Station Elements

B

B1 Station
B2 Underpass
B3 Platform
B4 Overpass

Introduction

B

It is clear that railway stations must be functional, but they also should be more than a mere instrument for satisfying a basic need.
They also have to demand aesthetic and emotional demands. Rail Baltica and their Regional Stations must use its chance of meeting such demands.
Additionally, the importance of offering the customer an aesthetic experience has either been underestimated, or simply disregarded so far, although it is a fundamental requirement if customers are to gain confidence in the system to be built in the three Baltic states. The overall design, the interior appointment and, of course, the architecture of station buildings as aesthetic space to be experienced is essential for the exit of Rail Baltica system.
In the long term, the Rail Baltica shall be associated with an improvement in the living of Baltic citizens and Regional Stations shall be the visible identity of a new system crossing Estonia, Latvia and Lithuania, and connecting the main European cities with the Baltic capitals through their regions. Rail Baltica shall work as a sophisticated customer system that shall lead to a new culture of railway travel with its own identity.
The identity of the Regional Stations shall be clear and must become a recognizable brand item. Arriving in a station shall be a pleasant stage of a pleasant trip. The station shall ensure, for arriving and departure passengers, a clear sequence of spaces and elements.
For the usability and public acceptance of the station, functionality is important. If the railway station's aesthetic characteristics and atmosphere are to be attraction points, then normal transportation operations must be discreet. The railway station needs also to be an important architectural element, but this seems to have been forgotten. When the rail was developed in several countries around the world in the beginning of the 19th century, the Regional Stations was not only the identity of the rail line, but also the main connection between the far population and the main centres and capitals. The station was not only a vital link for each town and village to its wider locality, region, and state, it was also the meeting place. The regional railway station as a permanent architectural manifestation has not just been important for customers entering it but it has also been the centre of urban life. The regional stations were developed with a country identity but mainly with the regional or local identity. The regional station was the first welcome building when passengers arriving and it was clear that was designed to identify one region, sometimes with local architecture, regional elements, identifiable materials as hand painted tiles, local stone, local wood, pitched roofs, colours etc.
The long tradition of the railways shall be emphasized with modern contemporary architecture for the regional stations and to add a landmark as a lantern that guides passengers through Baltic landscape, peaceful and calm.
Customer habits shall be integrated in the design of the stations and the work done with the stakeholders can help the passengers to identify with the design of the stations The aim of the Regional Station is a combination of functional efficiency and meaning. On one side, there is the building engineering, how to build, how to protect, how to organize, how it is working, how it operates but on the other side, there is the soul of the final object that need to give meaning and identify to the subject; and the idea is to use the history of the three countries and to express them in terms of a single identity and to have the passenger to participate in its function, feeling the building and the chosen approach.
The station as a house was the design approach during the history of regional stations in several countries and also in the Baltic states as references images in First Interim Report Traditional domestic Baltic architecture and the station as a home for commuters is the design approach to develop three options of design. The design is based on the principles of overall unity and diversity of individual elements.
The new railway station is designed as a consistently unified space to be experienced, satisfying every customer's demand of it. The new concept of regional stations, expressed in the presented three options, is essentially determined by four factors: quality, economy, customer and identity. This will be achieved by a unified brand architectural image with permanent features and structures through the three states and about them keeping the identity of each.
An architecture worthy of preservation, as well as local colour, gives a distinct personality to each railway station.

Station

B1

B1.1 Station Classification
B1.2 International Station
B1.3 Regional Station
B1.4 Modular Strategy
B1.5 Growth Strategy
B1.6 Layout
B1.7 Design
B1.8 Structure
B1.9 Facade
B1.10 Floor
B1.11 Walls
B1.12 Ceiling
B1.13 Roof
B1.14 Signage and wayfinding
B1.15 Furniture
B1.16 Equipment

Station classification

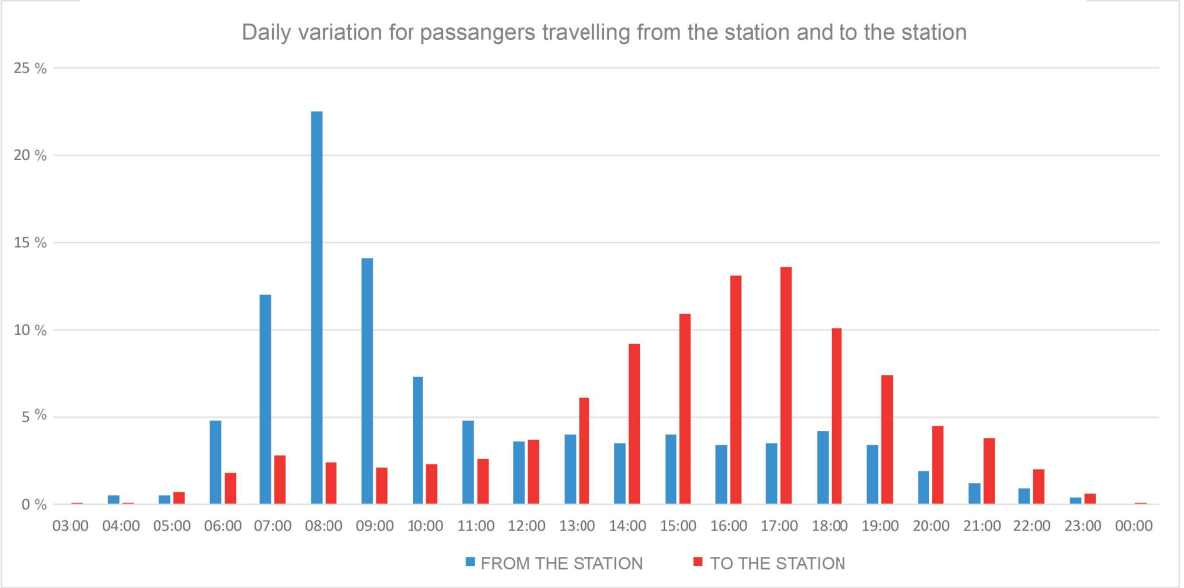
B1.1

During peak hours the volume of the passengers rises. Based on the volume of passengers for days have been defined four types of station, each one with specific characteristics.

Volume of the passengers (person medium day)

	Type	Station Type	Volume of Travelers
RAIL BALTICA STATIONS	TYPE 1 - International	Main Station	International Station
	TYPE 2 - Landmark	Medium Station	< 600 PMD
	TYPE 3 - Basic	Small Station	< 300 PMD
	TYPE 4 - Platform	Essential Station	< 150 PMD

Peak hours



Station classification

B1.1

Minimum Requirements

	FUNCTION	TYPE 1	TYPE 2	TYPE 3	TYPE 4	MINIMUM DIMENSIONS	COMMENT
INTERIOR	Accessibility	●	●	●	●	-	All stations according to PRM TSI requirements
	Advertisement	●	●			-	As a revenue, advertisement shall be considered only in Type I and Type II. Other stations Type to be analysed if required.
	Art	●	●	●	●	-	Please refer to Art chapter
	ATM's	●	●	●		-	Minimum one per station in Station box near TVM
	Benches	●	●	●	●	-	For Type I,II and III
	Branding	●	●	●	●	-	Please refer to Branding chapter for all elements mandatory to have branding
	Canopy	●	●			-	Minimum 100m
	Cleaner's Room	●	●	●	●	5,0x4,0m2	In station type I shall be according to size station.
	Clock	●	●	●	●	-	Minimum one per platform
	Controller's Staff Room	●	●			5,0x4,0m	Furniture shall be provided for staff. Equipped with a safe
	Elevators	●	●	●		Shall wheel chair dimension	In type IV only if is impossible to provide a ramp according to PRM TSI regulation
	Escalator	●				-	Only for station Type I
	Debris Room	●	●			2,5x2,5m	Near Cleaning Room
	First Aid Room	●	●			4,0x3,0m	In station Type II this room can be part of the Police / Security room

Station classification

B1.1

Minimum Requirements

INTERIOR	Furniture	●	●	●	●	-	Minimum requirement shall be benches and litter bins. Furniture and free-standing devices should comply with requirements of ISO 21542.
	Luggage Room	●				5,0x5,0m	Short, mid, long term according to forecast number of passengers
	Baggage trolley racks	●	●			-	-
	Operation Room	●				5,0x4,0m	A room to store equipment and supplies
	Passenger Information Desk	●				4,0x3,0m	In station Type II this service can stand in the Ticket Office
	Passenger's Toilet	●	●	●	●	-	2 toilet & 2 washbasins for female toilets; 2 toilets & 2 urinals & 2 washbasins for male and 1 toilet and 1 washbasin for PMR as minimum. Passenger toilet should comply with applicable requirements of ISO 21542.
	Public Information System	●	●	●	●	-	Minimum 1 per platform
	Recycle Bins	●	●	●	●	-	Minimum 2 per platform
	Refuse Room	●	●			Type I-4,0x3,0m Type II-2,0x2,0m	-
	Retail	●	●			12/25 sqm	One retail as minimum in station Type II. Type I according to forecast passengers.
	Security Room Police Room	●	●			4,0x3,0m	In Station Type II, this room can be together with First Aid Room
	Station Building	●	●	●		-	-
	Signage	●	●	●	●	-	-
	Station Master Room	●				20/25 sqm	At the track level near the platform. To have control's and communications systems.
	Ticket Office	●	●			2,30x2,0m	Minimum 2 per station Dimension for one workstation

Station classification

B1.1

Minimum Requirements

INTERIOR	Ticket Vending Machine	●	●	●	●	-	-
	Tourist information desk/office	●	●	●			One in each station
	Speakers	●	●	●	●	-	-
	Staff Toilet Changing Room	●	●			5,0x3,0m	1 toilet & 1 washbasins for female toilets; 1 toilets & 1 urinals & 1 washbasins for male and according to PMR regulation.
	Shelter			●	●	-	Minimum 3 per platform
	Underpass Overpass	●	●	●	●	-	Mandatory as is prohibit cross the rail lines
	Waiting Area	●	●			5,0x4,0m2	In stations Type I, shall have waiting rooms for Business and 2nd Class
	Check-in barriers	●	●	●	●	-	For train tickets validation - to separate platforms from open access station
	Waste Paper Basket	●	●	●	●	-	Each 20m minimum.
	Train carriage positioning indicators at platforms - potentially including crowding-level information about	●				-	Electronic displays corresponding to loading carriages doors, installed at a height where they can be seen from platforms access areas as well as from the platform itself
	Integrated travel information systems at platforms	●				-	Touch screens equipped with multimodal (air, regional trains, PT) information system, one on each platform/platforms access
	Meeting points indicated by clocks or information/ advertisement towers	●	●	●	●	-	One meeting point for each station
	High quality restroom areas (i.e. including personnel, shower facilities and toiletries selling)	●	●			-	One for each international station

Station classification

B1.1

Minimum Requirements

INTERIOR	Charging positions/ towers	●	●	●	●	-	Distributed nearby benches and sitting areas. Number depending on size of the station.
	Food and beverages courts and retails areas	●	●			-	They should be present in the main station as well as, in smaller dimension, at platforms
	Entertainment/ advertisement systems	●	●	●			Screens for videos, including news, should be provided in correspondence of the main lounge rooms and sitting areas
	Drinkable water fountains	●	●	●		-	In both main stations and close to platforms

EXTERIOR	Bike Parking (covered)	●	●	●	●	-	Minimum 20 units and according to forecast passengers to Type I
	Bus Stop Shelter / Storage	●	●	●	●	-	Minimum 1 unit per station. Mid/long term storage, size depending on the demand forecast and size of the station.
	Bike path	●				-	From entrance to platform
	Bike Car Station	●	●	●	●	-	Numbers of electrical station depending on the demand forecast and size of the station.
	Car Parking	●	●	●	●	-	Minimum to 6 to 20 cars and ac-cording to forecast passengers station Type I. Applicable requirements of TSI PRM and ISO 21542 shall be fulfilled.
	Electrical Car Station	●	●	●	●	-	Minimum 3 units and according to forecast passengers station Type I
	Furniture	●	●	●	●	-	To be consider benches and litter bins
	Kiss & Ride	●	●	●	●	-	3 to 5 cars and according to fore-cast passengers in Type I
	Taxi Stop	●	●	●	●		Minimum 3 cars and according to forecast passengers in Type I

Station classification

B1.1

Suggestion for Future Station Development

	FUNCTION	TYPE 1	TYPE 2	TYPE 3	TYPE 4	MINIMUM DIMENSIONS	COMMENT
INTERIOR	Areas with public functionalities	●	●			-	Provision of areas with public (business oriented) functionalities. e.g. shared offices, meeting rooms, conference areas etc.
	Areas with public functionalities	●	●			-	Provision of areas with public (business oriented) functionalities. e.g. for art exhibitions, music performances, etc.
	Kids' playground area	●	●			-	One for each station in the main area. Size depending on the size of the stations.
	Smoking glass rooms	●				-	One per station

Station classification

B1.1

Air to Rail Integration

	FUNCTION	TYPE 1	TYPE 2	TYPE 3	TYPE 4	MINIMUM DIMENSIONS	COMMENT
INTERIOR	Baggage belt	●	-	-	-	-	-
	Check-in desks	●	-	-	-	-	-
	Area for sorting bags, loading into any transfer container, storage area for container	●	-	-	-	-	All areas must be isolated from public access areas
	Transfer route from sorting bags area to platform	●					No public access at either end, or along route

