demands solid materials that are easy to recycle and repair. Aspects of the bus like the seats will suffer from vandalism, scratches, continuous cleaning, food stains and marker pens. The materials used will need to endure a lot of wear and tear, be easy to clean – and keep their looks over the years.

## Materials

Our ambition for our buses is to be sustainable and durable – we invite solutions to the use of new types of natural and circular source materials (documented) as options to seat upholstery etc. We welcome documented solutions like EU Ecolabel and such, Materials should also be allergy friendly.



Solutions that enable passengers to stand comfortably.



Smart materials



# Handrails and handles

The bus needs support measures in the form of grips, handles and handrails. These should provide passengers with safety, stability, and comfort when travelling, and should be placed throughout all areas of the bus.

## Handrails

Handrails should be organised in a way that creates an impression not only of dependability but also of visual calm and assist passenger distribution. Rails should not have any unnecessary bends or curves. Rails should be connected to walls or seats and not to the floor for optimal flow and maintenance.

## Handles

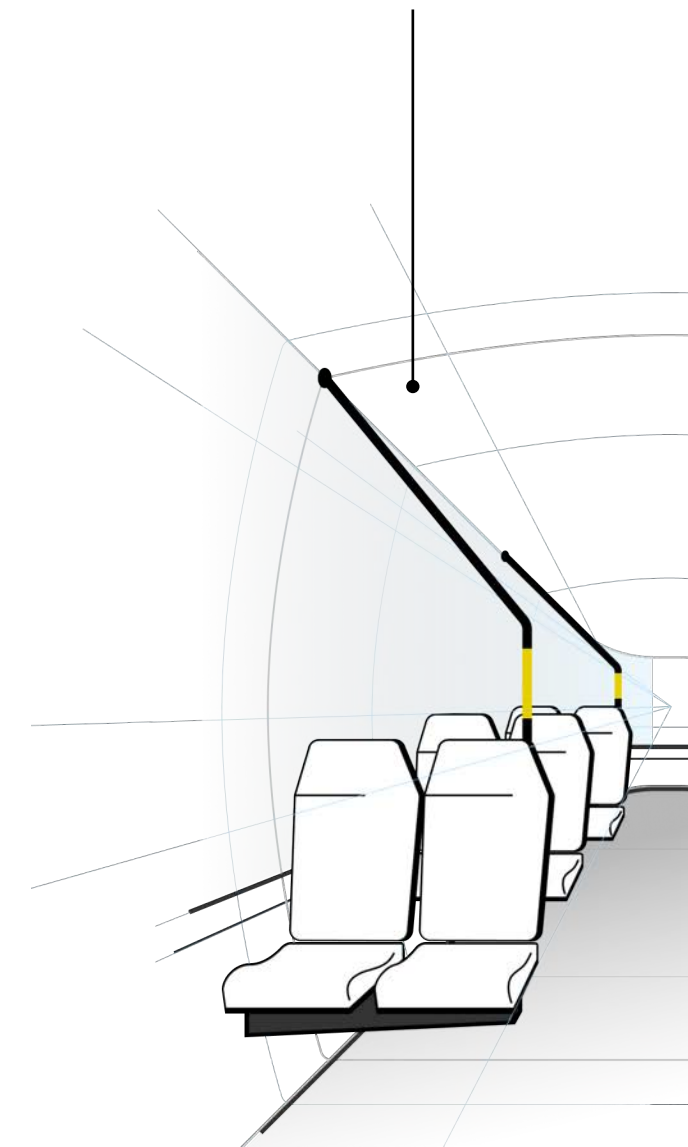
Handles are preferred below shoulder height for comfort reasons. Loops as handles is considered unstable and less convenient than fixed handles. We seek smart solutions for multiple use of handrails.

## Smart placements

When placing handrails and handles in the bus, a holistic design impression should be considered to prevent accidents and unnecessary maintenance.

