Experience guide

The bus experience of the future

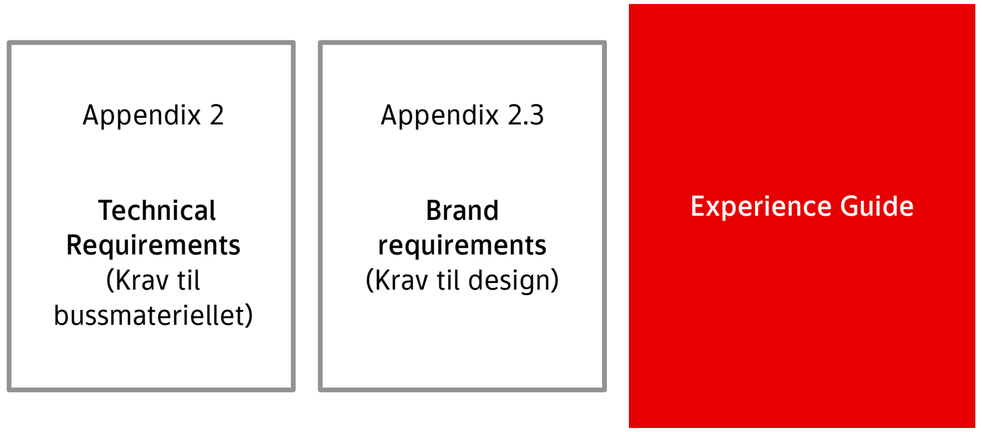
Ruter#

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: 30.10.2020



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, the people and user needs. Introduces the city of Oslo and considerations that influence the bus design.

A connected, green capital city

Oslo, the capital city of Norway is experiencing rapid population growth.

Surrounded by hills, lakes and fjords, Oslo people are active, outdoor types. They use the city and surrounding nature for a wide range of leisure, cultural and business activities.

Citizens of the city have a long tradition in using public transport, and the city bus network forms an integral part of an advanced modern public transport system.

Citizens of Oslo are environmentally conscious and have high expectations in terms of quality and flexibility of service from the public transport system.

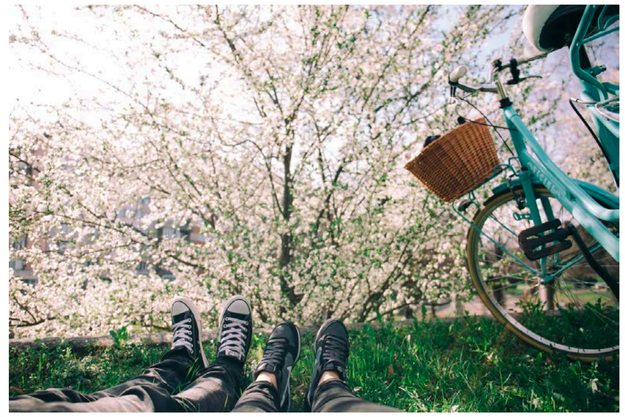
The bus has and will continue to have a central role in the further development of the network that connects people with the city.

Cold winters – Warm summers

Oslo 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.



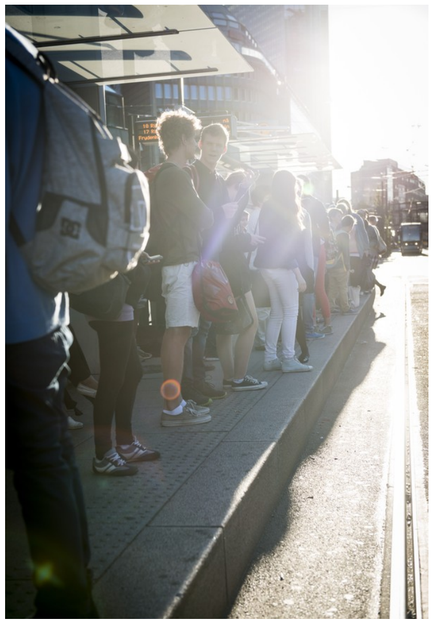
Inclusive passenger experience

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 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

«I need frequent departures, easy access on and off, and a pleasant travel experience to the next stop.»

DESIRED PASSENGER EXPERIENCE

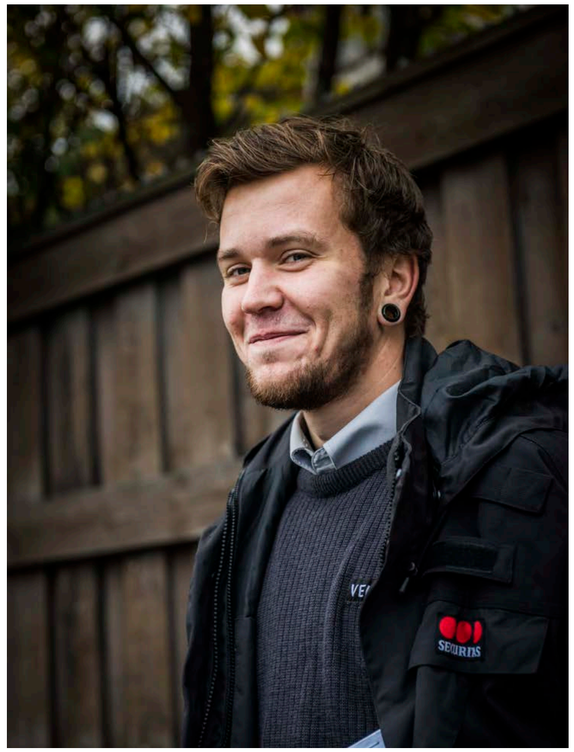
Inclusive workers' experience

Our workers' needs
Oslo'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.

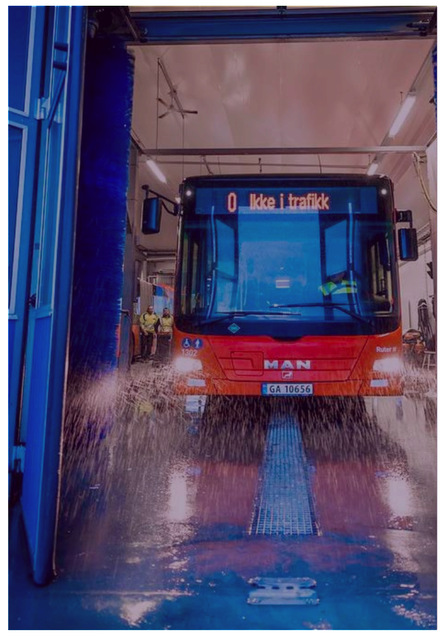


«Comfortable to drive, modern solutions and adaptable to my personal needs during the workday.»

DESIRED WORKER EXPERIENCE

«A bus that 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

A bus for everyone

Creating an attractive space for passengers with increased flow and capacity making the bus the preferred transport for all passengers, every day.

This is our design purpose. It won't be easy to fulfil, and it shouldn't be. But it's what we need to work towards, everyday.

DESIRED EXPERIENCE

Bright, adaptable and connected

To create a bus for everyone we need to design the bus to be sustainable, inclusive of smart solutions, and adaptable to individual needs, closely connected to people and the ecosystem it operates in.

Bright

DESIGN EXPERIENCE

The meaning of the word bright is not only shining and light, but also means clever. The new buses should feel bright, light and clever. Along with mirroring the crisp Oslo light, thoughtful implementation of clever features will increase confidence and trust in the bus and its capabilities.

This requires smart technological solutions integrated throughout the bus. A good flow of fresh air, automatically regulated temperature and comfortable lighting are examples of details that are key to creating a bright bus experience.

Adaptable

DESIGN EXPERIENCE

Our everyday lives are always changing, and so are our needs. Considering passengers' wide range of diverse requirements through the day, week and life, Oslo's new buses must be adaptable.

This means that we need practical, adjustable solutions — intentionally designed to function well for different needs.

Connected

DESIGN EXPERIENCE

The bus is connected to people and technology. The bus is closely connected to our everyday life, its openness creates valuable interactions between people and technology that may enhance the qualities of the bus experience - making every ride better.

Furthermore, filling the gap between other modes of public transport, the bus will take passengers from the inner city to the outer suburbs — creating connections across all of Oslo. The bus brings people closer together so that the capital remains small.

Design principles

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

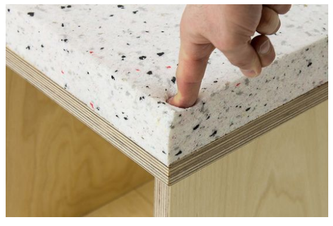
Spacious and light
Lots of air and large window surfaces. Long lines of sight to ensure the feeling of openness in the passenger areas, and making important information visible and accessible.

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 clean lines of sight.

Minimal style
Minimalistic design with seamless transitions and smart simplified solutions.

Modular and adjustable
Adaptable, flexible solutions enabling multipurpose use in areas for sitting, standing and leaning.



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

Automagical
Integrated new technology to create solutions for the future. Clever use of interior lighting to mirror outside conditions, adapting to seasonal changes and needs.

CHAPTER 3

The bus exterior

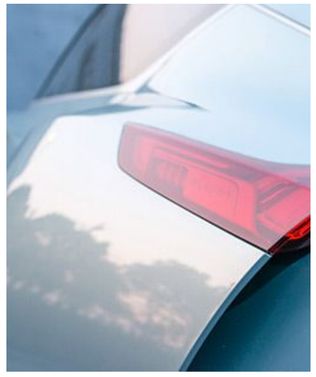
Inspirational images and practical examples of details for the exterior of the bus. Describes the design of the bus – and exemplifies how the design strategy is applied.

Exterior experience

The buss should stand out and create a bright, attractive visual experience.

- Inviting and informative
- Integrated and seamless
- Strong, robust and safe

Color
Solid red color that feels coherent cross-vendor and type of bus. The color of the interior must be in accordance with the brand requirements.