HSR freight services

	FUNCTION	TYPE 1	TYPE 2	TYPE 3	TYPE 4	MINIMUM DIMENSIONS	COMMENT
INTERIOR	Space for parcels deliveries	●	-	-	-	-	-
	Space for parcels storage and handling	●	-	-	-	-	-

Station classification

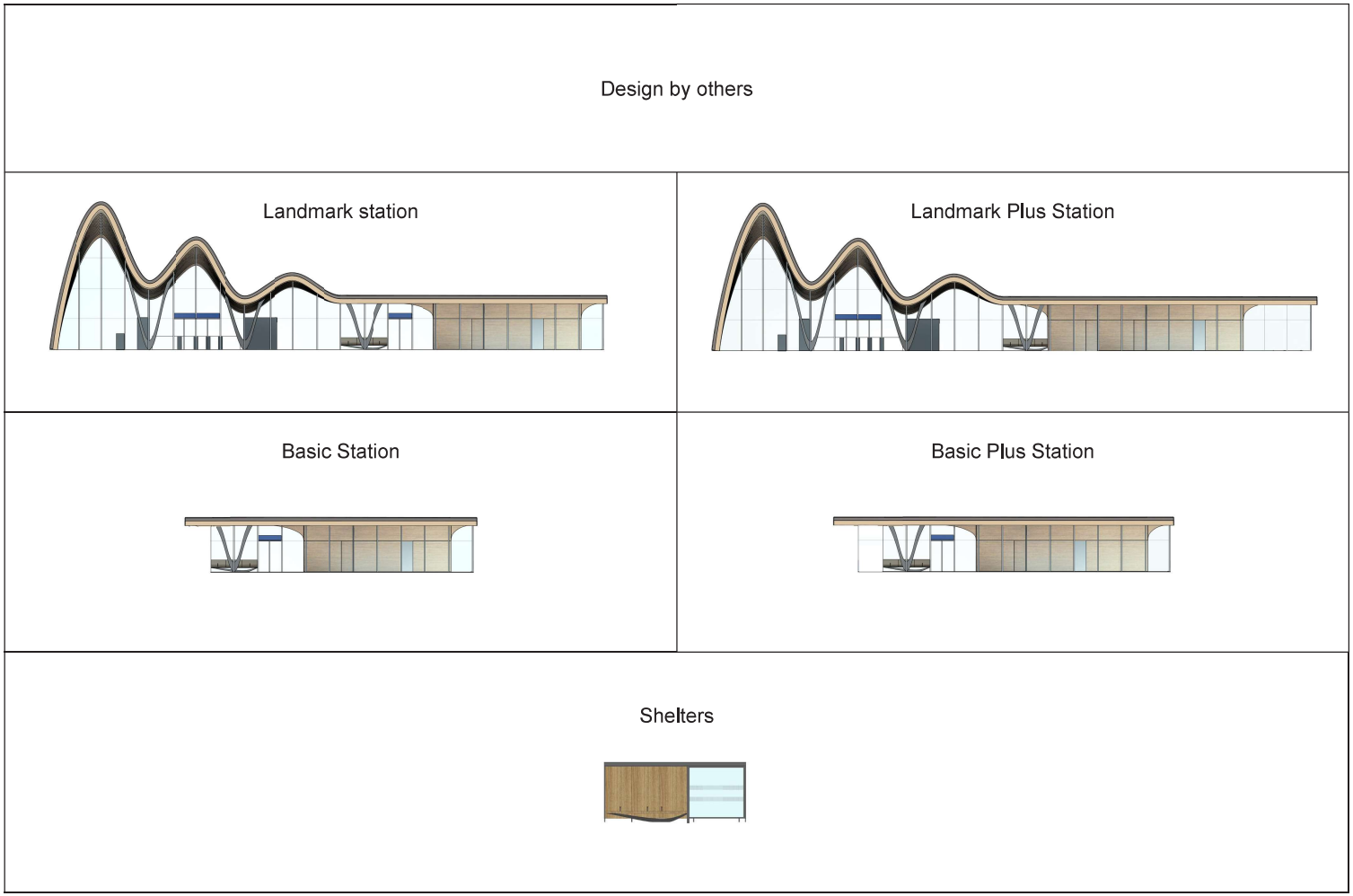
B1.1

TYPE I - International Station / Terminal Station
An International Station is a large station that shall be fully staffed with multiple facilities and for multiple transit services. Located in the centre of the main capitals of the three Baltic states, is an element that changes the city.

TYPE II - Regional Station II
This station is composed of the station building and the platform. Minimum facilities: bigger waiting space, toilets, retail/caffe, additional operation rooms and rooms for the staff. T here i s a p ossibility to extend this station by adding more commercial space. 6 shelters on the platform.

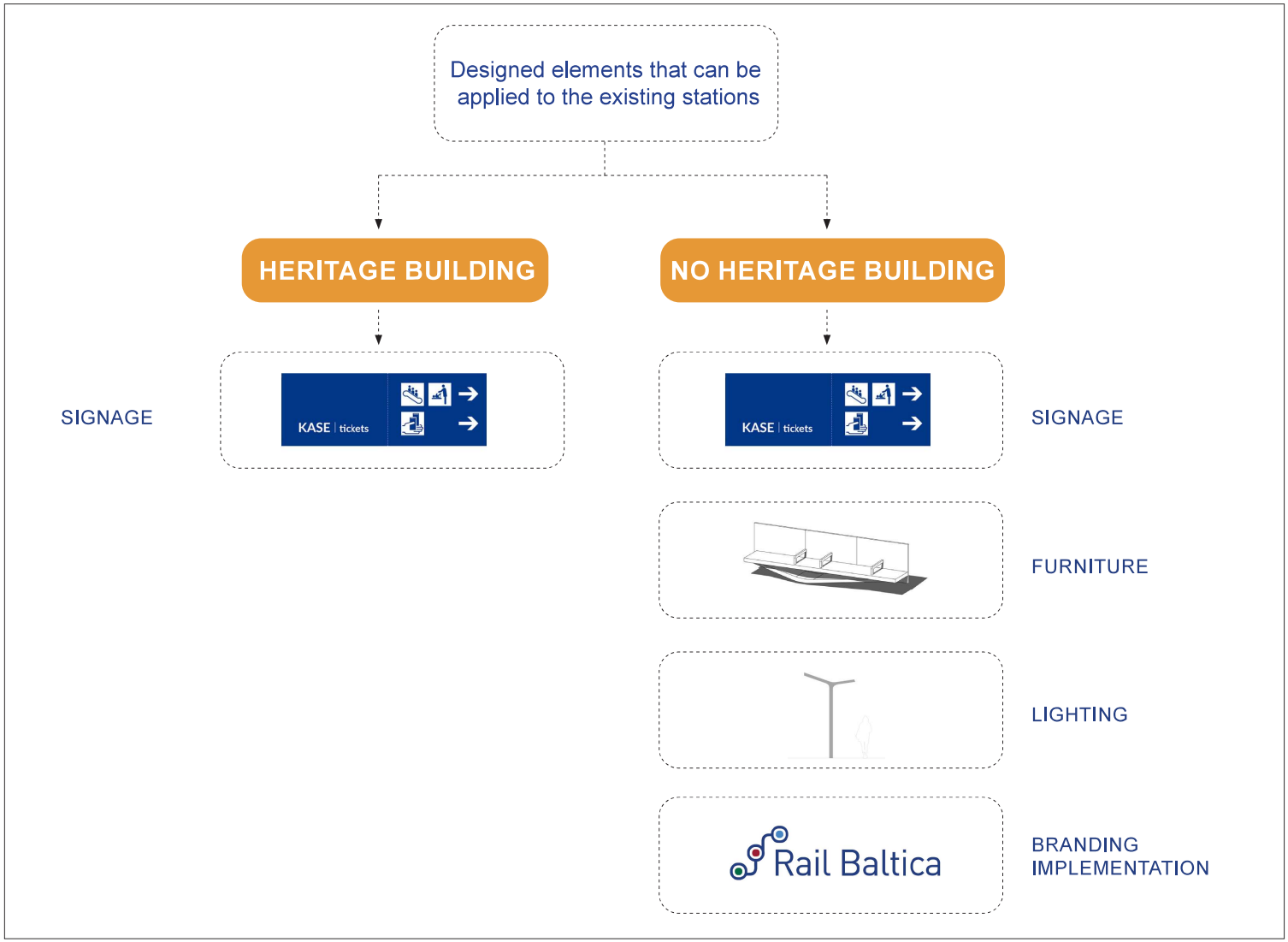
TYPE III - Regional Station III
This station is composed of the base station building and the platform. Minimum facilities: smaller waiting space, toilets, operation rooms and rooms for the staff. 4 shelters on the platform.

TYPE IV - Regional Station IV
This type of the station is composed of the platform and shelters. 2 shelters on the platform.



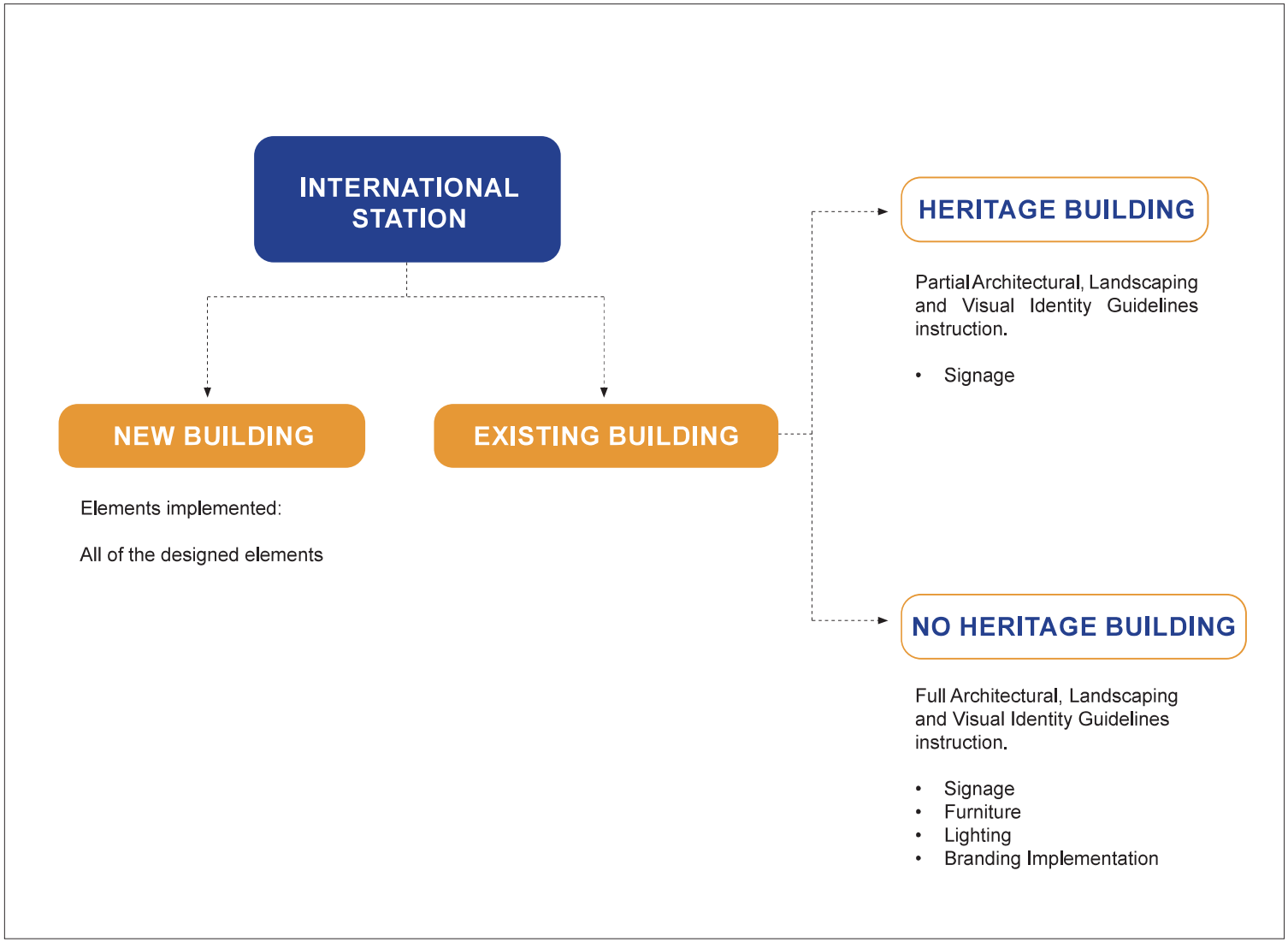
Station classification

B1.1



International Station

B1.2

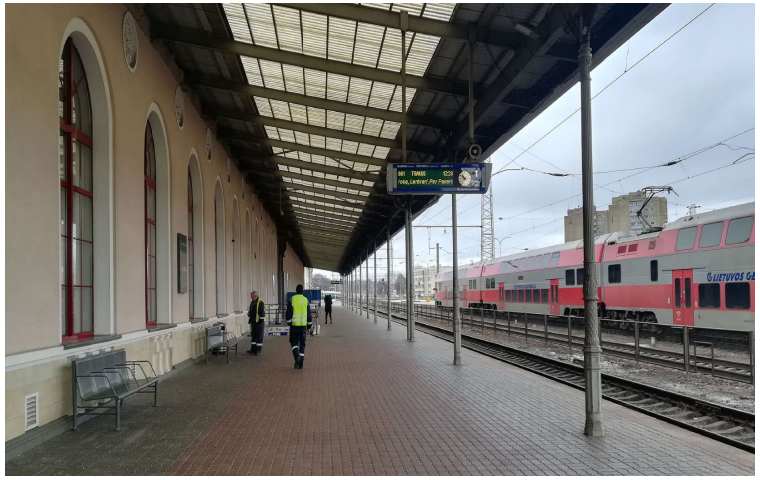


International Station

B1.2

Heritage Building

Before



After



Noted
Images present examples of implementation of designed elements on existing stations.