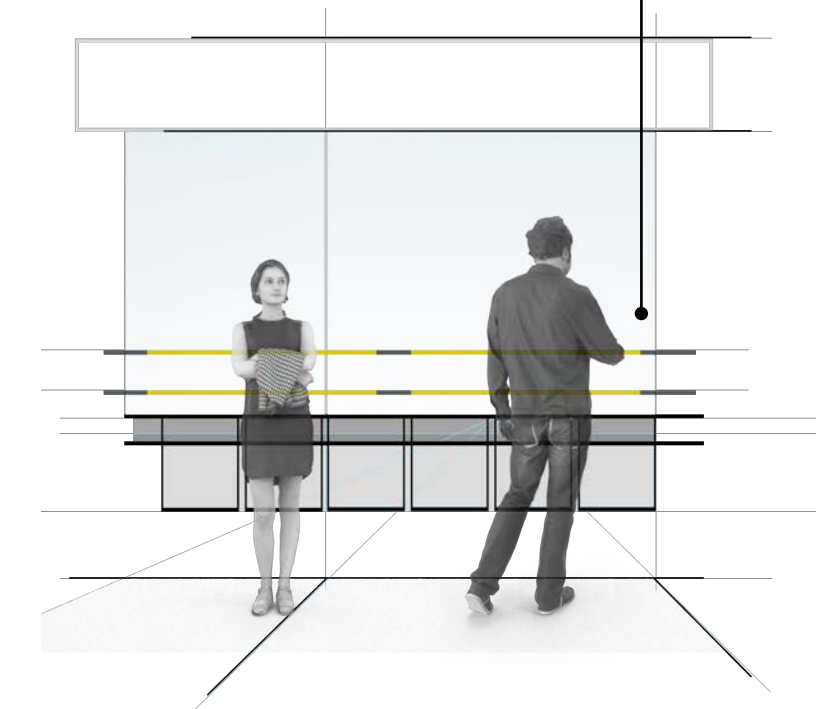
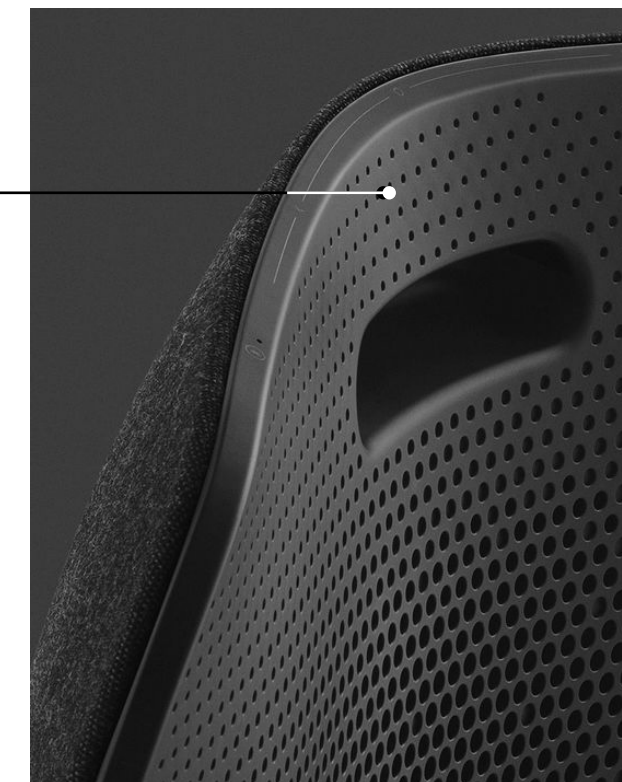
- As few as possible placements on the floor
  - to prevent obstacles.
- Sufficient amounts of handrails
  - to ensure safe movement throughout the bus.
- Integrated placements
  - to create a thoughtful seamless design.

Handrails should be mounted directly onto surfaces with invisible brackets, which should be the same colour as the attachment point



Handles placed below shoulder height to ensure ergonomics during the bus ride.

Smart integrated solutions for handles in the seat.





# Safety features

The regional bus requires high standards of safety measures. Safety should be one of the key attributes of the bus designs, opening up for a range of smart solutions for passengers, whether they're travelling alone, as a family, with their bike, a wheelchair or a pram.

## Highlighted safety

All safety installations such as seatbelts, and children's seats and other safety devices should be highlighted in a contrasting colour. This is to emphasise the possibilities to passengers, and to imply their importance. Safety features should always be clear and visible.

## Integrated solutions

The safety solutions should be smart, deliberate and built-in – not installed merely as add-ons. If the equipment is not integrated in the bus, it should have a fixed position in the bus deliberately designed to fit the relevant equipment.