Coherent exterior

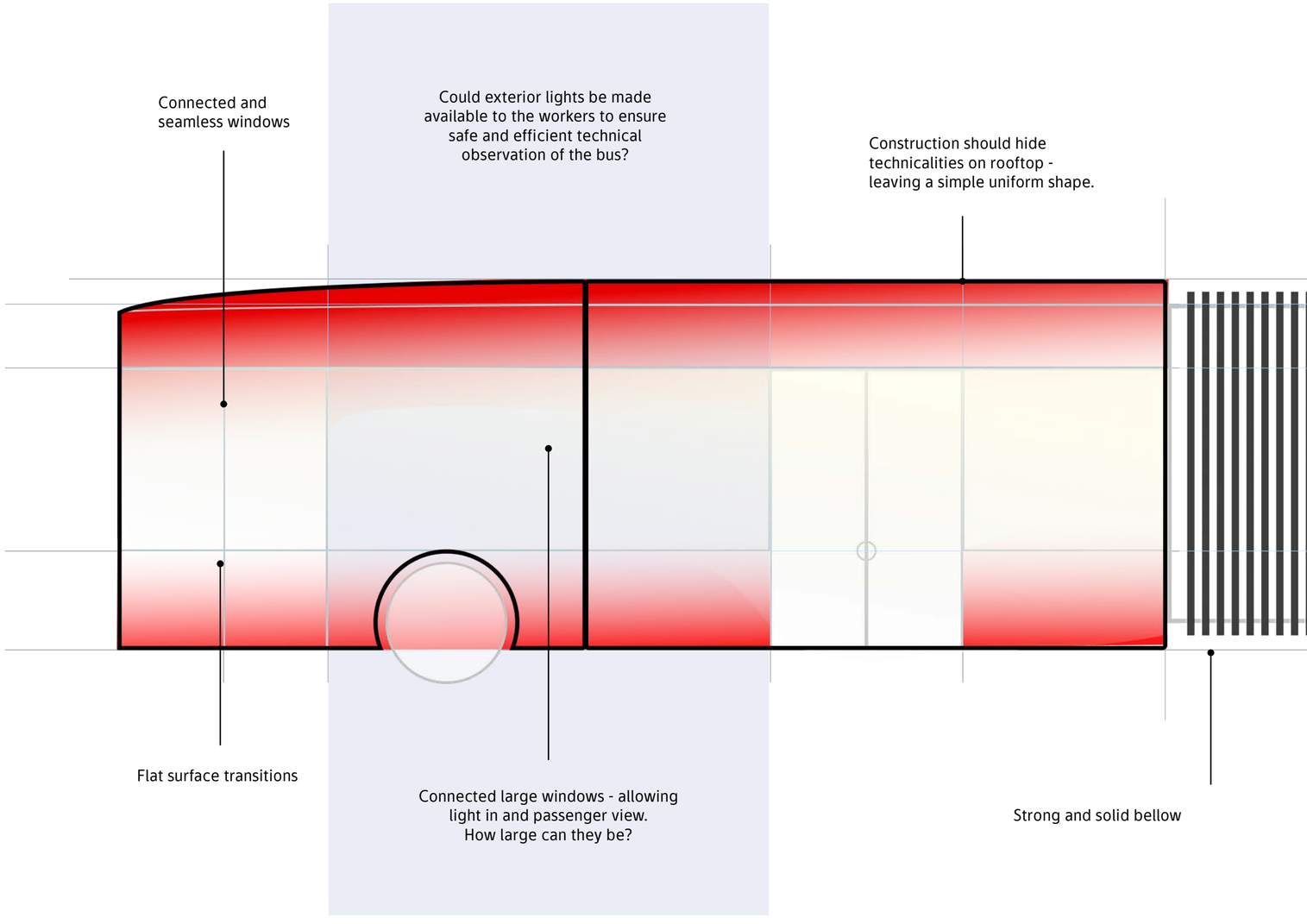
The bus needs to maintain a unified form, regardless of the length of the vehicle. We seek an holistic feeling that communicates a flexible performance.

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.

Bellow section
The bellow is an important part of the body of the bus and should look as strong and solid as the rest of the bus. The material should be durable, easy to clean requiring minimal maintenance.

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.



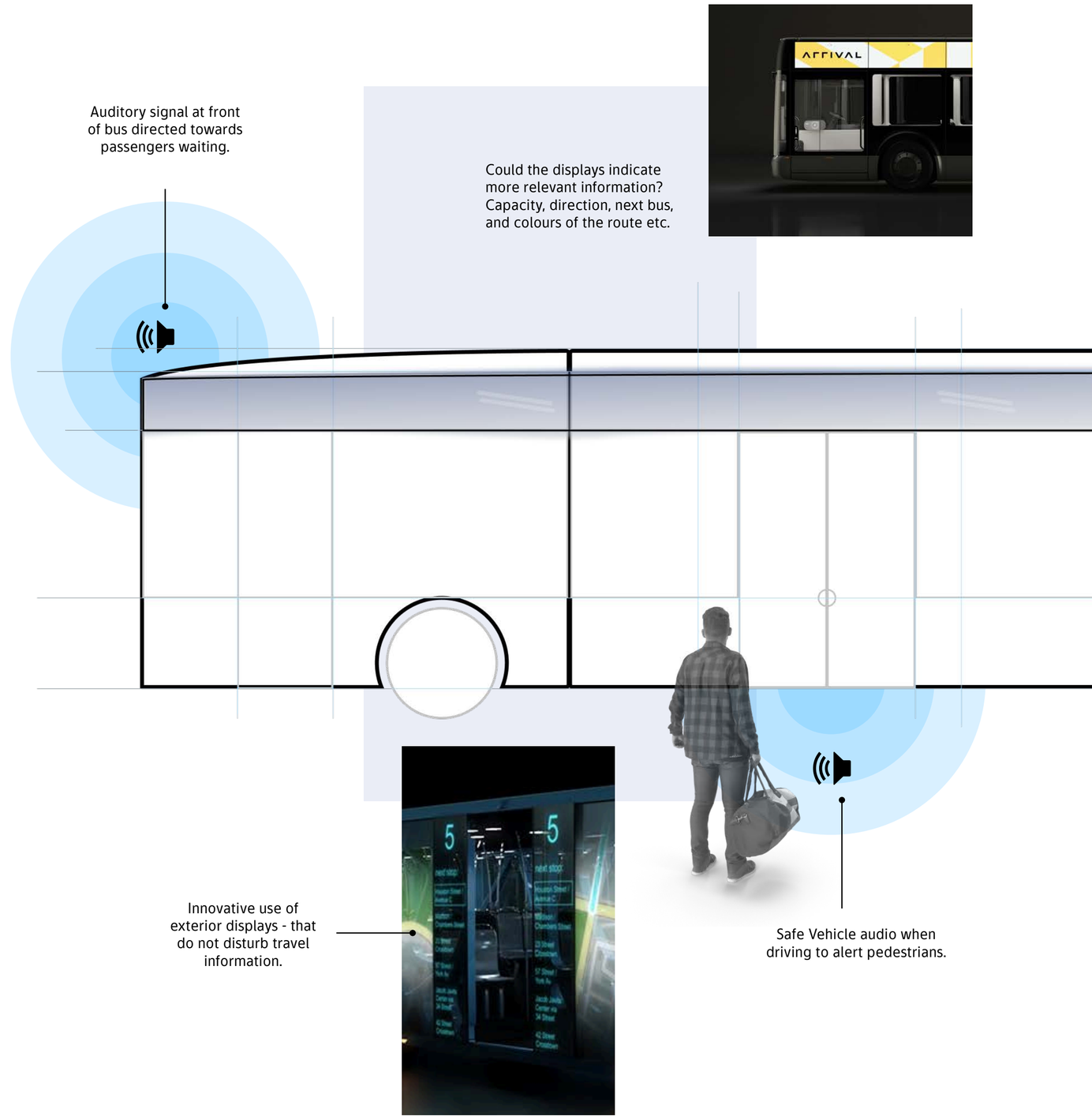
Informative exterior

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 lightning
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.