International Station

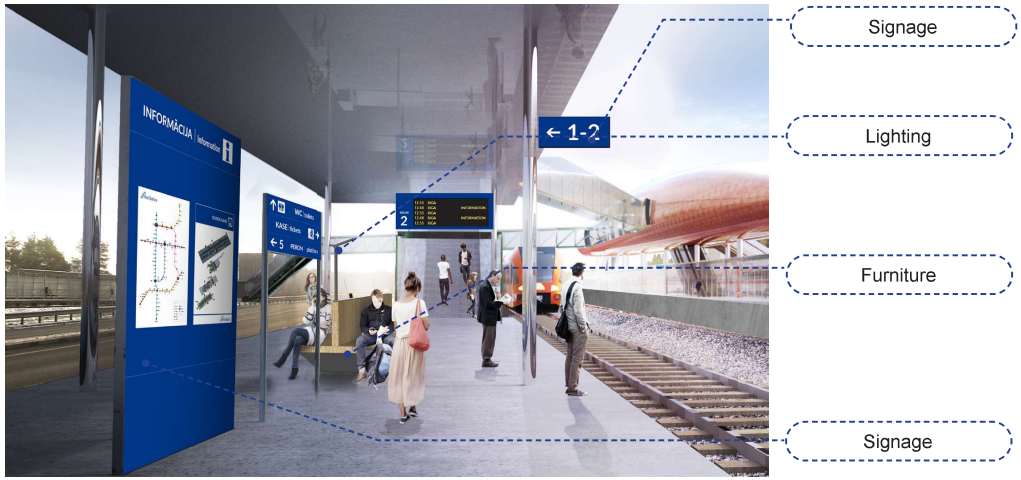
B1.2

New Building

Before



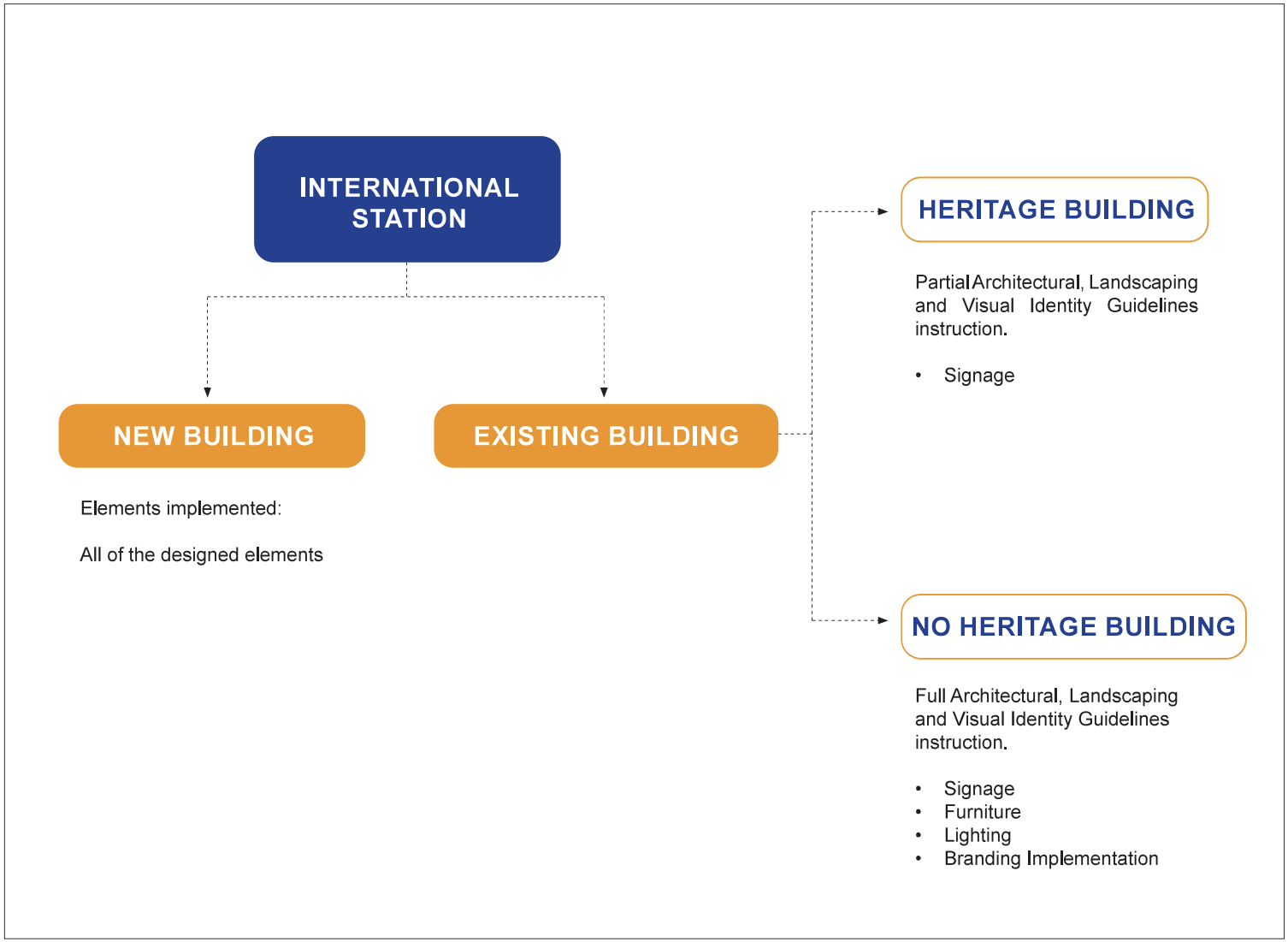
After



Noted
Images present examples of implementation of designed elements on new international stations.

Regional Station

B1.3



Modular strategy

B1.4

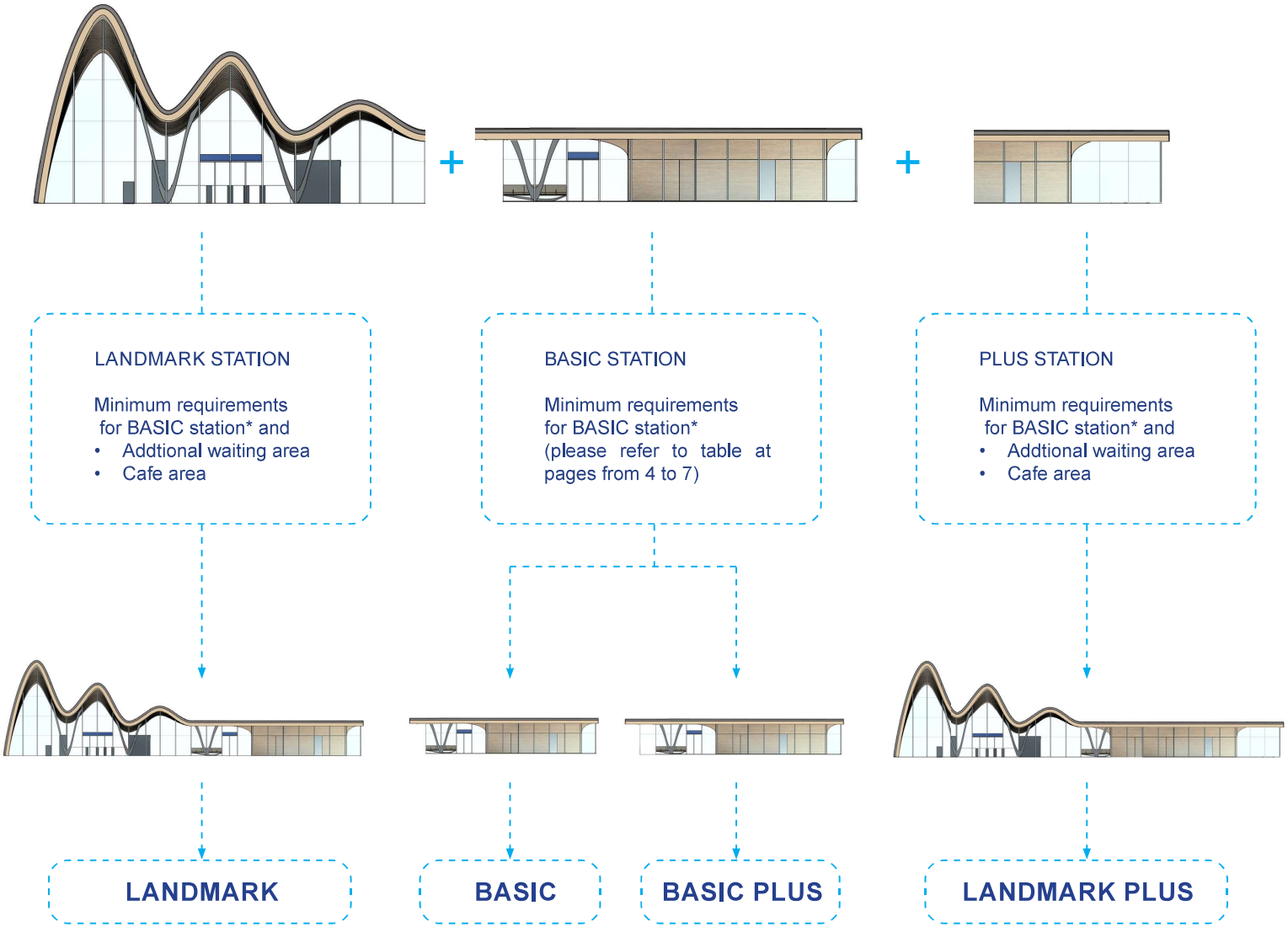
Rail Baltica modular design approach was to divide stations into types depending on an amount of daily passengers.

Station Basic consists of station building and the platform as well as all minimum station facilities. It was designed for average number of passengers.

Station Landmark is composed of the base station building and the platform. Consists of station building and the platform, minimum facilities as well as additional space such as bigger waiting space, cafe space.

Station Plus is composed of the station building and the platform. Consists of station building and the platform, minimum facilities, bigger waiting space, retail/cafe and additional commercial space.

Modular design brings several advantages such as reduced capital requirements and economies. Modularity is especially advantageous when the scale and scope of the project are relatively large. In such cases, it is a practical and economic option. Through modularity Rail Baltica can achieve various designs, while achieving low-cost for development.



Growth Strategy

B1.5

Modular design

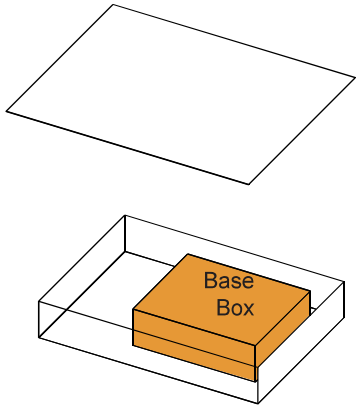
Based on several analysis and also on the medium number of passengers per day, four type of station have been define:

Type 1: International Station
Type 2: Landmark Station
Type 3: Basic Station
Type 4: Platform Station

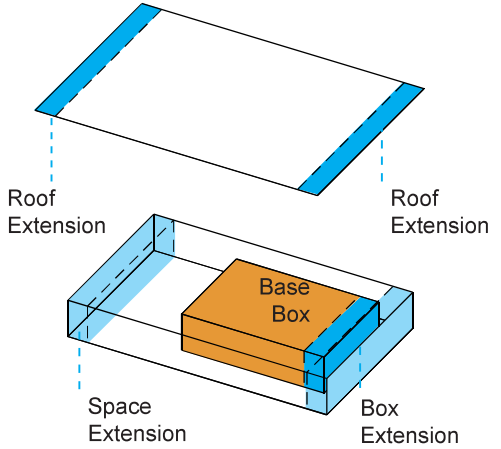
The scheme illustrates how, starting from the basic, a station can growth choosing to expand toward the
Landmark station or the Basic Plus.

The maximum possible expansion will allow reaching the Landmark plus station.