## Predictable, deliberate placements

Smart and thoughtful compartmentalisation of space within the bus to provide clear and predictable placing of equipment. Integrated and highlighted placements cross vendors are crucial for important safety equipment like fire extinguishers, first aid kits and defibrillators. This will help both driver and passengers in stressful situations.



Smart integrated children's seats exposed by color



Predictable, visual placements of safety equipment

# The bus as a workplace

Description of important areas  
in the bus for workers in the bus.

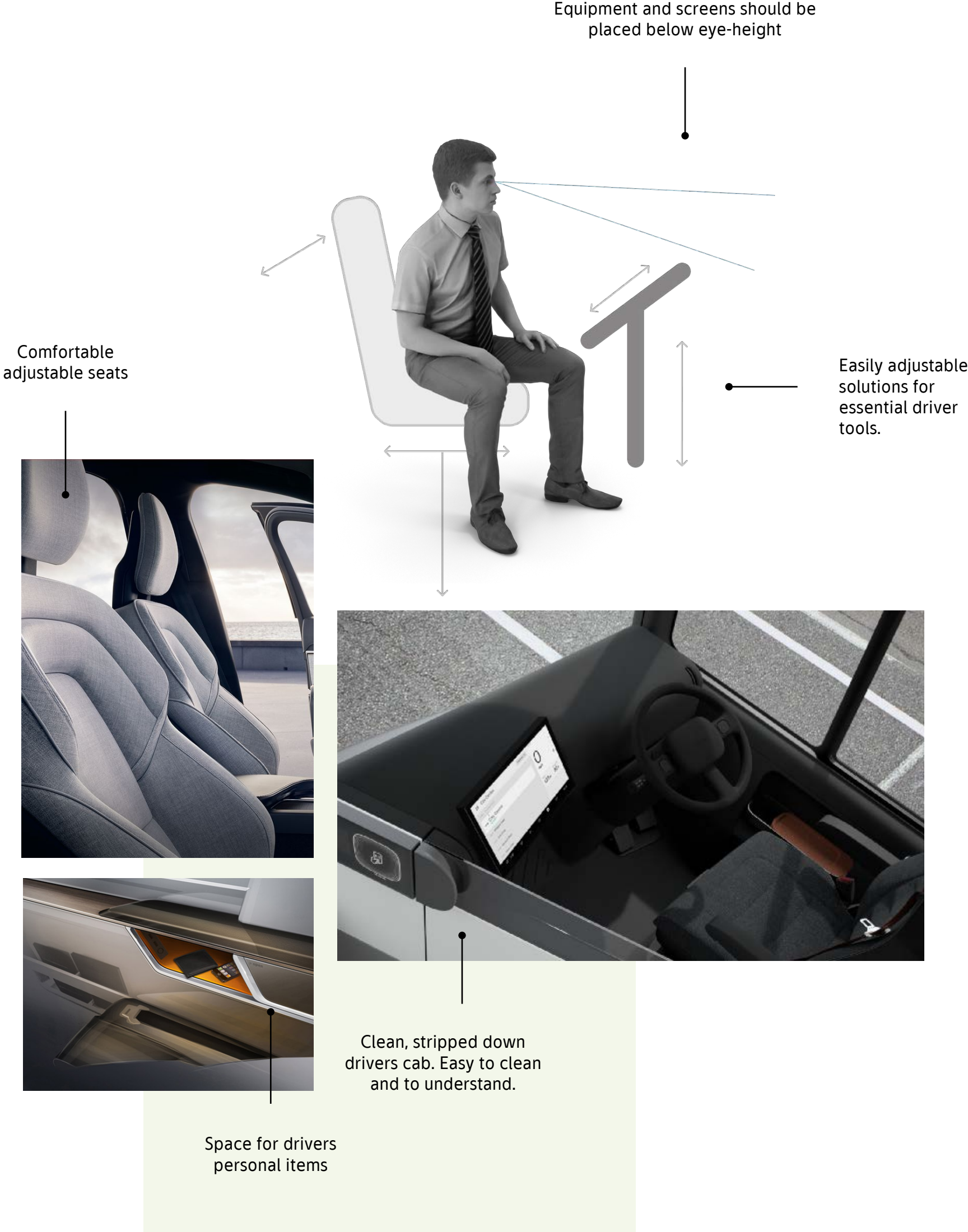
- Professional working environment in the drivers cab
- Drivers safety
- Clever tools for a new driving standard
- Clean bus and easy maintenance



# Professional working environment in the drivers cab

The bus drivers are at the heart of the bus and we need to create a great working environment for them. The drivers cab should have the same pleasant feel as the rest of the bus. It should be a professional, safe working environment, and passengers should also be able to approach the driver for tickets e.g. The drivers position in the bus should be approachable, but not interrupting the passengers flow.