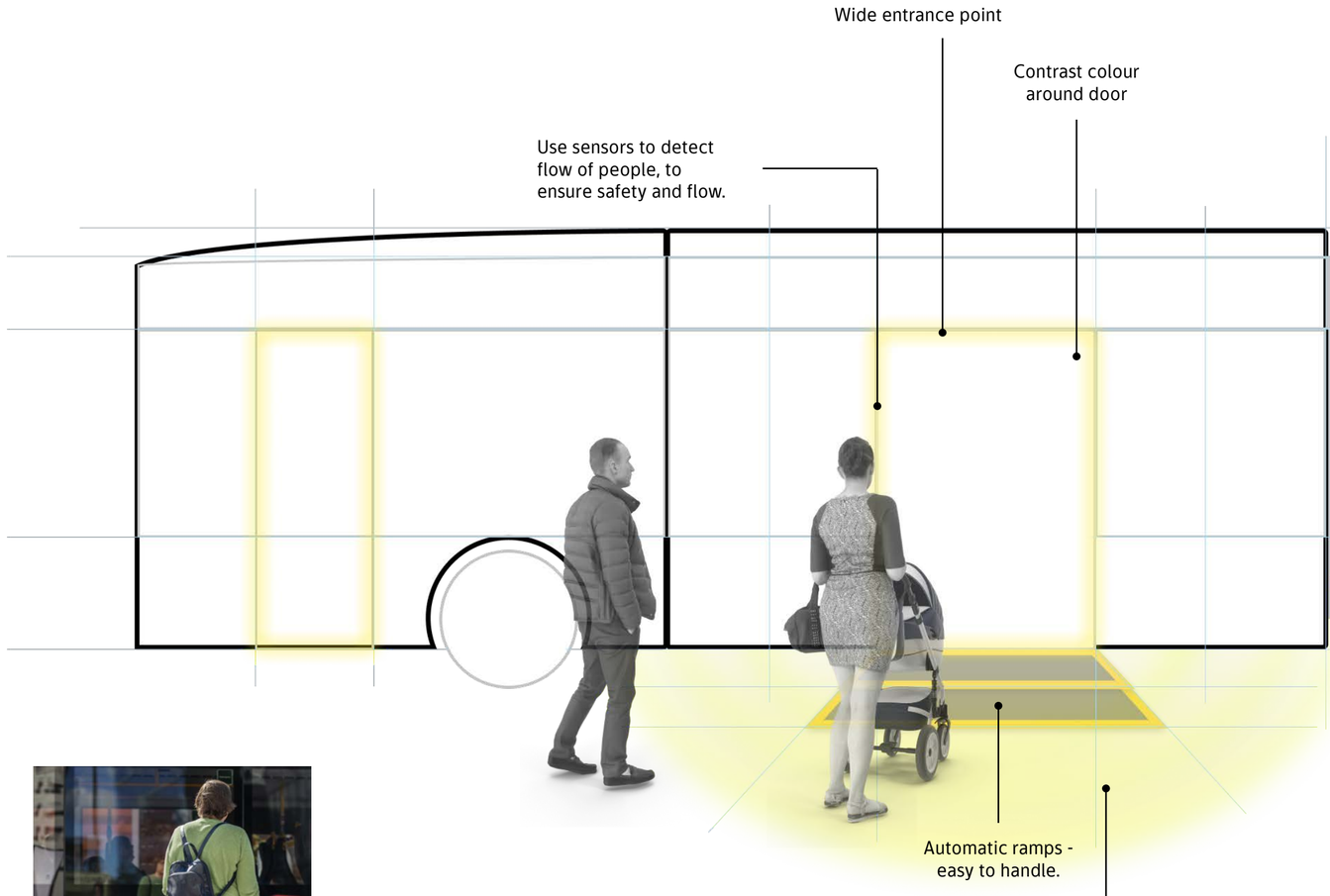


Inviting entrance

The doors should be inviting and easily accessible for all passengers.

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 a 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.



Could ramps be an easy access point for all?

Front and rear section

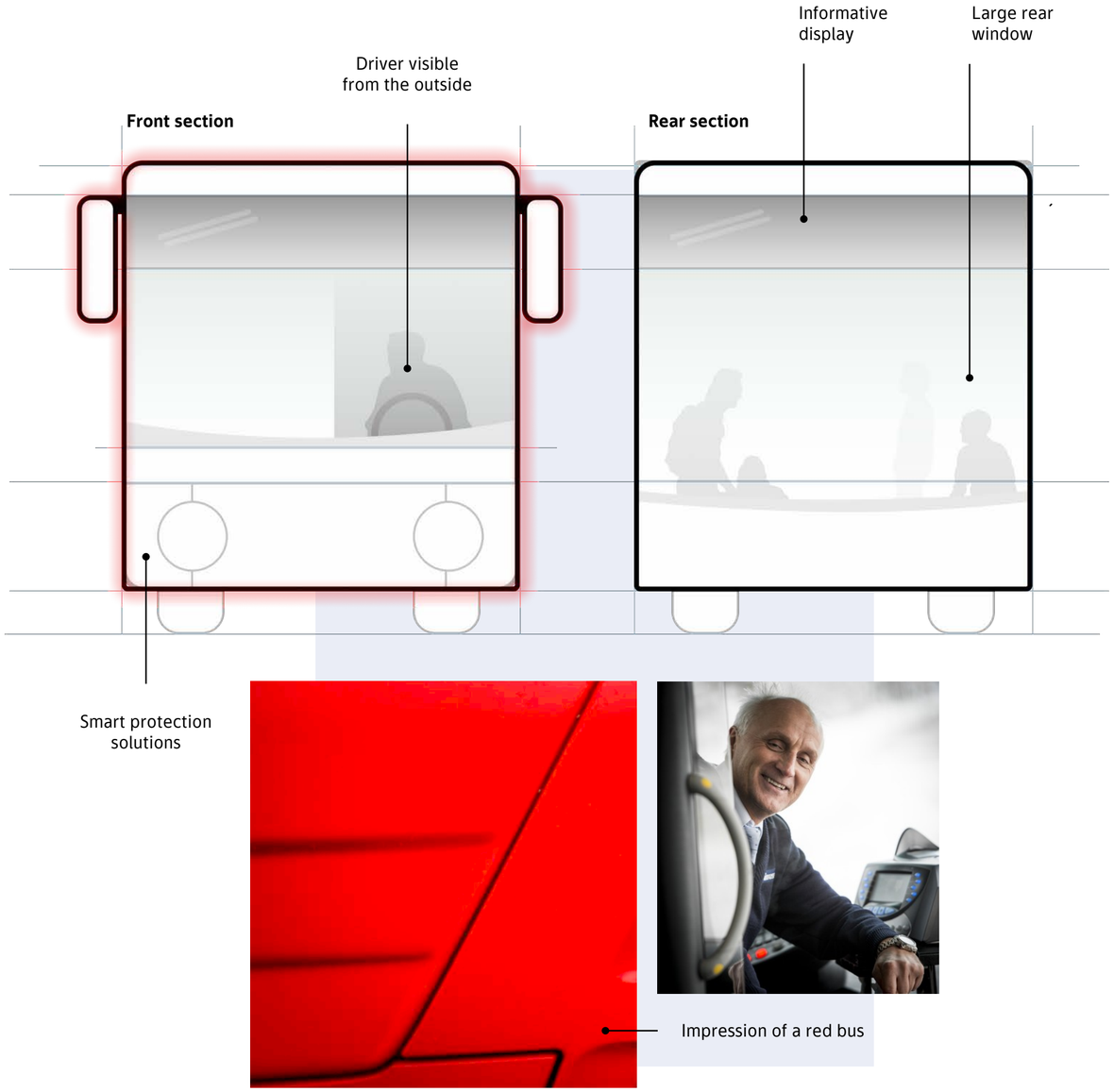
The bus needs to be recognisable, highlight the bus driver and be informative. The bus should provide information using large displays with sufficient readability and visibility. Furthermore, the bus should be distinctly red when seen from the front.

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.



CHAPTER 4

The bus interior

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.

- 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

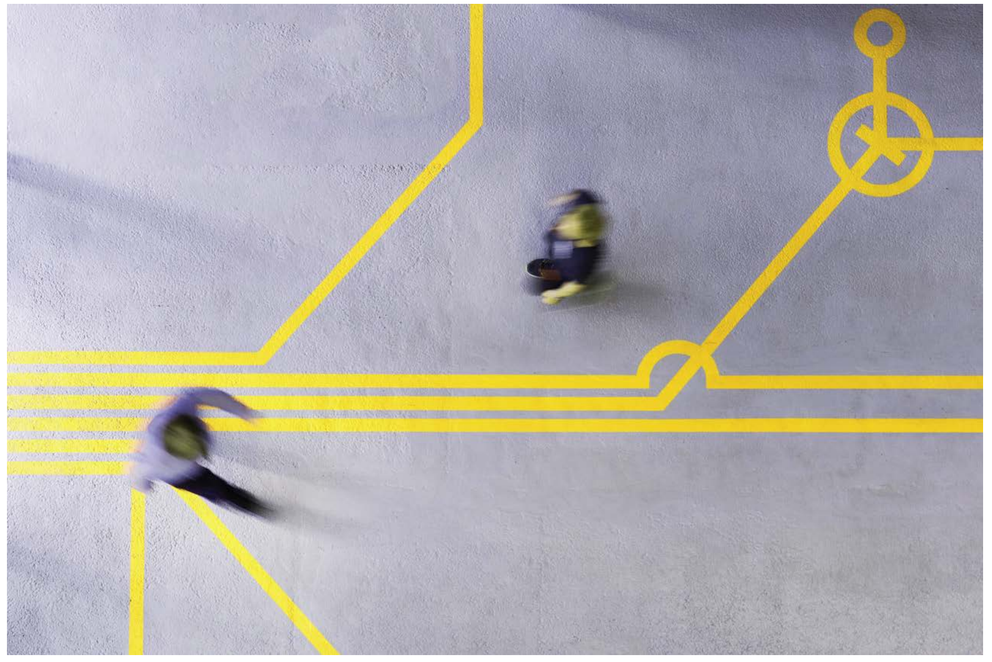
- Seats
- Handrails and handles
- Safety features

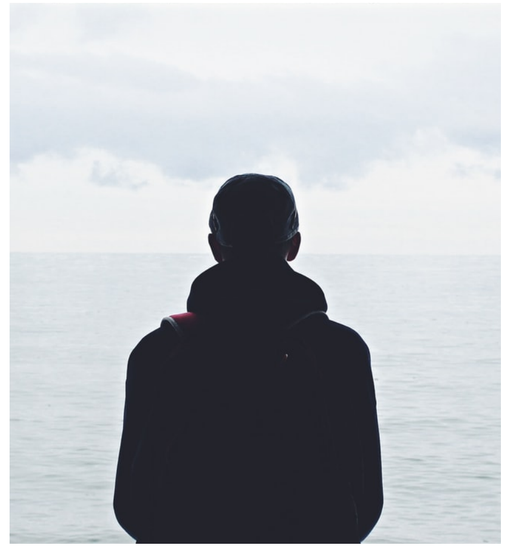
The bus as a workplace

- 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 be bright, attractive and provide a comfortable atmosphere throughout the entire bus. Design solutions should increase passenger flow and communicate spaciousness. They should also be modular and thus simple, logical, durable and quick to replace.