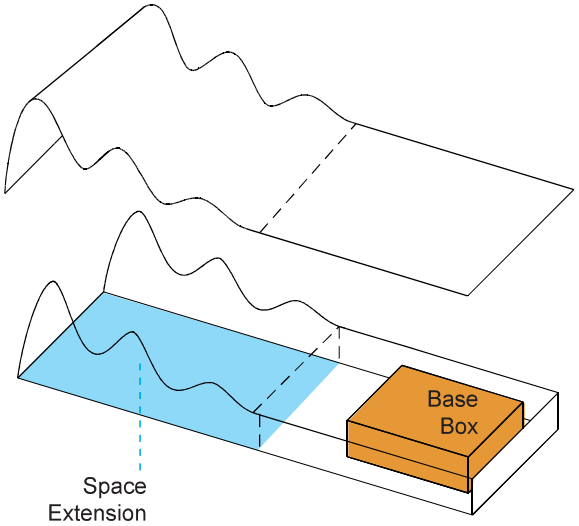
BASIC



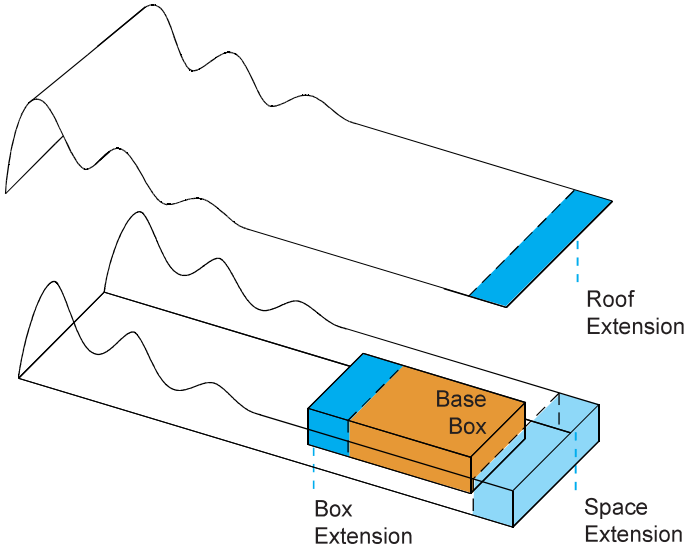
BASIC PLUS



LANDMARK



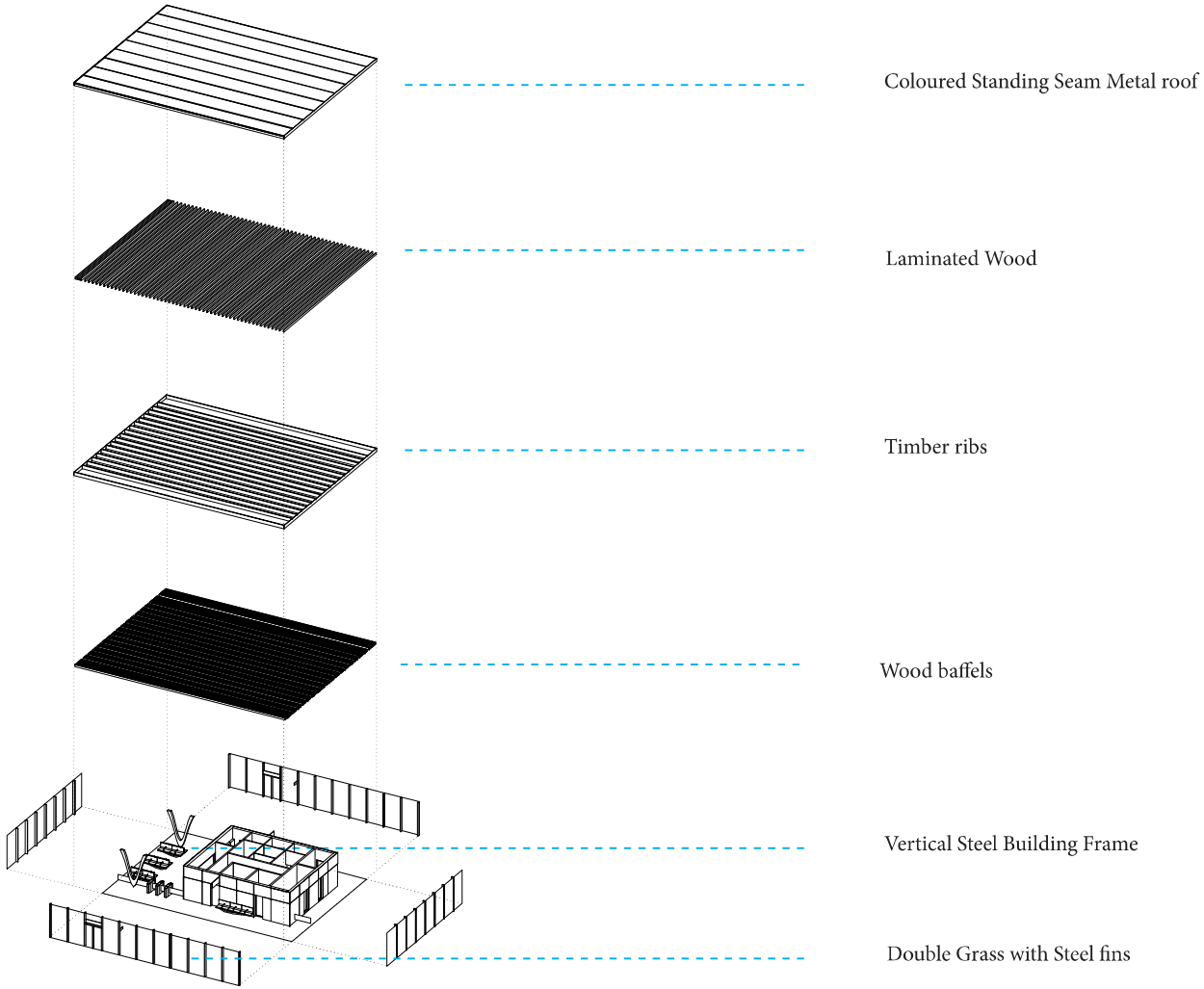
LANDMARK PLUS



Layout

B1.6

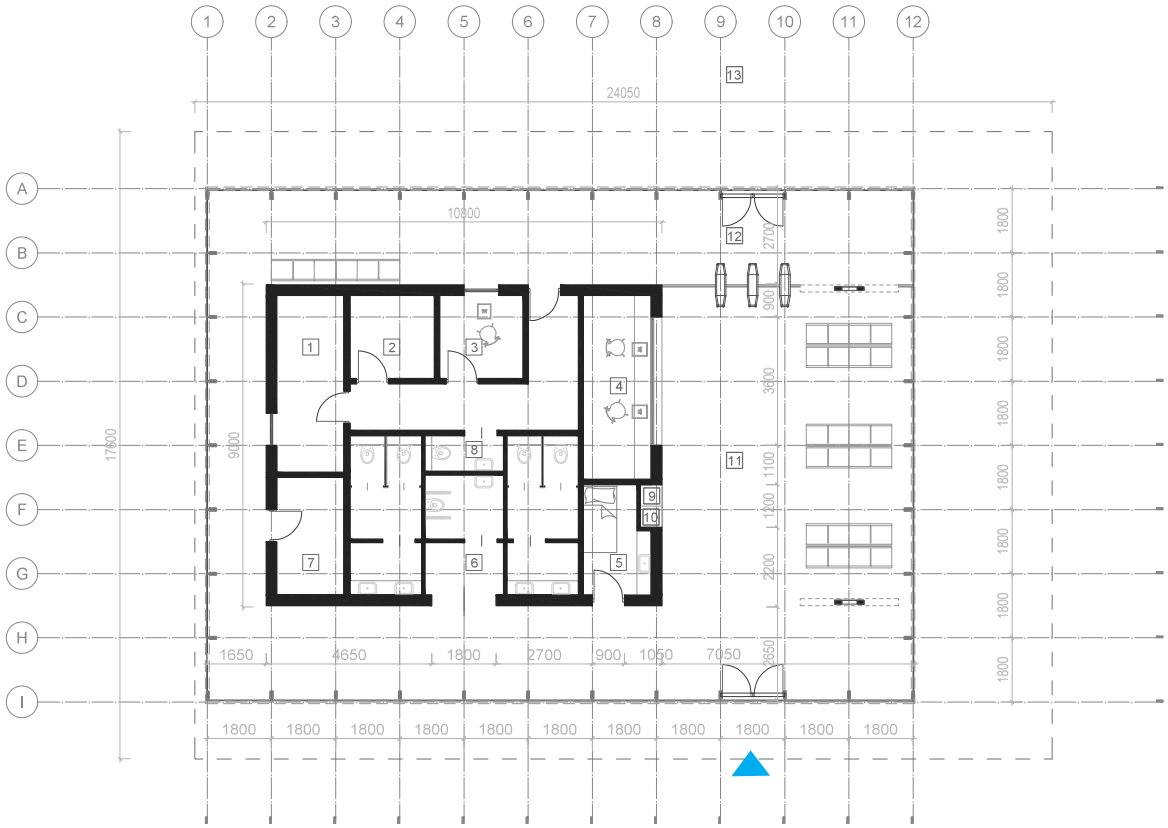
Basic



Layout

B1.6

Basic

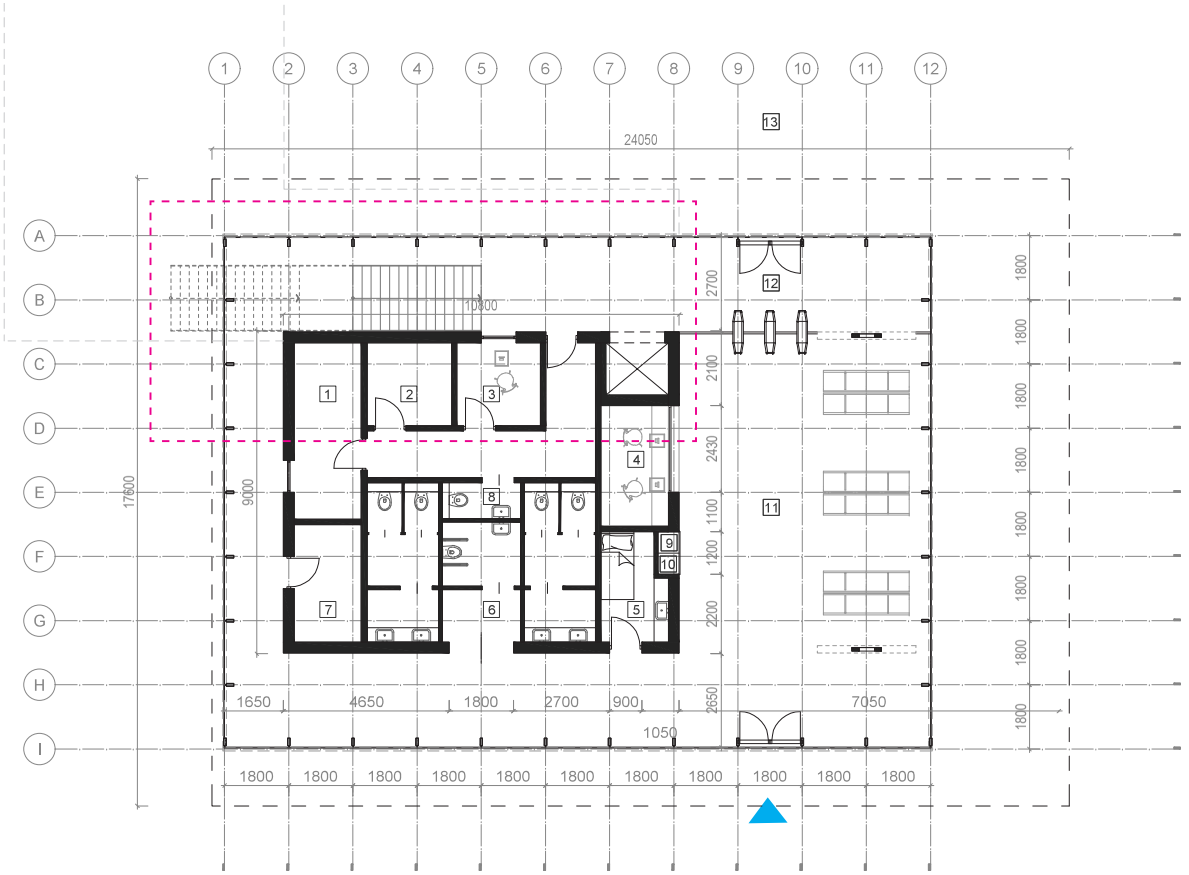


Legend
1. Staff Room
2. Police
3. Control Room
4. Ticket office
5. First Aid
6. Toilets
7. Master
8. Staff Toilet
9. ATM
10. TVN
11. Waiting Zone
12. Ticket Validation Zone
13. Platform