- Professional and ergonomic workplace for all drivers, regardless of gender and size. The equipment should be smart, automatic and easy adjusted for personal needs.
- Equipment and screens should be placed below eye-height to keep the driver's sightline free, and to ensure an ergonomical position of their head and neck.
- The driver needs a full field of view in the bus, all doors and especially the «flexible» areas. Clean viewing assistance tools is appreciated. (camera or mirrors)
- The driver's seat should be positioned up high. This is to ensure the driver has a better overview of the traffic, safety in the traffic as well as the safety of their passengers.
- Dimmed or adjustable light to ensure comfort for the driver.
- Materials should be used to reduce noise in the drivers cab to ensure a better soundscape, so as to avoid the driver being interrupted while driving.
- Give the drivers easy access to personal items and features like a trash bin, and in general create a space that will accommodate the drivers' needs throughout the day.
- Smart, deliberate and thoughtful compartmentalisation of space within the drivers cab to provide clear and predictable placing of equipment.



# Drivers safety

The bus driver is highly exposed while performing their work. Society is changing, and unfortunately there are many situations when they need to protect themselves. The bus should enable this by implementing smart, flexible solutions for drivers' protection – not only during a pandemic, but also for when other challenging situations arise.

For example, during a pandemic they need to shield themselves from potential contamination from passengers, and at nighttime they sometimes need the ability to physically close the driver's cabin to prevent assaults and physical violence.

However, most days don't involve any threats – and the driver should still be able to talk with the passengers, sell tickets and be service-minded.

The designs of the driver's cab needs to put safety first. It should be flexible and adjustable to different situations and times of day. Preferably, the driver can easily choose and change between having an open, semi-closed or completely closed drivers cab.





# Clever tools for a new driving standard

The driver's workday is versatile, and their list of tasks before, during and after the shift is long and time-consuming. Every tool and helpful equipment to make their workday easier, more effective and more effortless is appreciated. The condition of today's buses are more analogue and dated, and we need them to be more future oriented.

## Prioritized order

- Essential information prioritized for the driver such as speed limit, stop signal etc.
- Frequently used buttons should be easily accessible and tactile, while less used and less important adjustments can be less accessible and digital.
- Signals activated by passengers should be clearly highlighted in the driver's cab.

## Helpful tools

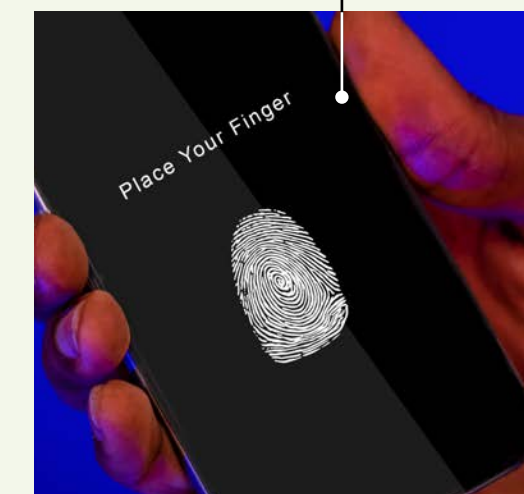
- Technology that augment the bus driver's abilities. Automatic brake, stop and start to make the experience predictable and safe for all passengers.
- Enable bus drivers to communicate with passengers via audio and visual signals in the case of unforeseen events.
- Efficient user interface to ensure a good user experience of the surveillance system. A smart system that helps the driver to prioritise.

Can modern technology prioritise the drivers work tasks during the day? And can it be used to help both the driver and passengers to achieve a soft, comfortable trip?

Multifunctional steering wheel with the most important tools available



Digital log-in with a personal preference in user screen.



Could technology be used to reduce noise in the drivers cab and ensure a better soundscape for the driver?