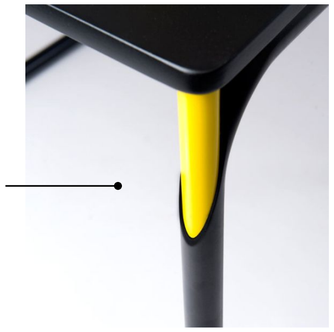


Interior colour

The experience of the interior should be light, clean and spacious. 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.



The colour palette of the interior should go from dark to light, following from the floor, up the walls and to the ceiling.

Industrial flooring with grip, but smooth enough for easy cleaning

Interior areas

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

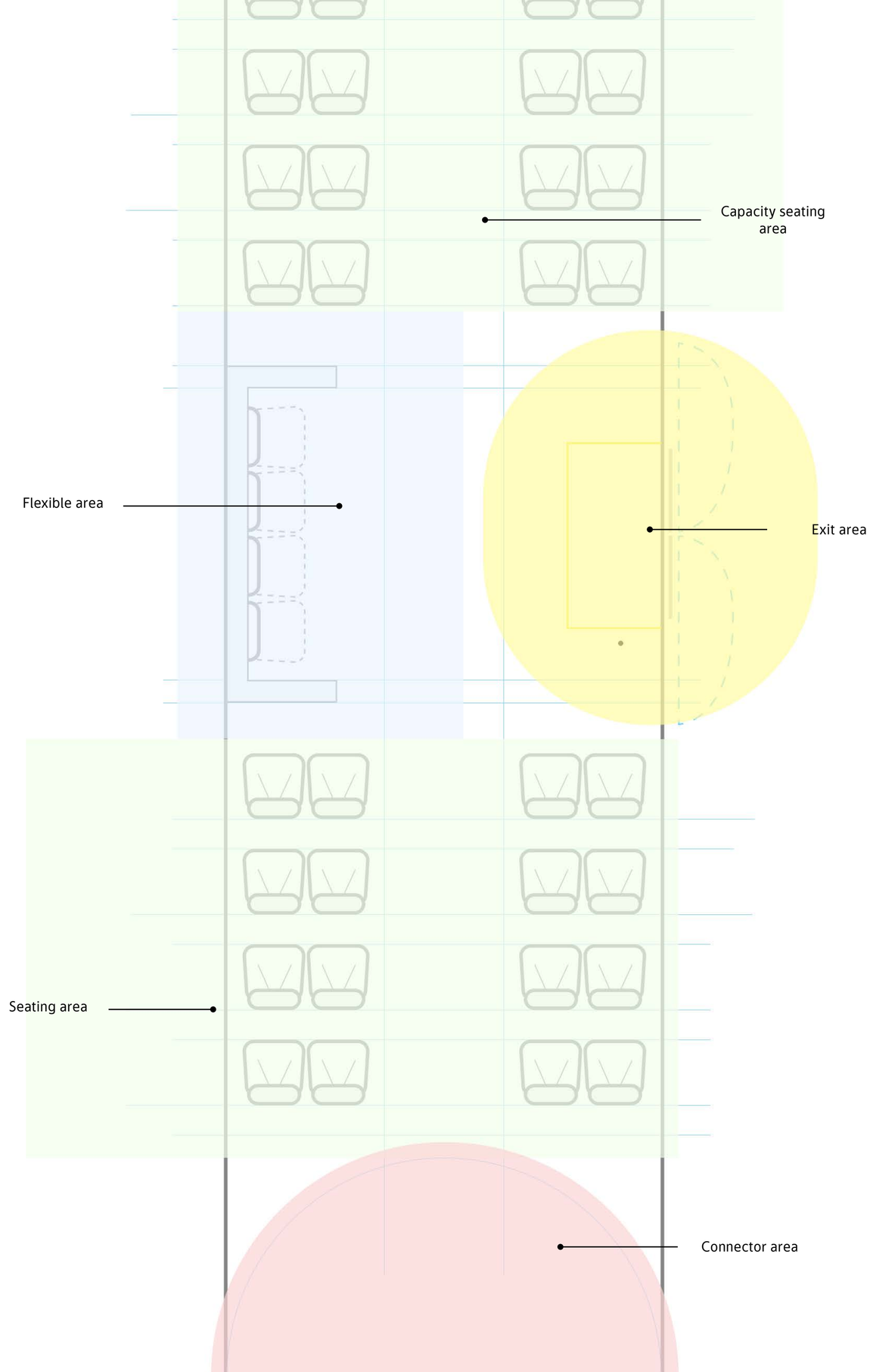
- Flexible area
- Exit area
- Seating area
- Connector area

Interior areas in the bus

The experience of flow depends on the capacity and feeling of space. The versatility of the bus should ensure its capability to meet the different needs throughout the day from rush hour to off-peak, also wheelchairs and prams with multifunctional spaces. It is also useful to consider needs and adaptability to unexpected extreme events, like a pandemic for example.

The aisles must be wide, high and inviting emphasising light and spaciousness. Creating the feeling of personal space for passengers is important.

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



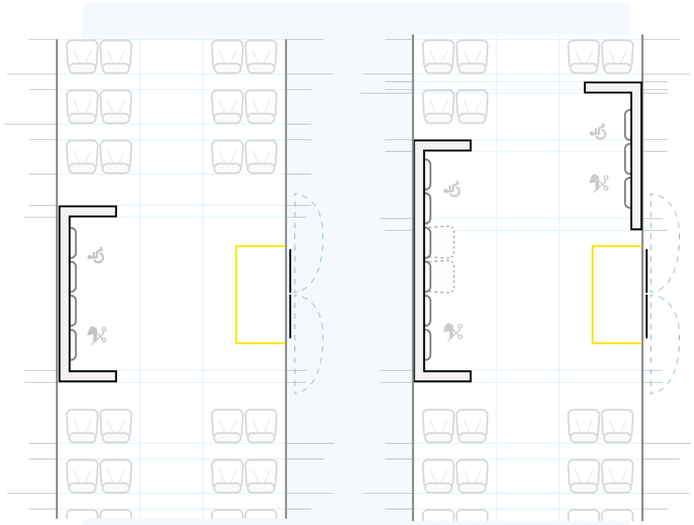
Flexible area

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

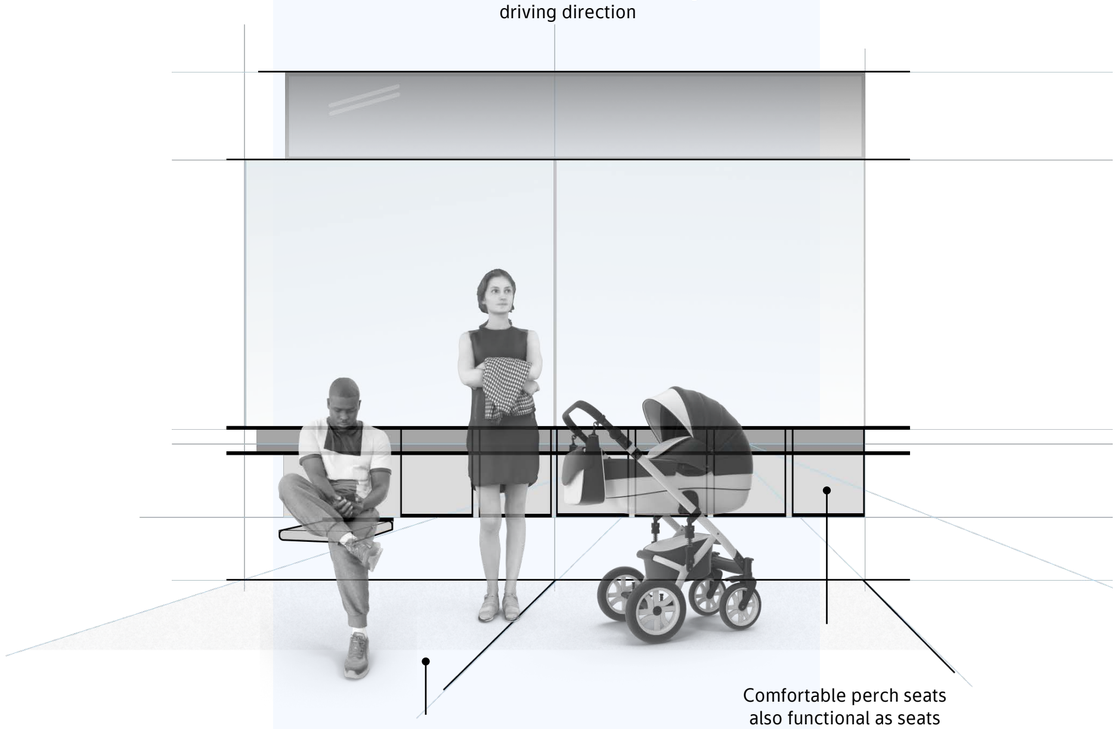
The zone should always include critical functional elements needed by passengers, travel information, validation of tickets, etc. The design should ensure as few obstructive elements in this zone as possible. The flexible zone is placed close to the driver - or at least monitored easily by the driver. This zone should be designed with the aim to have a great impact on flow – while securing the needs from different passengers.

Wheelchair area
The wheelchair area is placed in the flexible zone. Entering and leaving the bus should be made as easy and as effective as possible. Parking the wheelchair is preferred without backing and turning. The wheelchair needs to be parked with the back towards a wall with accessible handrails for support during the ride.

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



Could the bus have multiple spaces for wheelchairs? One in the front of the door and one with a seat with the back against driving direction

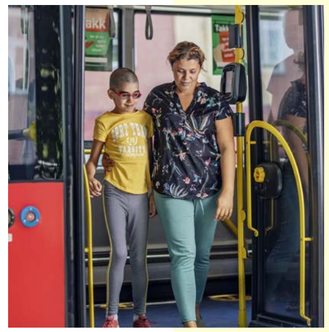


Exit area

To ensure efficient passenger flow on 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 a 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.