Layout

B1.6

Basic with Direct Access to the Underpass

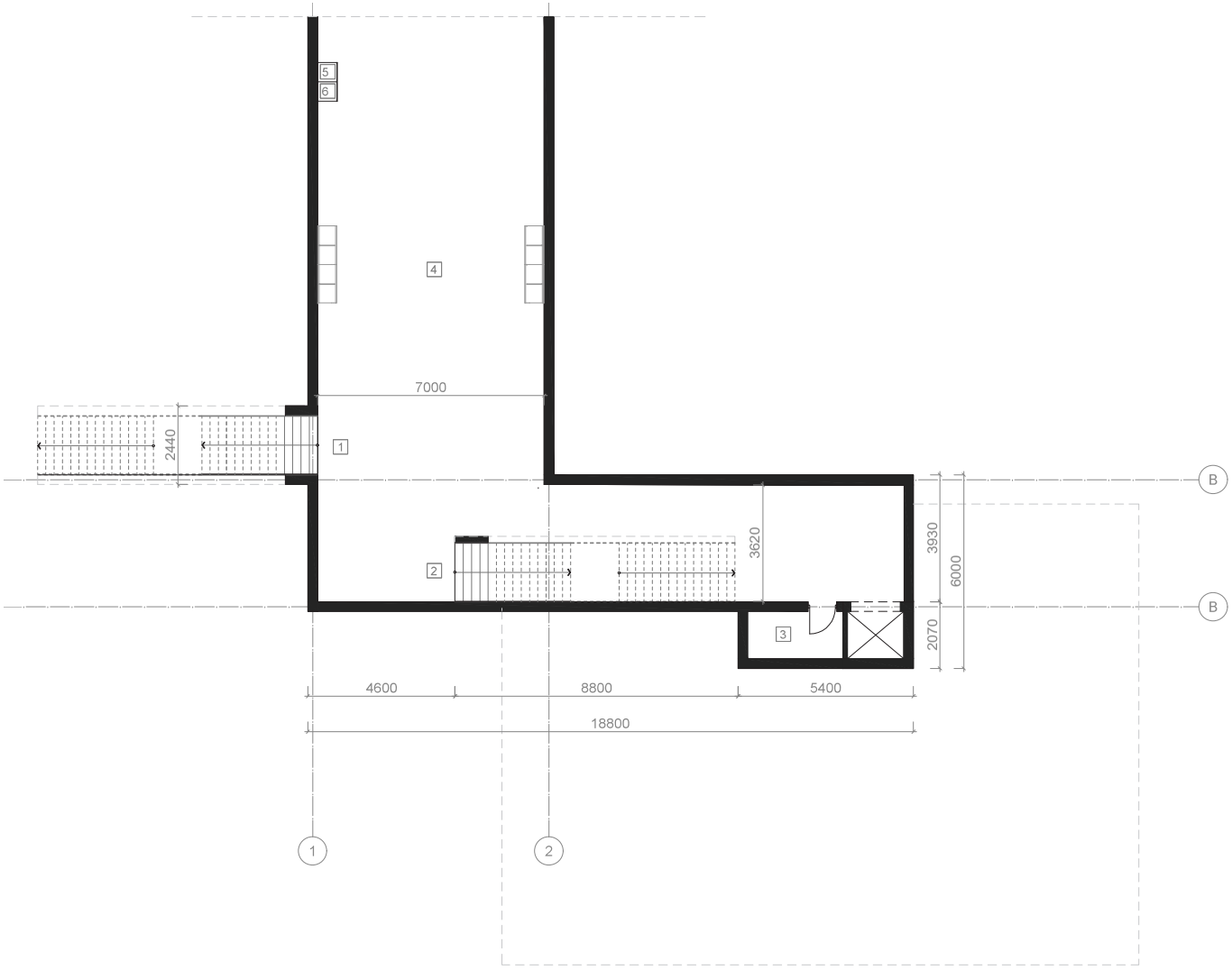


Legend
1. Staff Room
2. Police
3. Control Room
4. Ticket office
5. First Aid
6. Toilets
7. Master
8. Staff Toilet
9. ATM
10. TVN
11. Waiting Zone
12. Ticket Validation Zone
13. Platform

Layout

B1.6

Basic with Direct Access to the Underpass

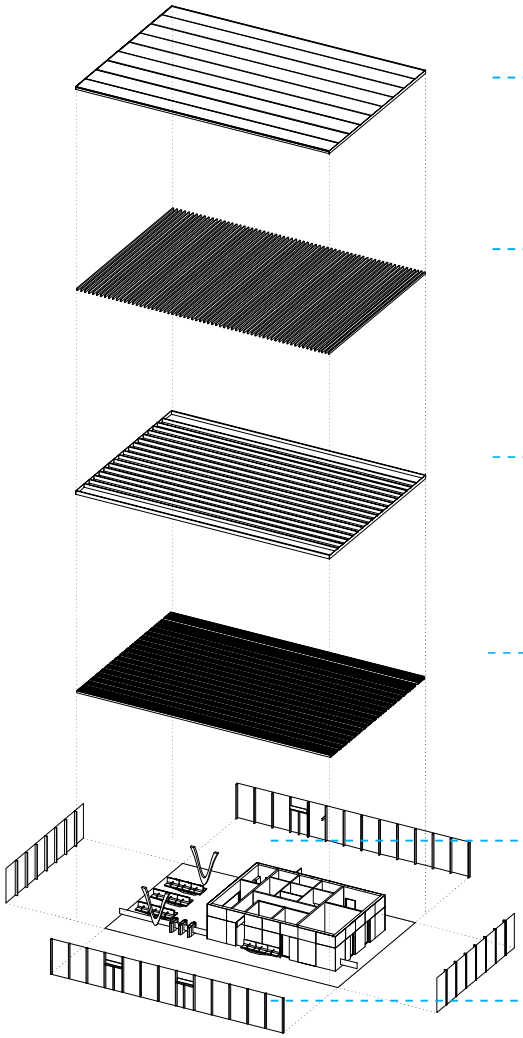


Legend
1. Stairs to the Platform
2. Stairs to the Station
3. Storage Room
4. Main Underpass Route
5. ATM
6. TVN

Layout

B1.6

Basic Plus



Coloured Standing Seam Metal roof

Laminated Wood

Timber ribs

Wood baffels

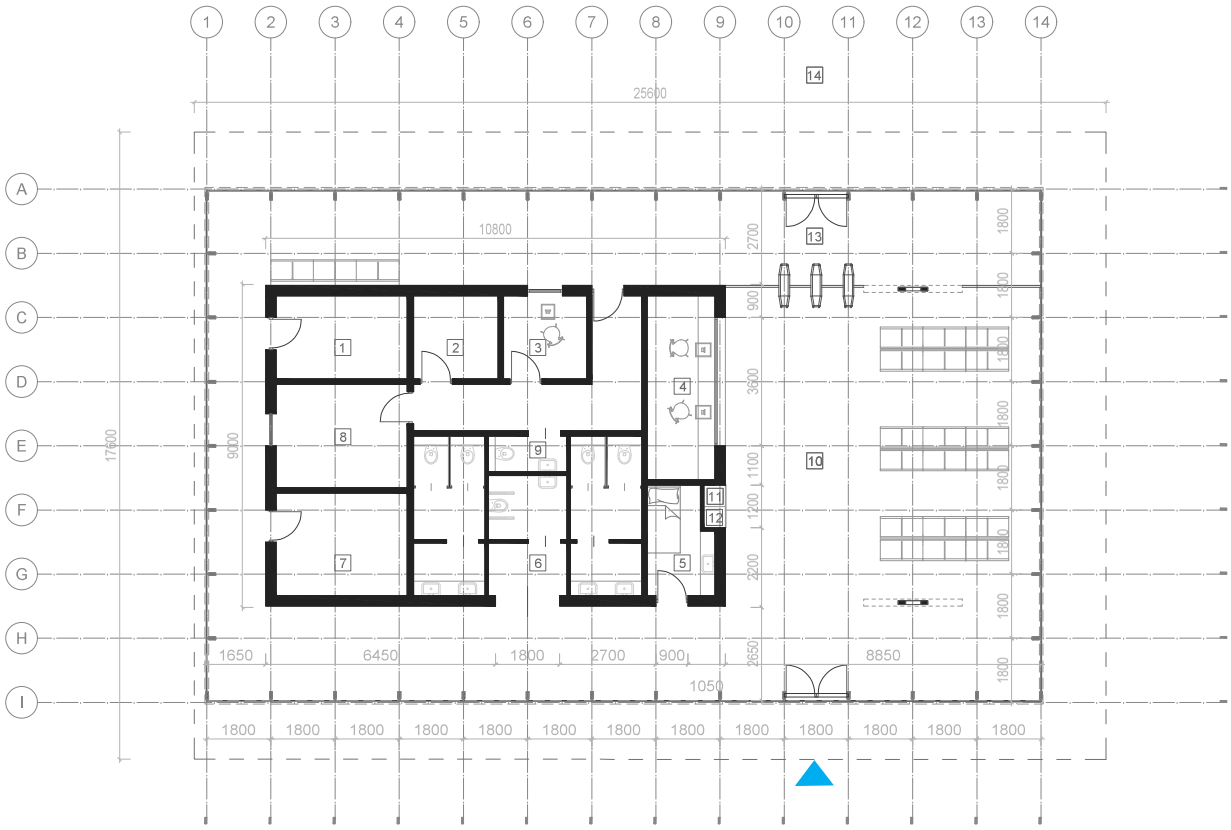
Vertical Steel Building Frame

Double Grass with Steel fins

Layout

B1.6

Basic Plus

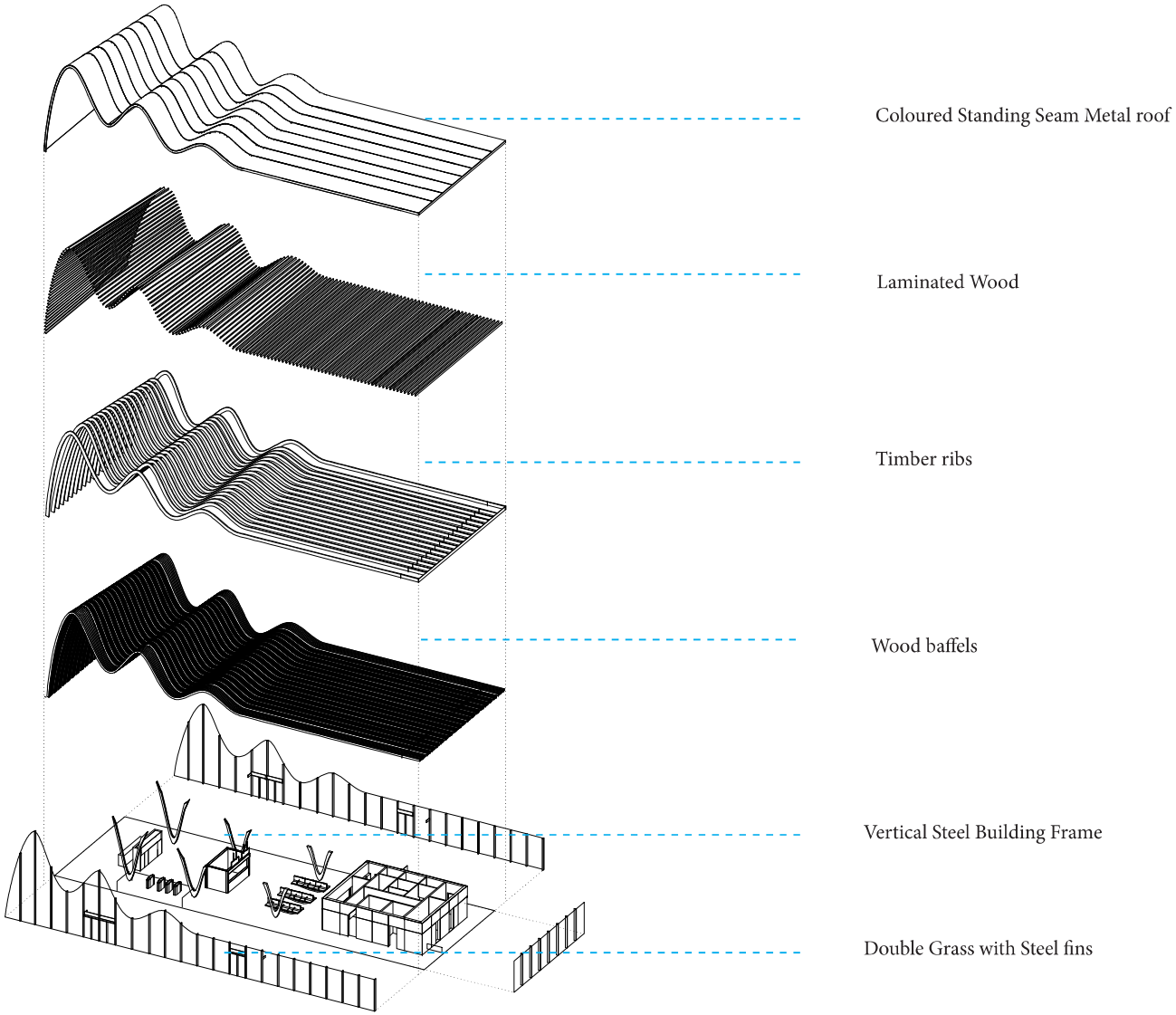


Legend
1. Storage Room
2. Police
3. Control Room
4. Ticket office
5. First Aid
6. Toilets
7. Master
8. Staff Room
9. Staff Toilet
10. Waiting Zone
11. ATM
12. TVM
13. Ticket Validation Zone
14. Platform