Frequently used buttons easily accessible and tactile

# Clean bus and easy maintenance

## Clean

The bus interior design solution should be curved (rounded corners) where all gaps, cavities and grooves are closed to avoid spaces for litter, water and dirt. Through the use of curved corners, design solutions must make it near impossible to leave clutter, cups and other rubbish.

## Open

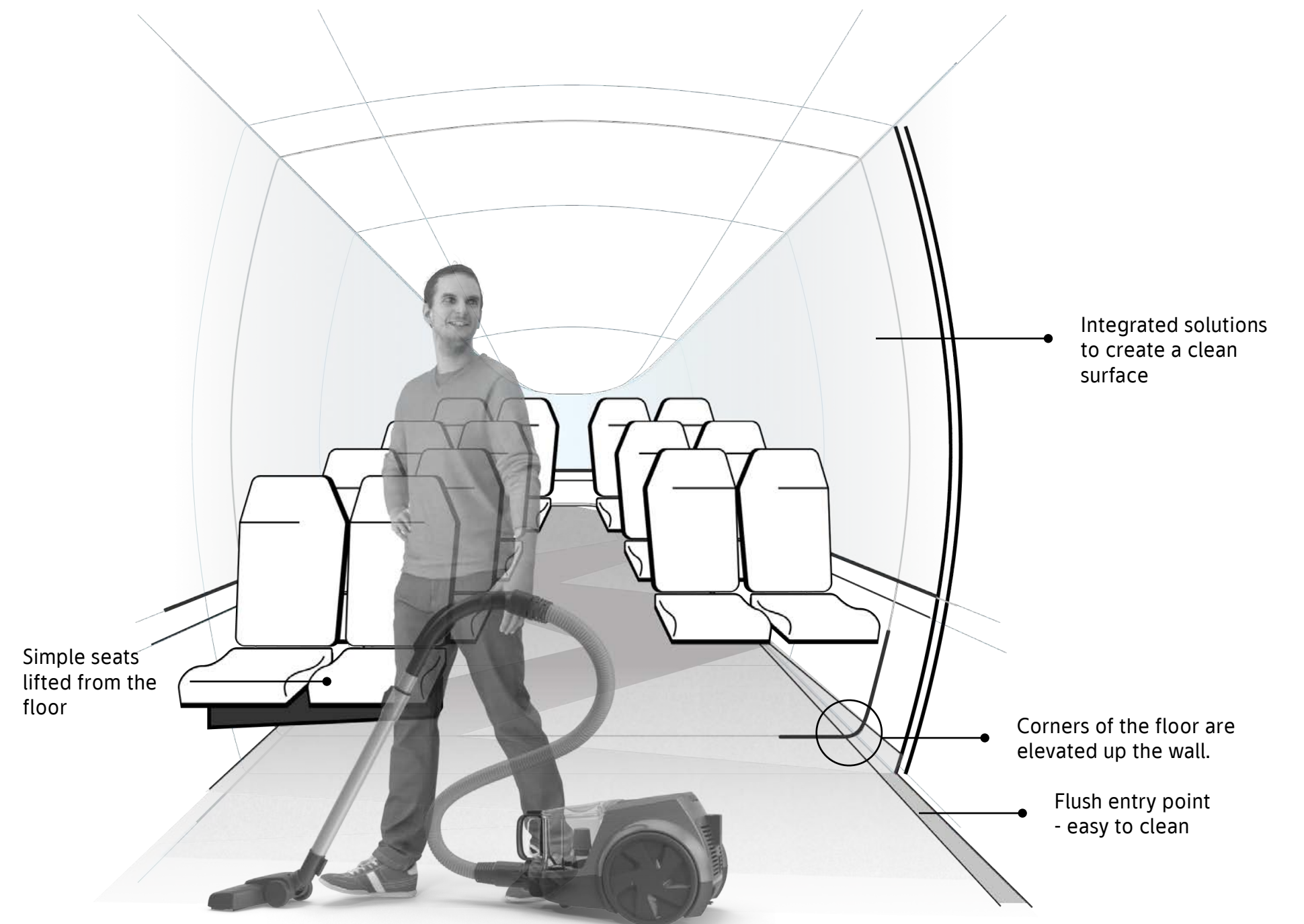
To maintain an open path of flow in the compartments, we need to minimise the number of elements with attachments to the floor. Handrails can be load-bearing elements attached to the ceiling. Where possible, seats should be mounted to the walls rather than to the floor to support easy cleaning and to create a light and airy atmosphere. The panelling should be well integrated with the rest of the interior. It should be easy to clean between seats and windows.