Practical light from the exit of the door down to the pavement, ensuring safety on dark nights.

Capacity seating area

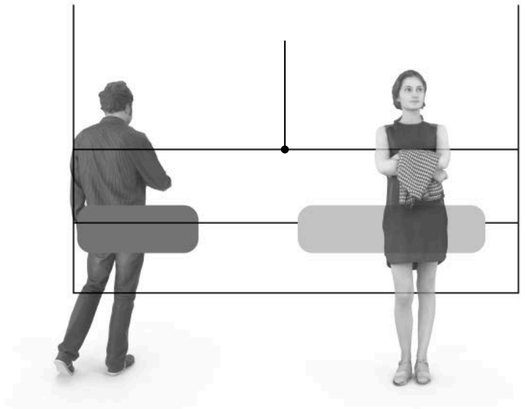
This is a dedicated zone for capacity with the aim of transporting as many people as comfortably as possible. This zone is space-efficient and needs a clean visual language to communicate spaciousness and adaptability.

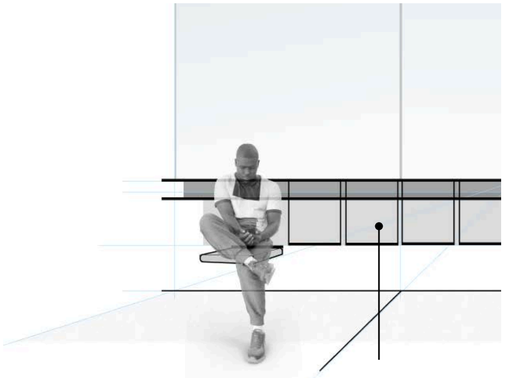
Inner city buses needs to accommodate a lot of people during rush hours and should be adaptable during the day to peoples different needs. After transporting many people at the same time during the rush, the bus should accommodate for social and more spacious ways of traveling mid-day.

Seating and rails could have multiple usage in terms of sitting, standing and leaning. Perch seats contribute to better flow than chairs – and will ensure more people can get on the bus. Rails and sections of seating with multiple use can be good solutions for this.

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

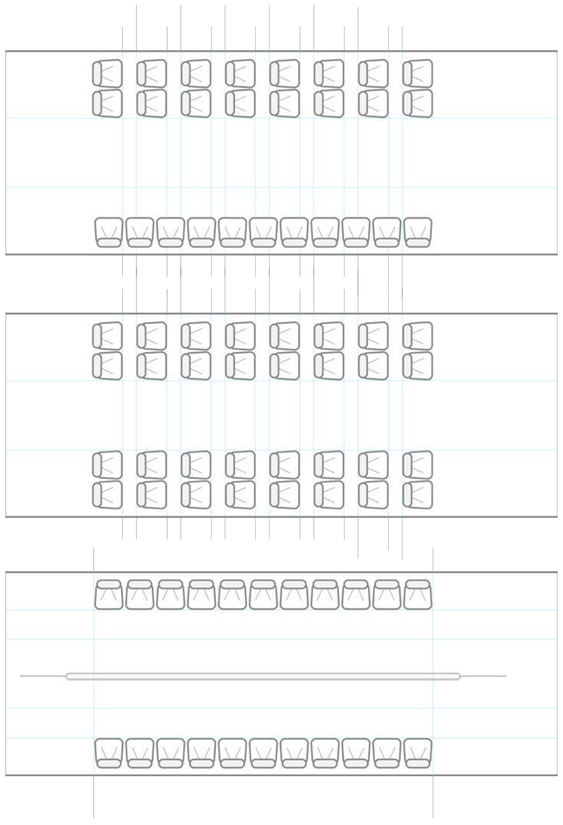
Multifunctional handrails to accommodate different heights.





Seating with multiple usage.

Examples of setups for optimal flow and capacity



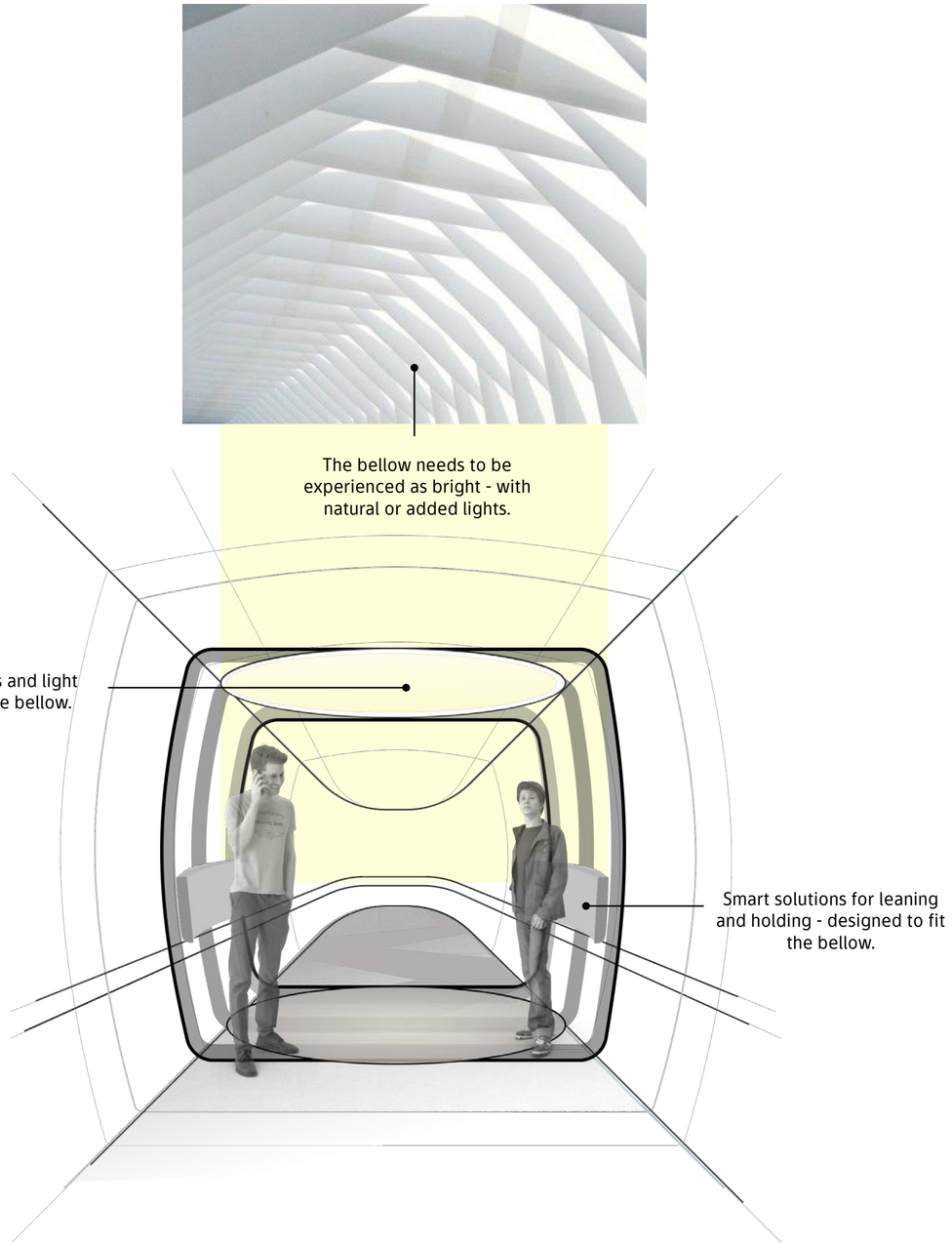
Connector area

The bellow 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 noice 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



CHAPTER 4: THE BUS INTERIOR

Adaptable environment

Environmental qualities that will ensure comfort in the bus

- Air quality
- Bright lighting
- Noise

Air quality

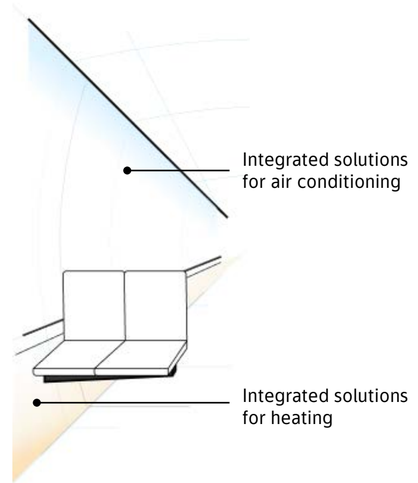
To make the new bus attractive, it needs to be clean and fresh. Oslo's contrasting conditions are a challenge to operating the buses – and passengers expect a reliable service regardless of the weather.

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 needs 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.



Bright lighting

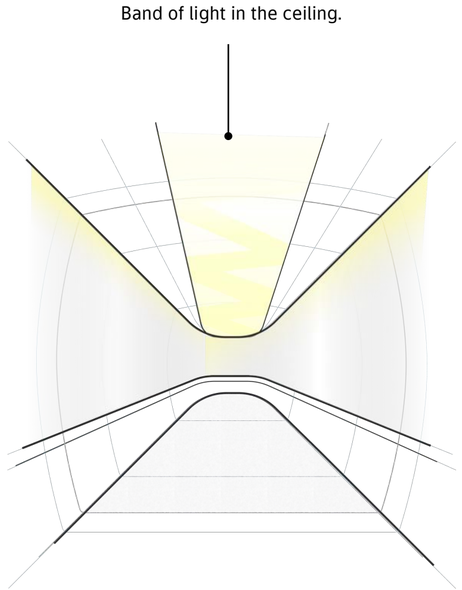
The lighting inside the bus should be cleverly designed to enhance the feeling of space, safety and accessibility, actively leading passengers further in to the bus compartments.