Layout

B1.6

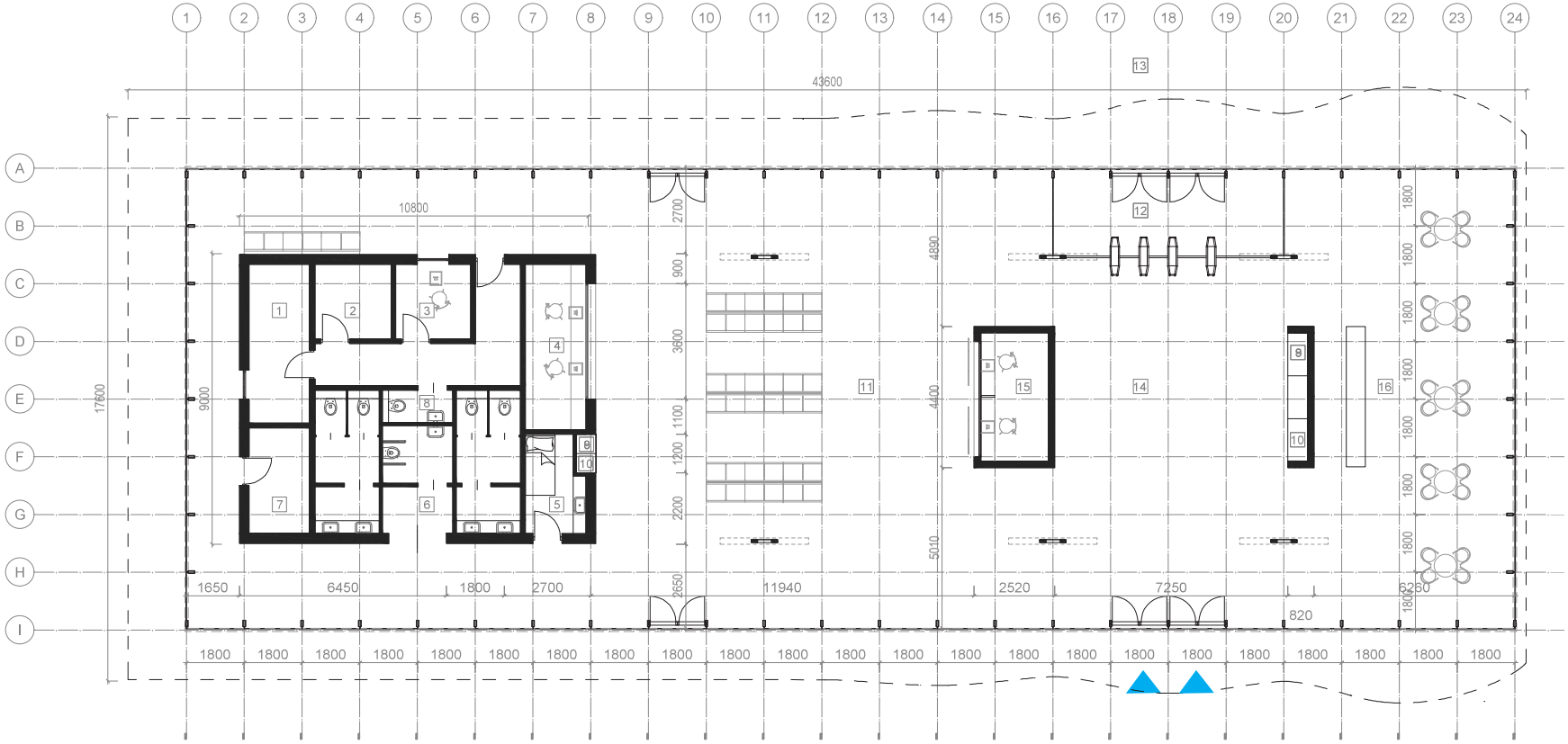
Landmark



Layout

B1.6

Landmark

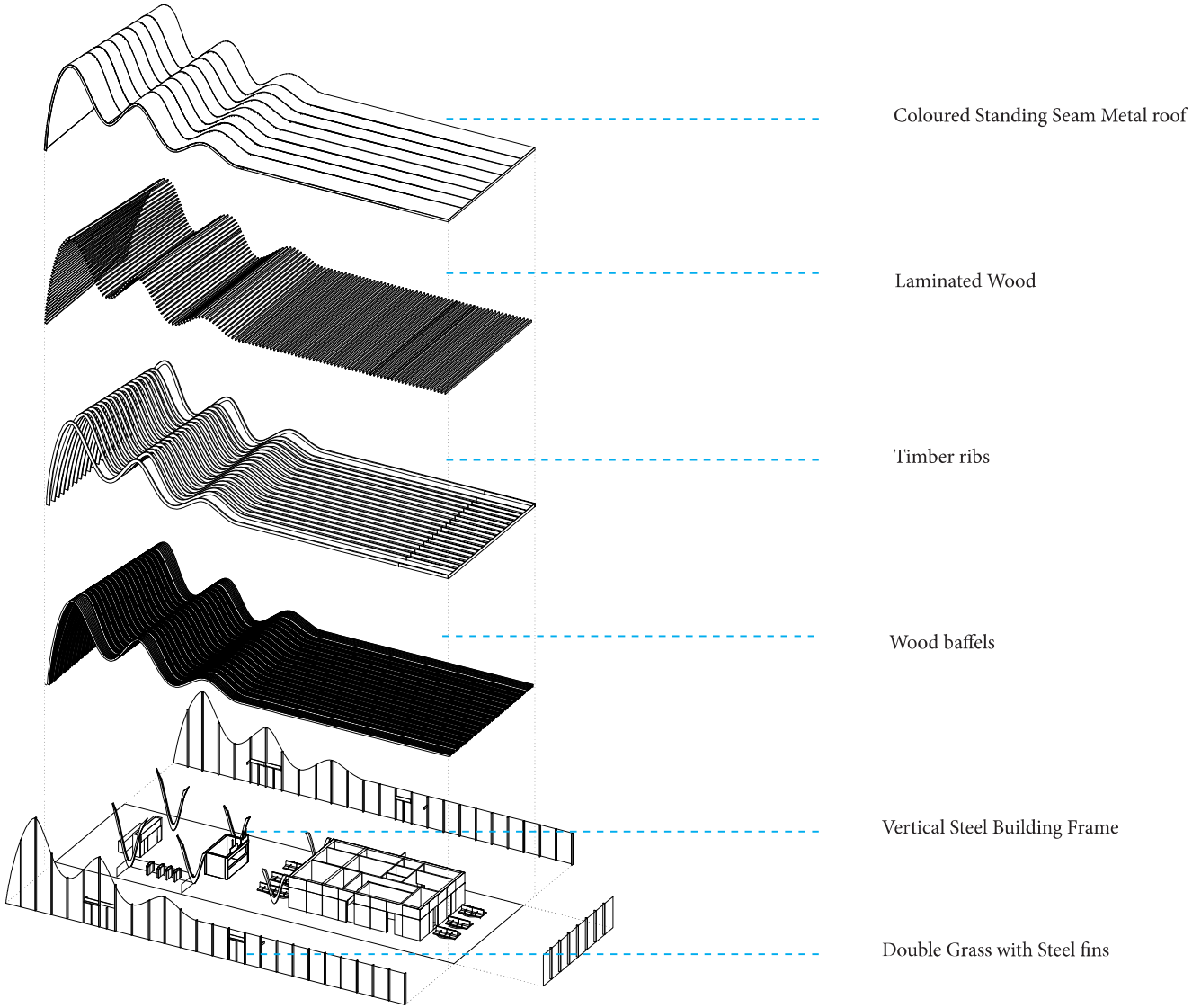


Legend
1. Staff Room
2. Police
3. Control Room
4. Ticket office
5. First Aid
6. Toilets
7. Master
8. Staff Toilet
9. TVM
10. ATM
11. Waiting Zone
12. Ticket Validation Zone
13. Platform
14. Main Route
15. Information Desk
16. Retail zone

Layout

B1.6

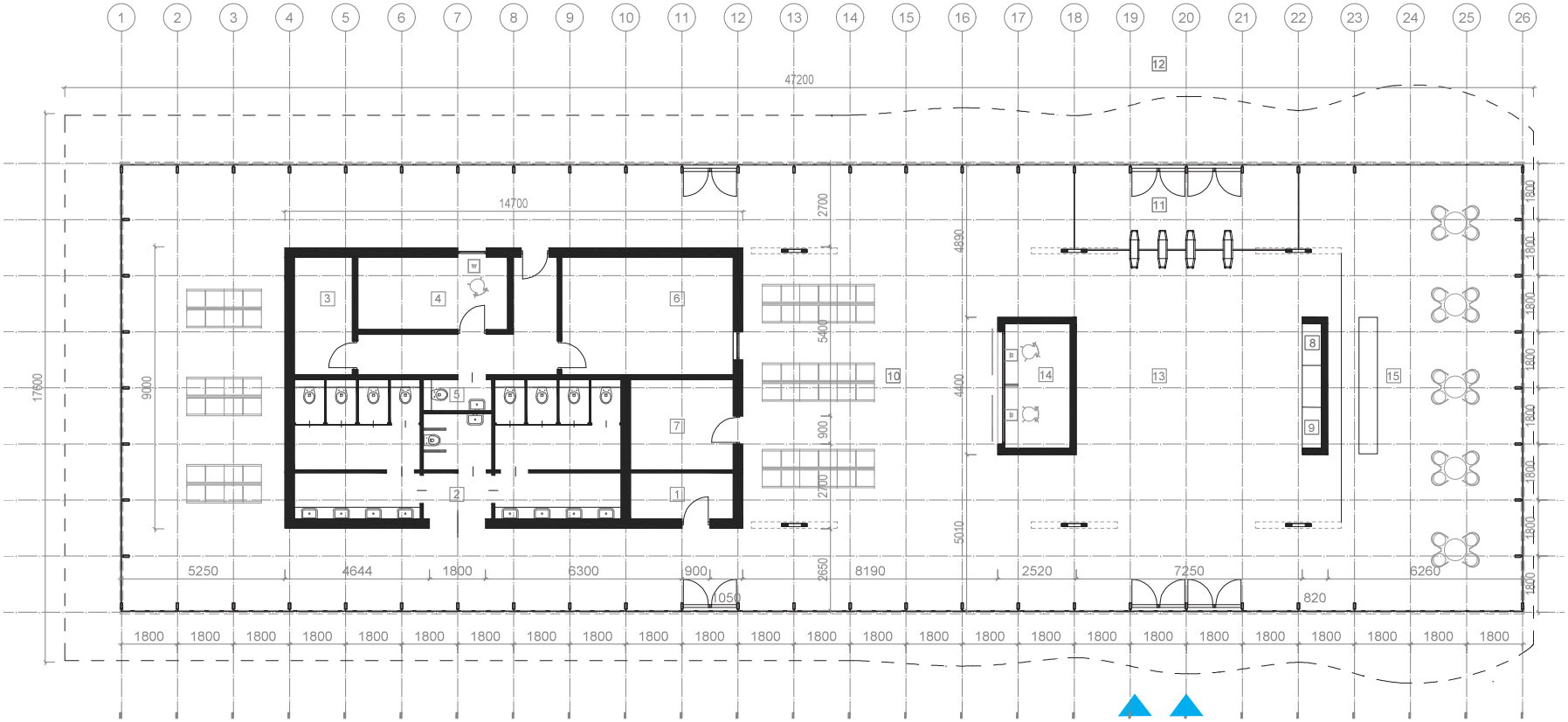
Landmark Plus



Layout

B1.6

Landmark Plus



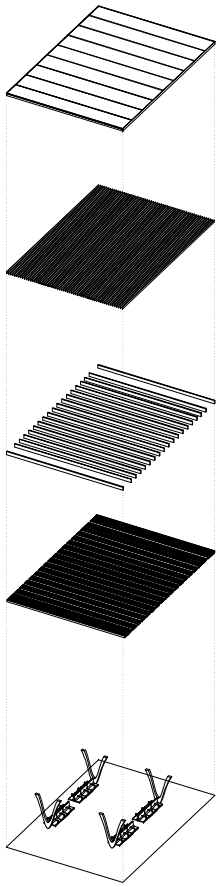
Legend

1. Storage Room
2. Toilet
3. Police
4. Control Room
5. Staff Toilet
6. Staff Room
7. Master
8. TVM
9. ATM
10. Waiting Zone
11. Ticket Validation Zone
12. Platform
13. Main Route
14. Ticket office
15. Retail zone