## Floor

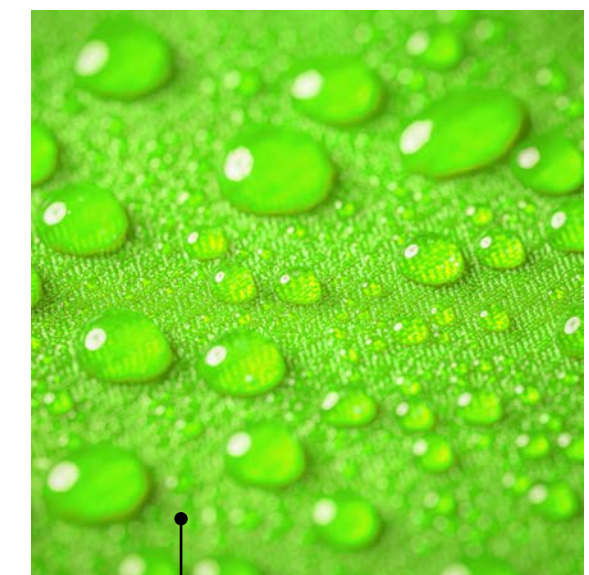
The floor materials should be durable and maintain a look of newness year after year. They need to be rough enough so as not to be slippery when wet, but not too rough for hygienic reasons. The solution needs to be easy to maintain and washable with water. The corners of the floor should be angled so as avoid pockets of water collection or debris and dirt.

## Maintenance

Materials need to withstand wear and tear, be easy to clean – maintain the original appearance of quality over the years whilst remaining hygienic and safe.



Integrated seamless solutions



Soft, comfortable and liquid repellent material that is easy to maintain.



# Photo and illustration source and credits

## The bus ecosystem

### From local areas, to inner city

Photo 1: Ruter As / Fotograf Birdy, Birgitte Heneide  
Photo 2: Ruter As / Redink, Hampus Lundgren  
Photo 3: Ruter As / Redink, Fartein Rudjord

### Cold winters – Warm summers

Photo 1: Patrick Bald on Unsplash  
Photo 2: Alisa Anton on Unsplash  
Photo 3: Ruter As / Photographer Charlotte Sverdrup  
Photo 4: Scott Webb on Unsplash

### Inclusive passenger experience

Photo 1: Ruter As / Fotograf Birdy, Birgitte Heneide  
Photo 2: Ruter As / CatchLight Fotostudio AS  
Photo 3: Foto/ Ruter As / Redink, Fartein  
Photo 4: Ruter As / Redink, Hampus Lundgren  
Photo 5: Ruter As / Redink, Fartein Rudjord

### Inclusive workers' experience

Photo 1: Ruter As / Fotograf Birdy, Birgitte Heneide  
Photo 2: Ruter As / Fotograf Birdy, Birgitte Heneide  
Photo 3: *Photo by Max LaRochelle on Unsplash*  
Photo 4: Photo by Studio Vues

## Design strategy

### Effortless

Photo: Photo by diego\_cervo - Envato Elements

### Trustworthy

Photo: Photo by Cole Keister on unsplash

### Calm comfort

Photo: Product, silk cotton balls. Habu Shopify.

### Design principles

Photo 1: Guilherme Stecanella on Unsplash  
Photo 2: Image by Tria Beauty  
Photo 3: Photo by Polestar  
Photo 4: Image by TrinchyRobot on dribbble  
Photo 5: Marbled / Stools by ADG design | ARTNAU  
Photo 6: The Vivint Element Smart Thermostat

## The bus exterior

### Exterior experience

Photo 1: The arrival bus (arrival.com)  
Photo 2: Horidesig  
Photo 3: The arrival bus (arrival.com)  
Photo 4: Egen dokumentasjon  
Photo 5: Dobro Moscow Electrobus on Behance