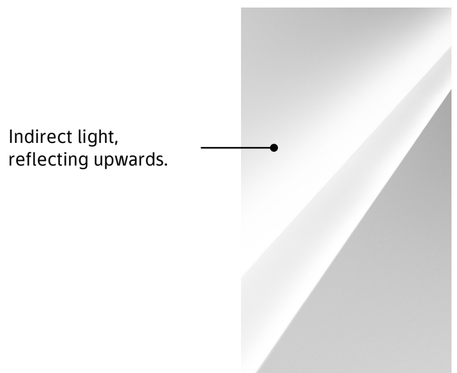
General light
Good lighting design should be able to adapt to dark winter nights and light summer days. A continuous light band in the ceiling should provide sufficient amounts of overall light and visibility needed for navigation. Indirect light sources that reflect onto lightly coloured surfaces are preferable, rather than direct lighting. Lighting levels should be adjustable to the time of day, the season, the amount of daylight and/or during cleaning.

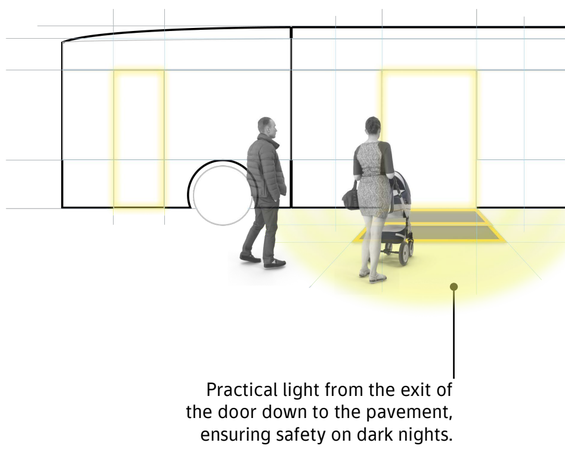
The general lighting should be adjustable from the drivers cab area. Passenger area lighting should not distract the driver.

Informative and active 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. 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
Smart lighting design solutions that create a calm and relaxing effect may be useful. A stress-free environment with the illlusion of daylight, soft light and calm ambience. The ability to adjust the levels of lighting could also be helpful for staff during cleaning or other maintenance.







Noise

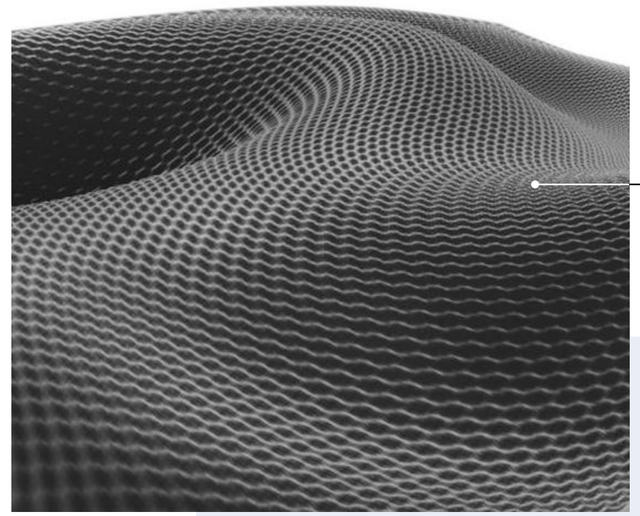
The soundscape of the bus should be calm and softened. This experience will be achieved by deliberate and directional audio signals, reduced general noise, and the use of an electric motor. The audio signals should ensure every passenger is able to hear the announcements.

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 a more comfortable experience.

Muted passenger noise
Passenger noise is a challenge for the driver as 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?



Reduce noise pollution for the bus

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

CHAPTER 4: THE BUS INTERIOR

Communication

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

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

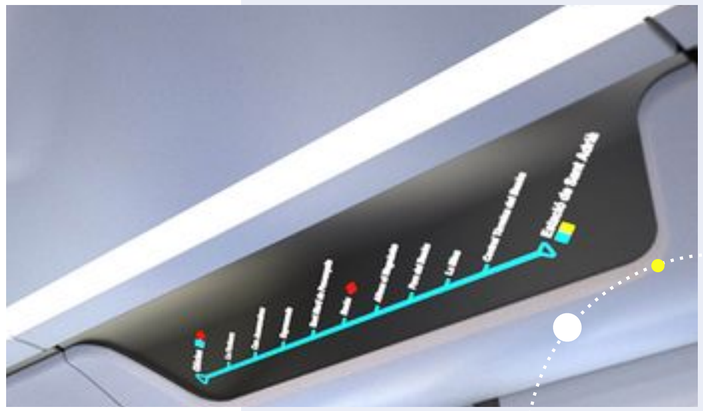
Holistic communication experience

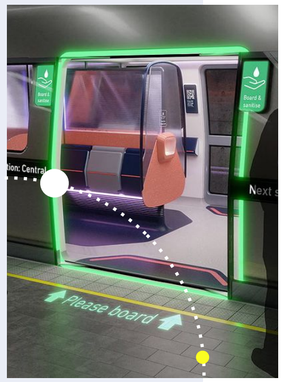
To succeed in creating an inclusive bus experience, it's important that the communication between the bus, the driver and passengers is clear and understandable for everyone involved. This requires a holistic approach to the design and coordination of the communication elements and functionalities.

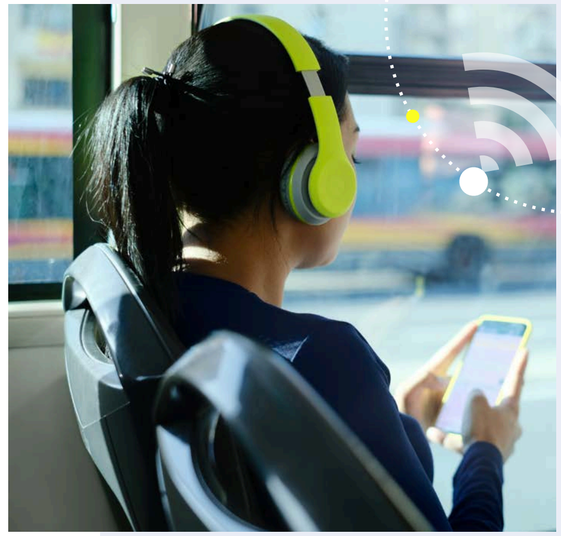
Functionality intended for communications include visuals on screens, coloured lighting, and the use of audio and tactile elements. We invite the tenders to explore the use of technology to connect with passengers' personal devices to enhance the experience – and make it more accessible.

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.







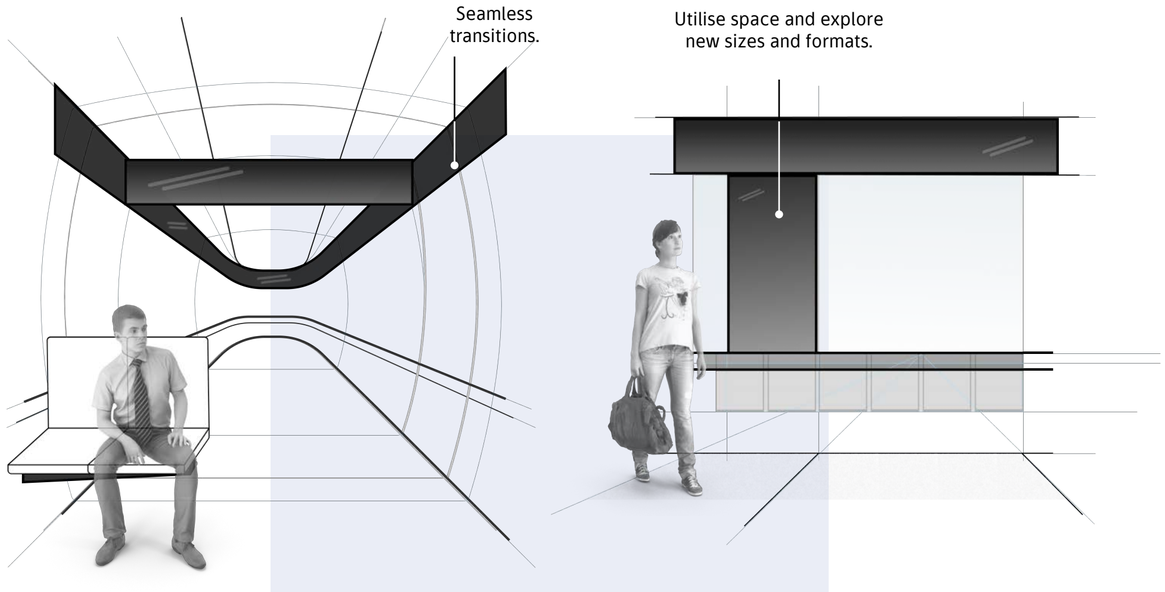
Informative screens

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.

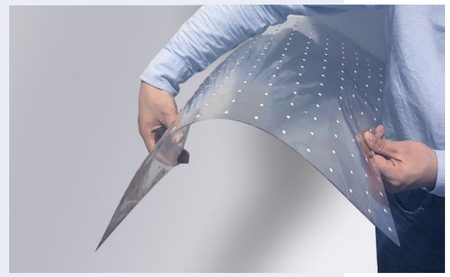
Visual signals
The visual communication of stop and deviation signals should be coordinated with the lighting. The signal should always be in a noticeable contrast colour. The signal could also include a visual timer indicating the time remaining before the doors shut. This will also make it more evident 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.

Signals

Every passenger must be able to both signal the bus driver to stop and to validate tickets. Signalling and validation must be accessible to all, regardless of zone within the bus. The placement of signalling should be predictable and repetitive for each bus. When signalling, the passenger should experience a visual and tactile feedback that the signal has been activated.