Layout

B1.6

Shelter



Coloured Standing Seam Metal roof

Laminated Wood

Timber ribs

Wood baffels

Vertical Steel Building Frame

Design

B1.7

Typical Basic Station Scenario



Design

B1.7

Typical Landmark Station Scenario



Design

B1.7

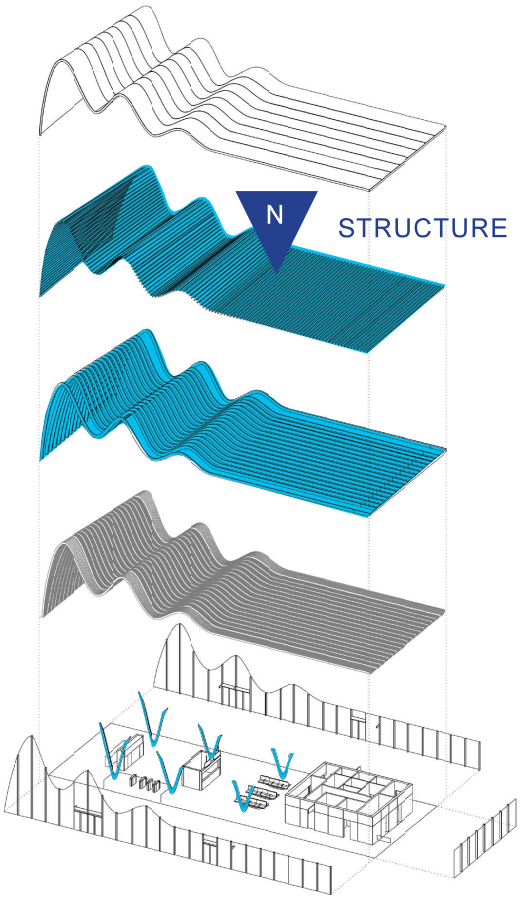
Typical Landmark Plus Station Scenario



Structure

B1.8

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Structure			

Structure

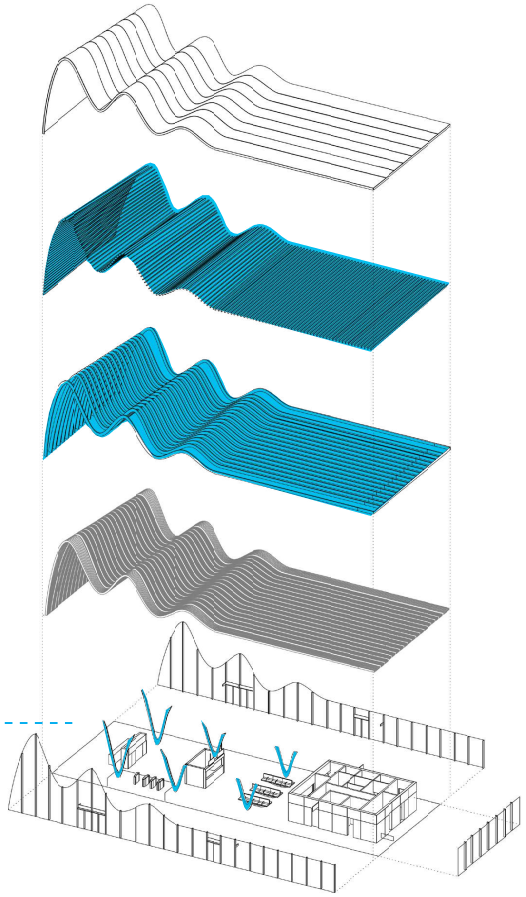
B1.8

Concept Design

Sub-Structure

Main Structure

Support Structure

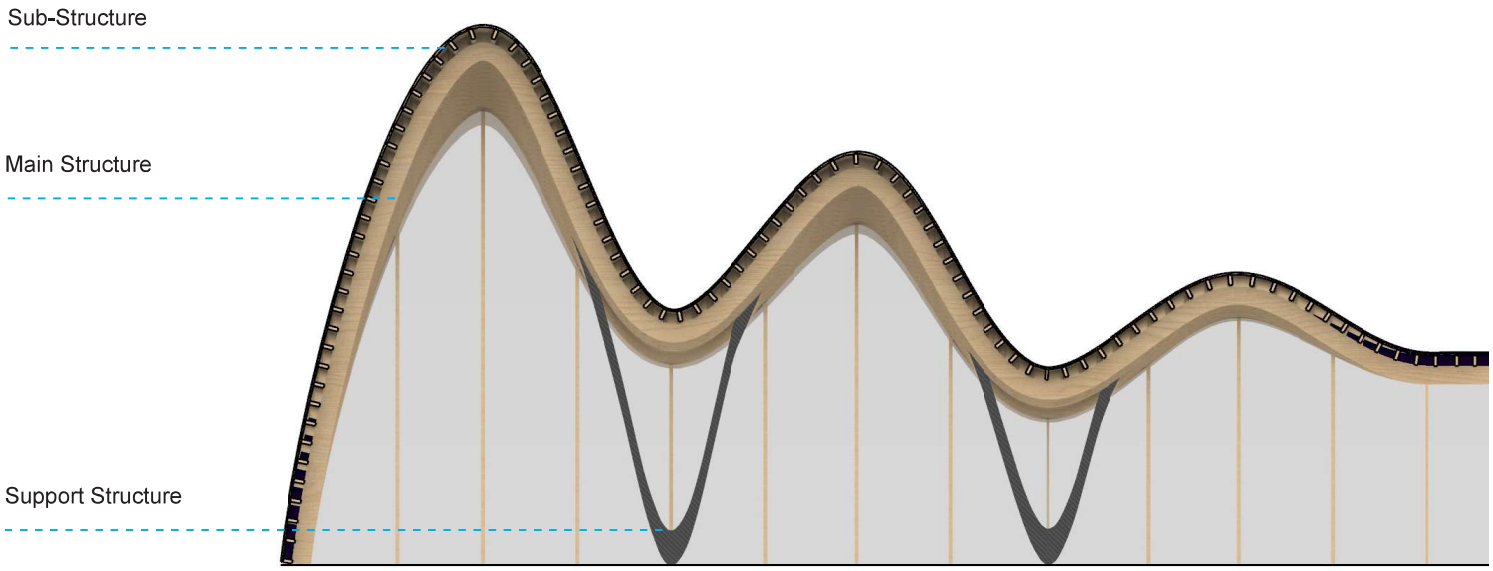


Structure

B1.8

Concept Design





Noted
Image above shows the station structure from the interior.

Structure

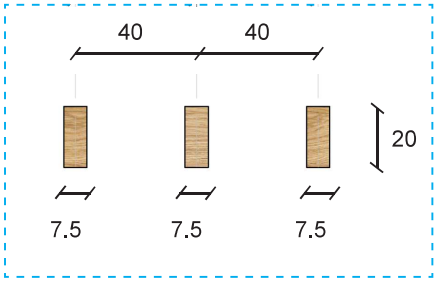
B1.8

Geometry

Timber Ribs

size - 20 x 7.5 cm

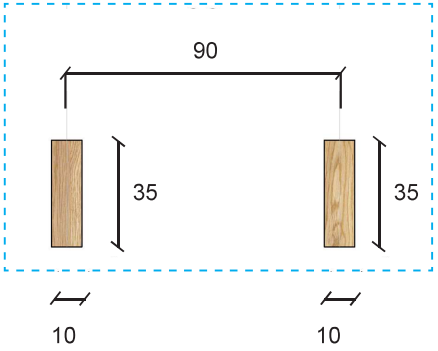
module of every 40 cm



Timber Ribs

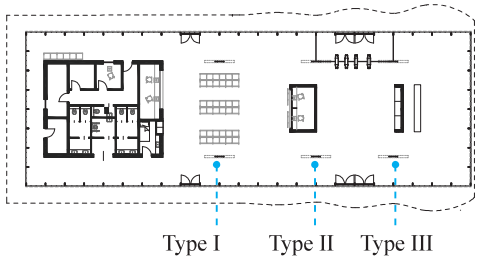
size - 35 x 10 cm

module of every 90 cm

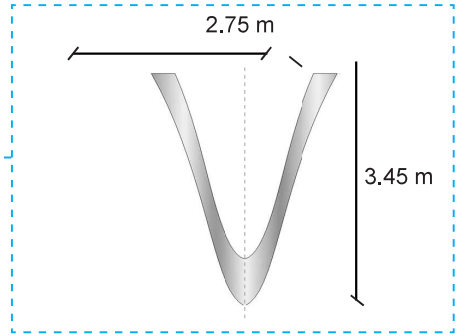


Structure

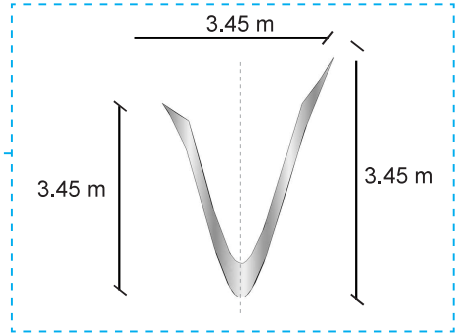
Geometry



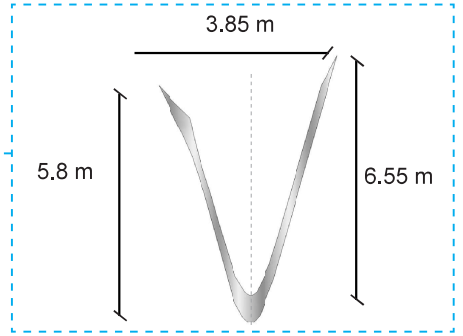
Steel Support Building Frame Type I



Steel Support Building Frame Type II



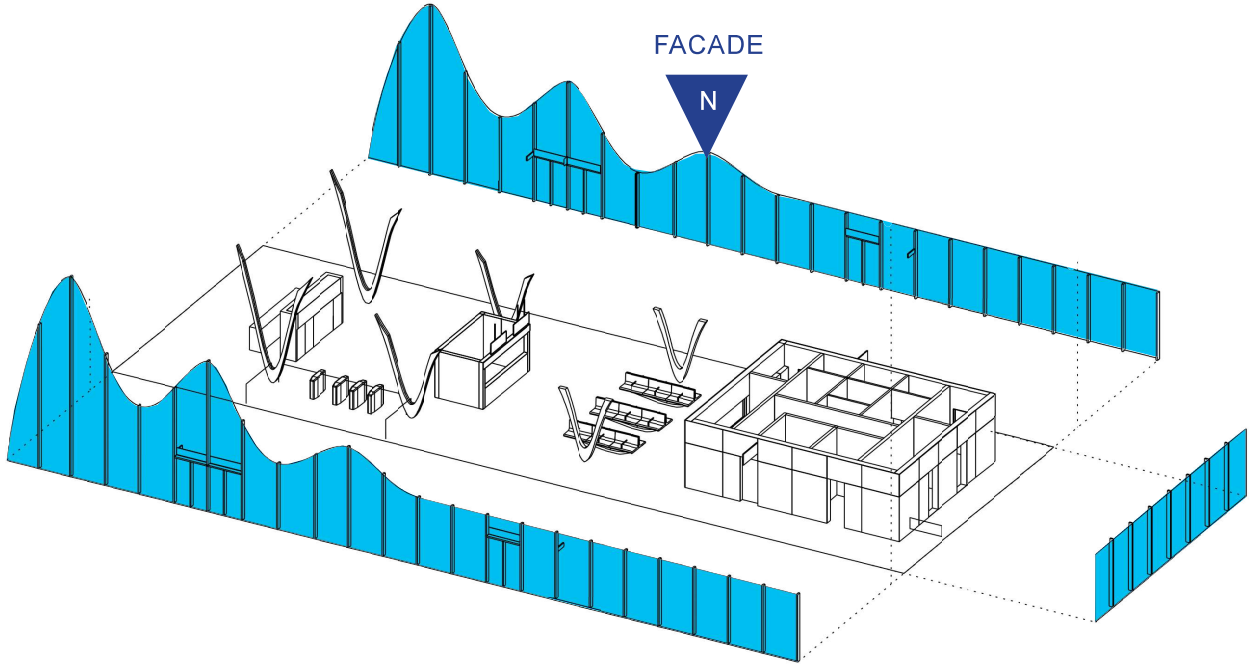
Steel Support Building Frame Type III



Facade

B1.9

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

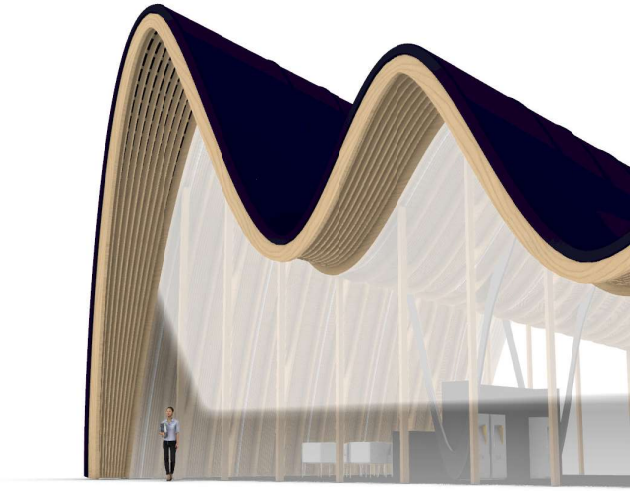
	N	C	R
Facade			

Facade

B1.9

Concept Design

Design of the station's walls refers to the traditional Baltic constructions utilizing the same materials but differs in form using baltic waves as a direct inspiration behnind parametric design.