### Informative exterior

Photo 1: The arrival bus (arrival.com)  
Photo 2: Willie by Tad Orłowski

### Safe and informative entrance

Photo 1: Ruter As / Fotograf Birdy, Birgitte Heneide  
Photo 2: Ruter As / Redink / Skjerm bilde fra film  
Photo 3: Ruter As / Redink, Hampus Lundgren

### Front and rear section

Photo 1: Photo from Dobro Moscow Electrobus on Behance

## The bus interior

### Interior experience

Photo 1: Lightnet Architechtual lightning  
Photo 2: Photo by diego\_cervo - Envato Elements  
Photo 3: Wayfinding at Here East by dn&co  
Photo 4: Unsplash by Maksim Šišlo  
Photo 5: Photo by Polestar

### Interior colour

Photo 1: In tube chair by Achodoso Estudio's  
Photo 2: Photo by Polestar  
Photo 3: Arp Museum Photograph by Manuela Martin  
Photo 4: X3 Train - Arlanda Express  
Photo 5: Photo from vtprotectivecoatings.com

### Exit area

Ruter As / Fotograf Nicky Twang, Nicky Twang

### Exit area

Photo 1: Photo from Maynard design Connect me project  
Photo 2: Photo from Formation Design group on Behance

## Air quality

Photo 1: Photo by Elcarito on Unsplash  
Photo 2: The Vivint Element Smart Thermostat  
Photo 3: Photo by Sydney Rae on Unsplash

## Lighting

Photo 3: Arp Museum Photograph by Manuela Martin  
Photo 2: Photo from Jalite - photoluminescent-signs.com  
Photo 3: Sky series by Eric Cahan

## Noise

Photo 1: Photo from therewillbeeffects.tumblr.com  
Photo 2: Photo from VolvoBuses.com  
Photo 3: Photo from diydesign.selbermachendeko.com

## Holistic communication experience

Photo 1: Proposal for the Barcelona Tramway Design by Damien Loreaux  
Photo 2: Tangerine 'Metamorphosis' Design Concept for Metro  
Photo 3: Photo by diego\_cervo Envato Elements  
Photo 4: Lumen Circular Switches Designers: Magdaléna Čurdová & Tereza Matyášková

## Informative screens

Photo 1: The arrival bus (arrival.com)  
Photo 2: Photo from tecdisplays.com  
Photo 3: Design by Alexander Zaytsev on dribbble

## Tangible interactions

Photo 1: Design by Phan Thao Dang - Daydream / Google  
Photo 2: The arrival bus (arrival.com)  
Photo 3: Photo from ippinka.com  
Photo 4: Photo by leungchopan - Envato Elements

## Audio

Photo 1: Photo by Tria Beauty  
Photo 2: Photo from stylepark.com  
Photo 3: Photo by FlamingoImages - Envato Elements

## Seats

Photo 1: Photo by Clem Onojeghuo on Unsplash  
Photo 2: Horizon project by PriestmanGoode  
Photo 3: X3 Train - Arlanda Express - seat  
Photo 4: Marbled / Stools by ADG design | ARTNAU

## Handrails and handles

Photo 1: Ruter As / Redink, Fartein Rudjord\_holdestang  
Photo 2: Product by Bang & Olufsen

## Safety features

Photo 1: Product by Fiskars  
Photo 2: Photo by Polestar  
Photo 3: Photo by By Rido81 Envato Elements  
Photo 4: Concept EmergenSee / First aid kit by L.L. New Taipei City, Taiwan

## Professional working environment in the drivers cab

Photo 1: Volvo XC90's Cabin Seat  
Photo 2: Arrival bus (arrival.com)  
Photo 3: Singapore airlines first class interior design by BMW designworks all images courtesy BMW group

## Drivers safety

Photo 1: Ruter As / Fotograf Birdy, Birgitte Heneide 2  
Photo 2: Ruter As / Redink, Thomas Haugersveen  
Photo 3: Irizar Protection panels

## Clever tools for a new driving standard

Photo 1: Byton's M-Byte Dashboard  
Photo 2: Photo by Prostock-studio - Envato Elements  
Photo 3: Photo by AntonioGravante - Envato Elements

## Clean bus and easy maintenance

Photo 1: Libratone Enceinte sans fil TOO GRIS GRAPHITE  
Photo 2: Photo by grafvision - Envato Elements

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