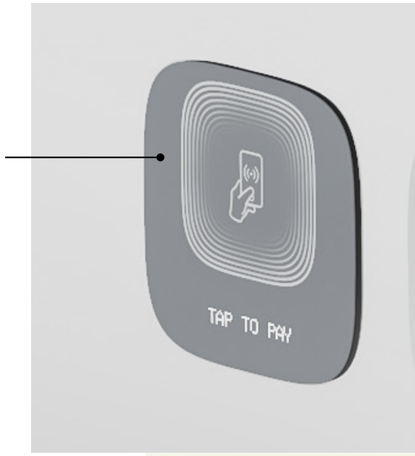
Visual signal
The signal should always be in a contrast colour and easy to notice. The signal should also be more visually enhanced with solutions like coloured light over the doors etc. The signal could also be a visual timer that indicates how long the door will remain open before closing, clearly indicating that you get extra time if you press the "extra help" signal.

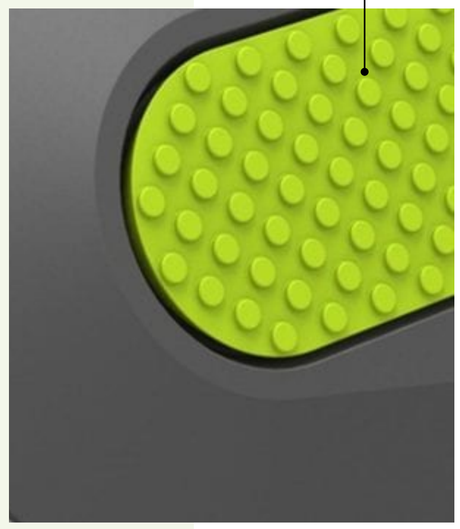
Audio signal
The signal is important in the bus since it does not stop at every station. It is crucial that all signals are clearly perceived by all passengers. The bus audio signal should be adaptive to the general level of noise in the bus to make sure every passenger is able to perceive the information, regardless local conditions.

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

Tactile and contrast colour on signal button for visibility.

Automated and touch free solutions for validating tickets.





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

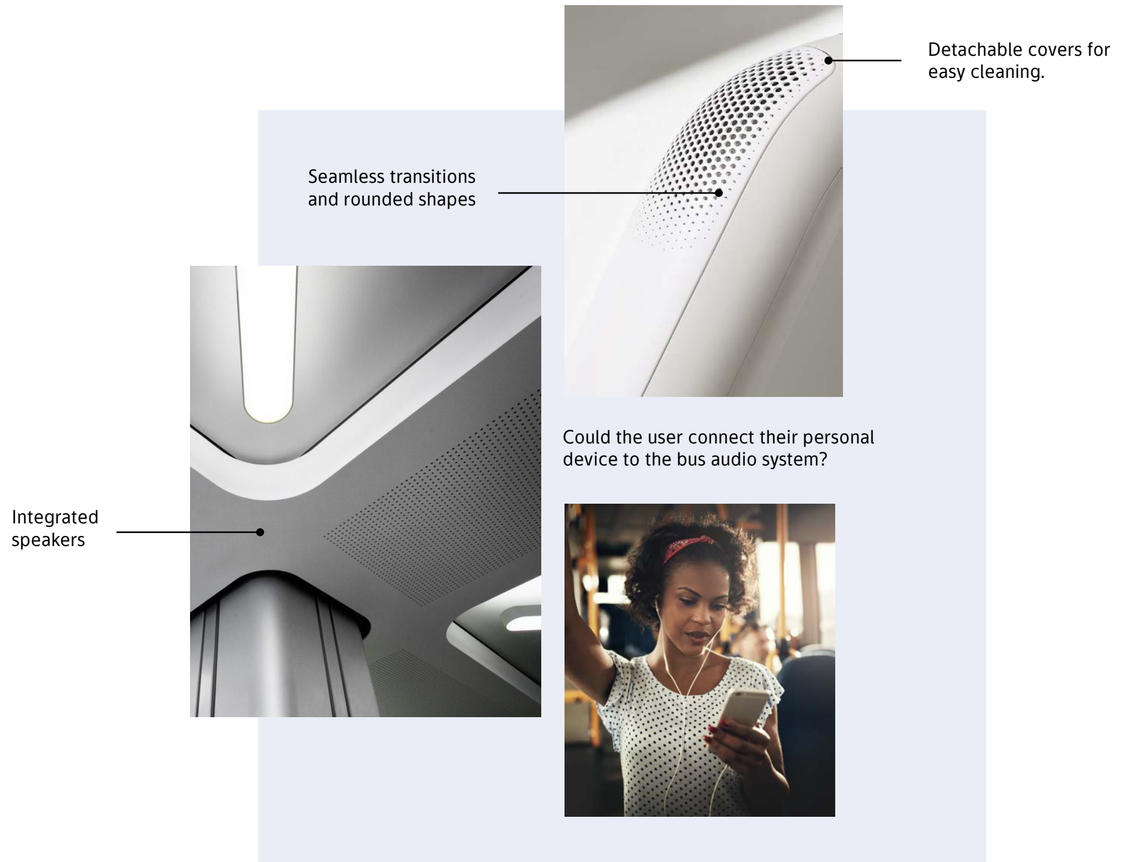
Audio

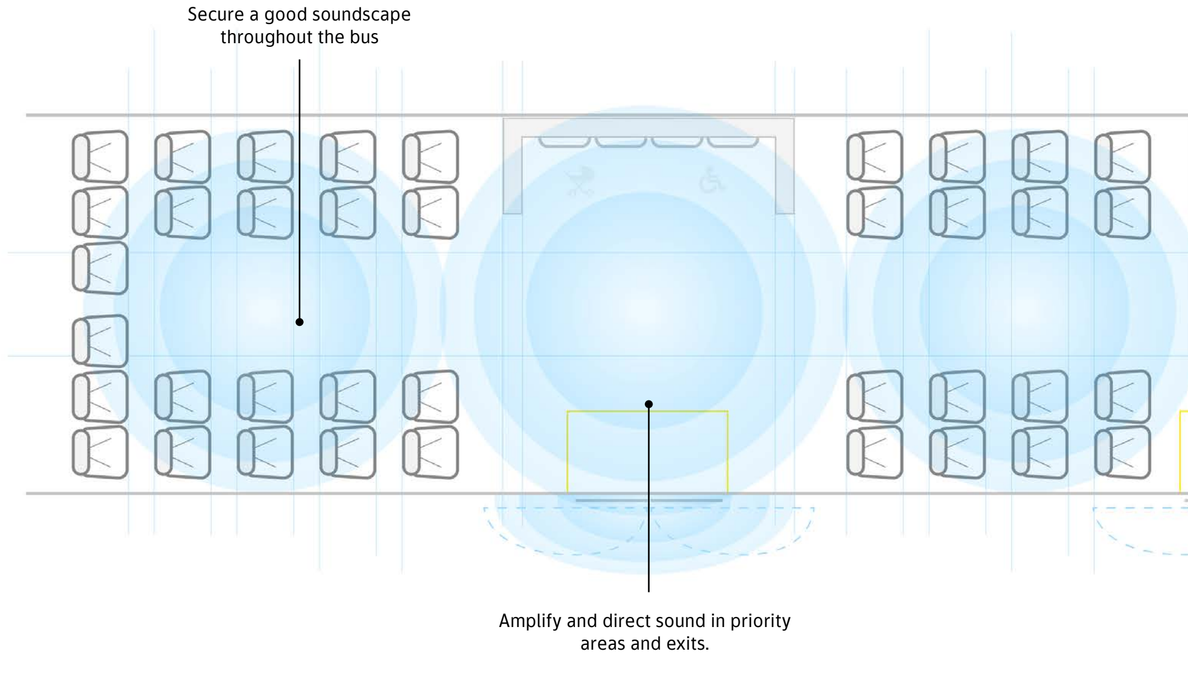
Audio is an important channel for communicating information. The bus needs a holistic sound system with evenly distributed sound and sufficient noise absorbing elements throughout the bus – to ensure clear communication for all passengers.

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.





CHAPTER 4: THE BUS INTERIOR

Equipment

Examples and detailed description of equipment in the bus.

- Seats
- Handrails and handles

Seats

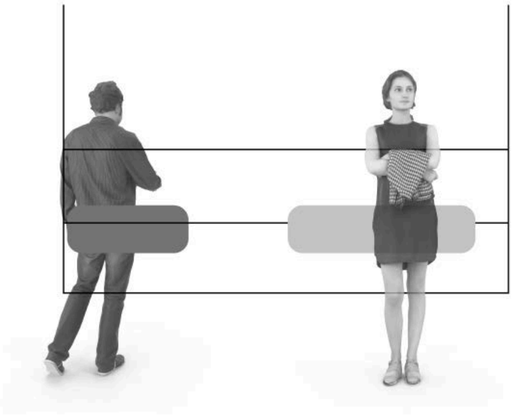
Our aim is to enable more passengers to travel at the same time, in a comfortable manner.

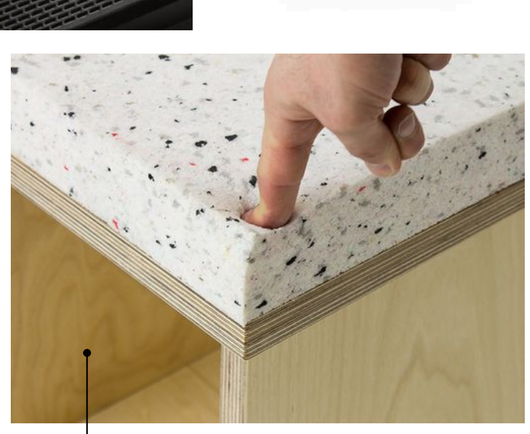
Seats
The seats need to be placed in a manner that ensures the best possible capacity and flow. Connected and slim seats create a resource-efficient interior with a visually calm and uniform passenger environment. Where possible, seats should be mounted to the walls rather than to the floor to support 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. Sound absorbing materials could be used to reduce noice to improve ambience and comfort.

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.

Visually calm and uniform passenger environment.





Multifunctional handrails

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.

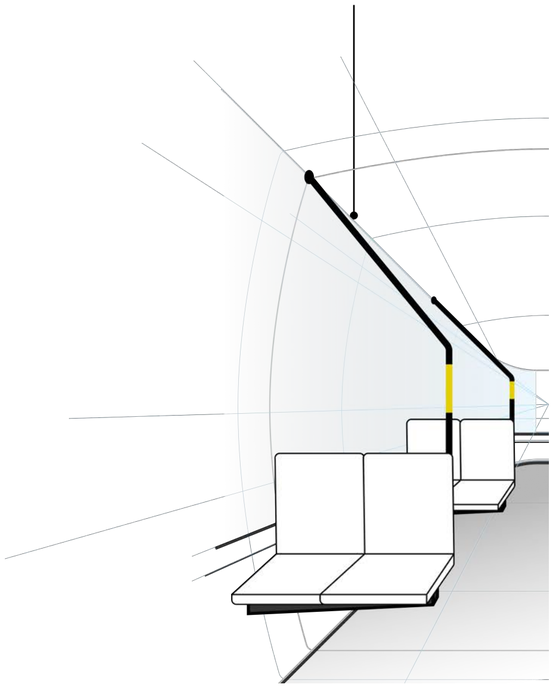
Handrails
Handrails should be organised in a way that creates an impression not only of dependability but also of visual calmness and assist passenger distribution. Rails should not have any unnecessary bends or curves. Rails should be connected to walls or seats and not to the floor for optimal flow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

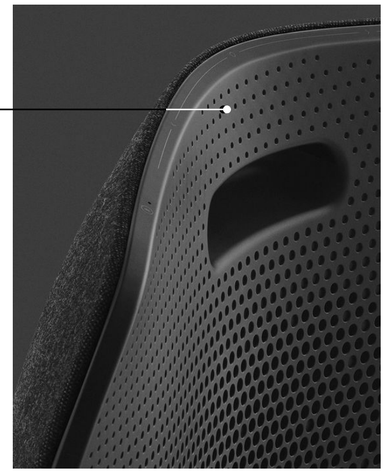
Handles
Handles are preferred below shoulder height for comfort reasons. Loops as handles is considered unstable and less convenient than fixed handles. We seek smart solutions for multiple use of handrails.

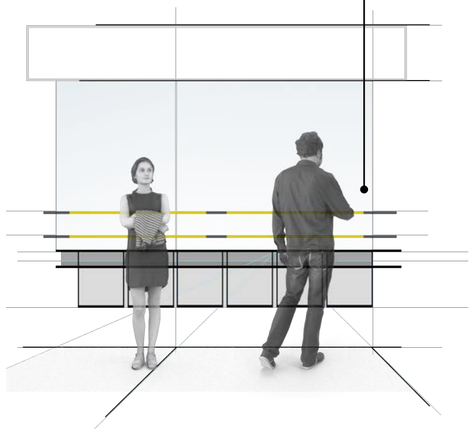
Smart placements
When placing handrails, loops and handles in the bus, a holistic design impression should be considered to ensure sufficient flow and openness.

- 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.

Dividers
Avoid any unnecessary dividers if possible as it prevents accessibility. Dividers should be put up for functional reasons only, and be transparent to ensure a clear line of sight.







CHAPTER 4: THE BUS INTERIOR

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 driveres 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.

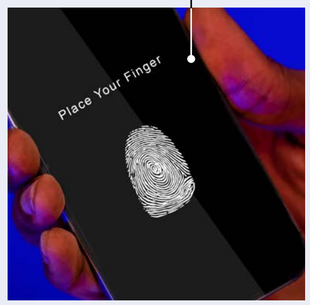
Helpful tools

- 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

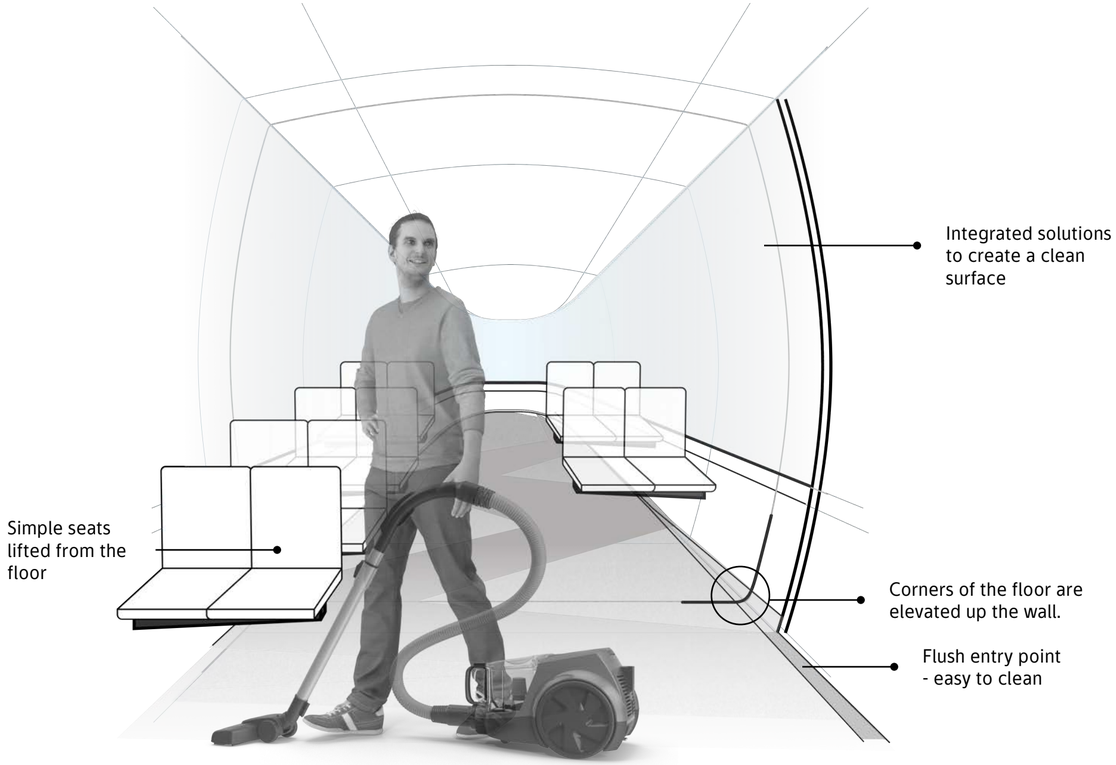
Clean bus and easy maintenance

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.



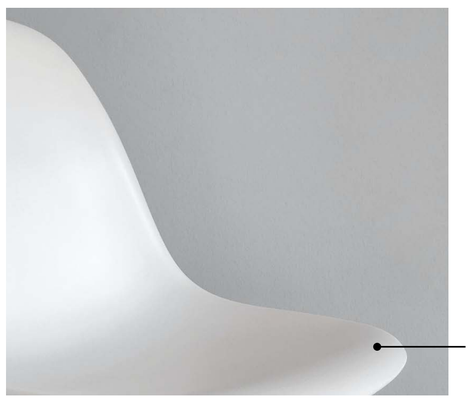


Photo and illustration source and credits

The bus ecosystem

A connected, green capital city
Photo: Ruter As / Redink, Krister Sørbø

Cold winters – Warm summers
Photo 1: Patrick Bald on Unsplash
Photo2: 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: Ruter As / Redink, Fartein Rudjord
Photo 4: Ruter As / CatchLight Fotostudio AS
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: Ruter As / Bonanza AS, Iver Gjendem

Design strategy

Bright
Photo: Dominik Schröder on Unsplash
Adaptable
Photo: xx on Unsplash
Connected
Ruter As /Photographer Fartein Rudjord / Redink

Design principles
Photo 1: Tim Foster on Unsplash
Photo 2: Guilherme Stecanella on Unsplash
Photo 3: Product by Tria
Photo 4: Ollie by Jessica Banks and RockPaperRobot
Photo 5: Agata Create on Unsplash
Photo 6: Marbled / Stools by ADG design | ARTNAU
Photo 7: The Vivint Element Smart Thermostat

The bus exterior

Exterior experience
Photo 1: Buick Riviera Concept
Photo 2: Ruter As / Photographer Iver Gjendem / Bonanza AS
Photo 3: Panton chair (1960), by Vitra
Photo 4: Horidesign
Photo 5: The arrival bus (arrival.com)

Informative exterior
Photo 1: The arrival bus (arrival.com)
Photo 2: Willie by Tad Orlowski

Inviting entrance
Photo 1: Foto/ Ruter As / Redink, Hampus Lundgren

Front and rear section
Photo 1: Egen dokumentasjon
Photo 2: Ruter As / Fotograf Birdy, Birgitte Heneide

The bus interior

Interior experience
Photo 1: Wayfinding at Here East by dn&co
Photo 2: Noah Silliman on Unsplash
Photo 3: Paper soft wall by Stephanie Forsythe + Todd MacAllen
Photo 4: Christian Perner on Unsplash
Photo 5: Agata Create on Unsplash
Photo 6: Photographer Rebecca Scheinberg object The Bolita lamp by kaschkasch

Interior colour
Photo 1: In tube chair by Achodoso Estudio's
Photo 2: Xile by Arklab
Photo 3: Arp Museum Photograph by Manuela Martin
Photo 4: The arrival bus (arrival.com)
Photo 5: Photo from vtprotectivecoatings.com

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

Connector area
Photo 1: Xile by Arklab

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: Boston RL by Buro Staubach
Photo 2: Marbled / Stools by ADG design | ARTNAU

Handrails and handles
Photo 1: Ruter As / Redink, Fartein Rudjord_holdestang
Photo 2: Product by Bang & Olufsen

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: Agata Create on Unsplash

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