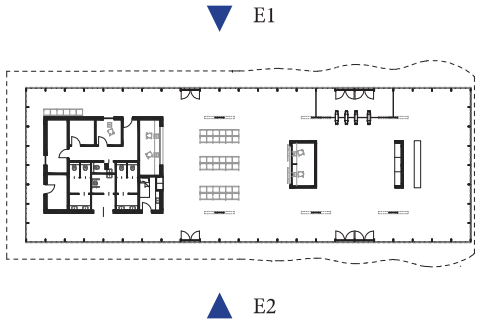


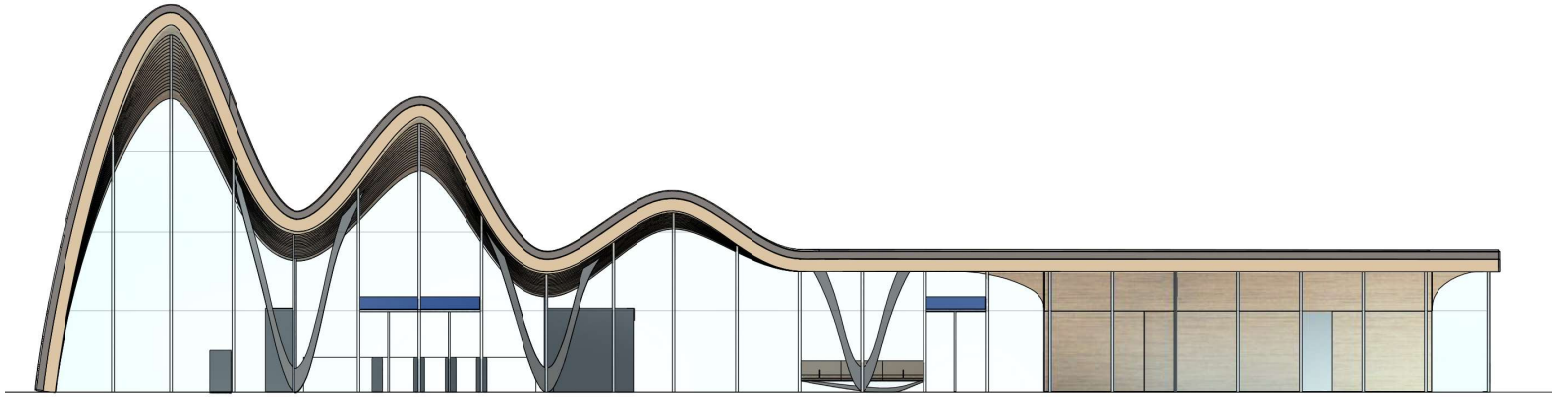
Pictures
Image from left:
Image 1 - *Credits: SBS Engineering*
Image 2 - *Credits: pixabay.com*
Image 2 - *Credits: wikipedia.org*

Facade

B1.9

Geometry





E1 Elevation from platform

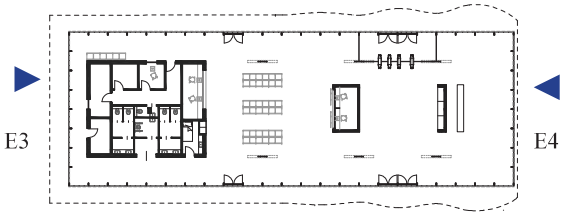


E2 Elevation from the entrance

Facade

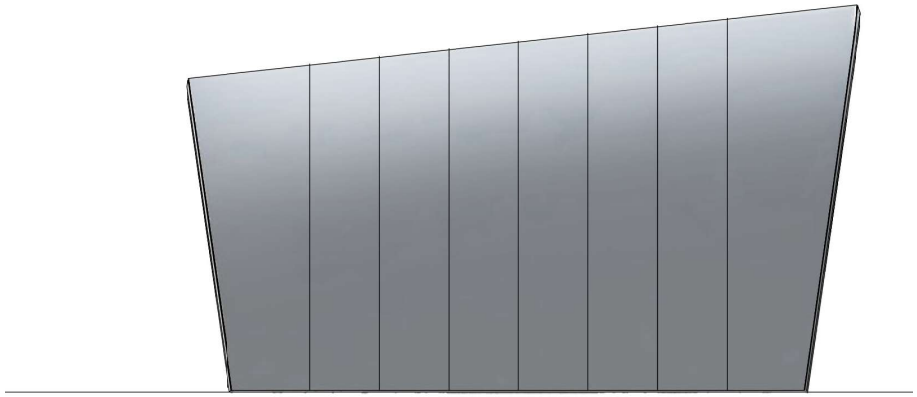
B1.9

Geometry





E3 Elevation from the left side



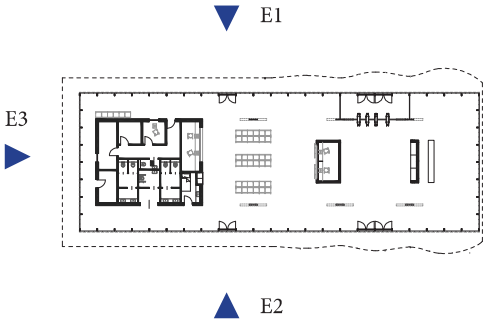
E4 Elevation from right side

Facade

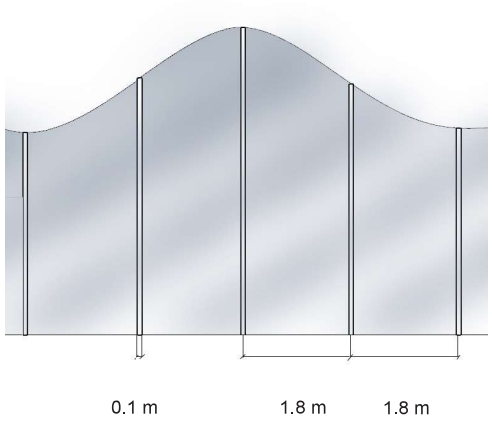
B1.9

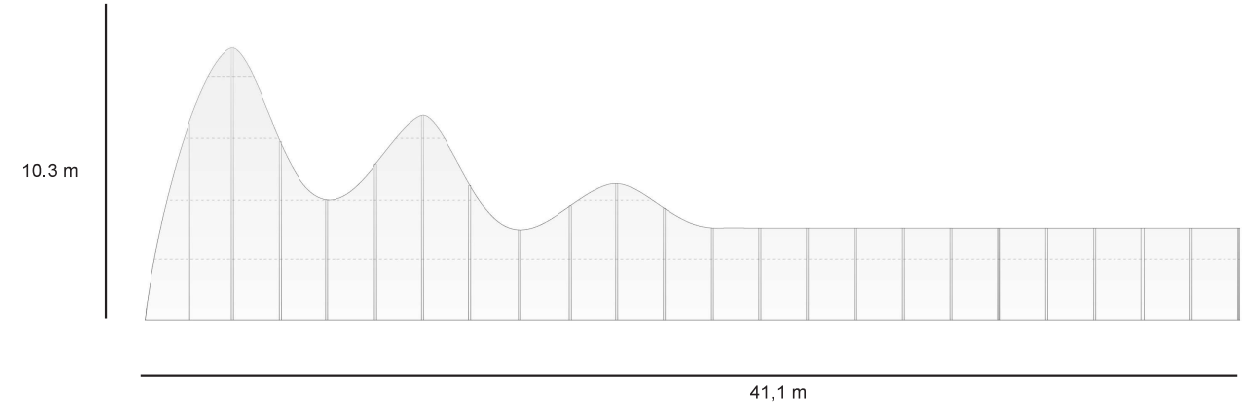
Geometry

Geometry of the facade is created by the shape of the roof. Module used as a design principle is 1.8 m.

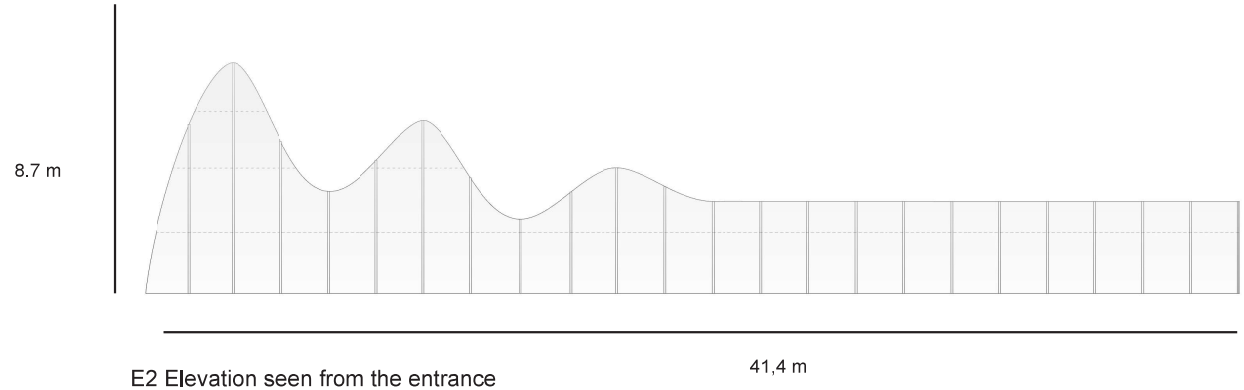


Module 1.8 m

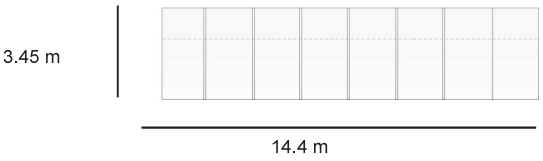




E1 Elevation seen from platform



E2 Elevation seen from the entrance



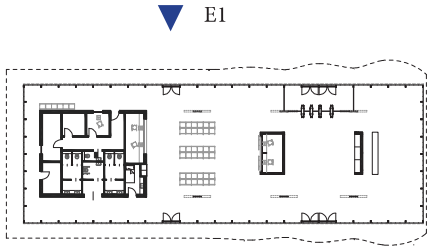
E3 Elevation

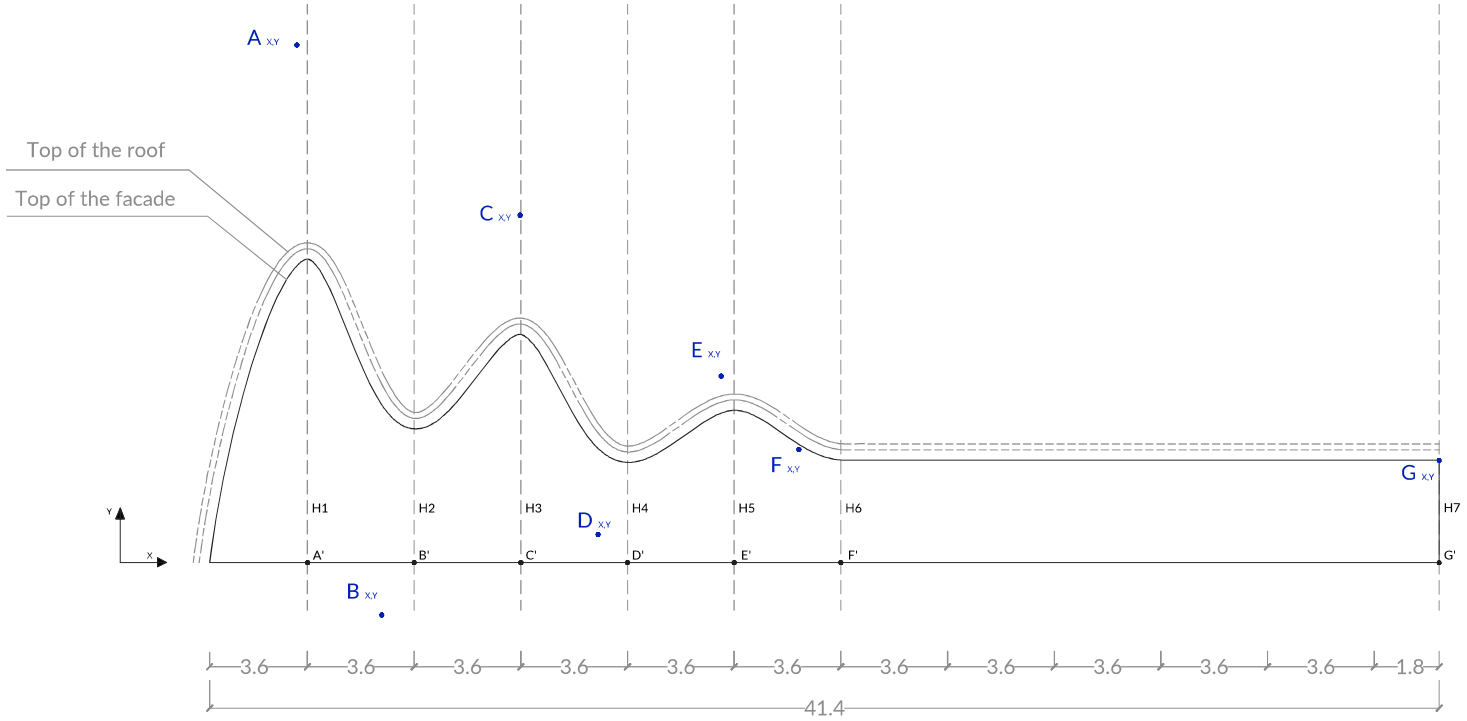
Facade

B1.9

Geometry - Platform Elevation

The shape of the elevation is defined by spline curve with the control points A, B, C, D, E, F with following coordinates.





H1 = 10.3 M H2 = 4.5 M H3 = 7.7 M H4 = 3.4 M H5 = 5.2 M H6 = 3.45 M

H6 = 3.45 M

From A': A x,y = {-0,36; 17,70}

From B': B x,y = {-1.1; -1,83}

From C': C x,y = {0.0; 11,85}

From D': D x,y = {-0.99; 0,93}

From E': E x,y = {-0,34; 6,23}

From F': F x,y = {-1.43; 3,82}

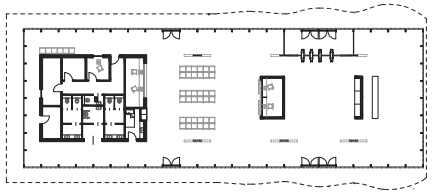
From G': G x,y = {0.0; 3,45}

Facade

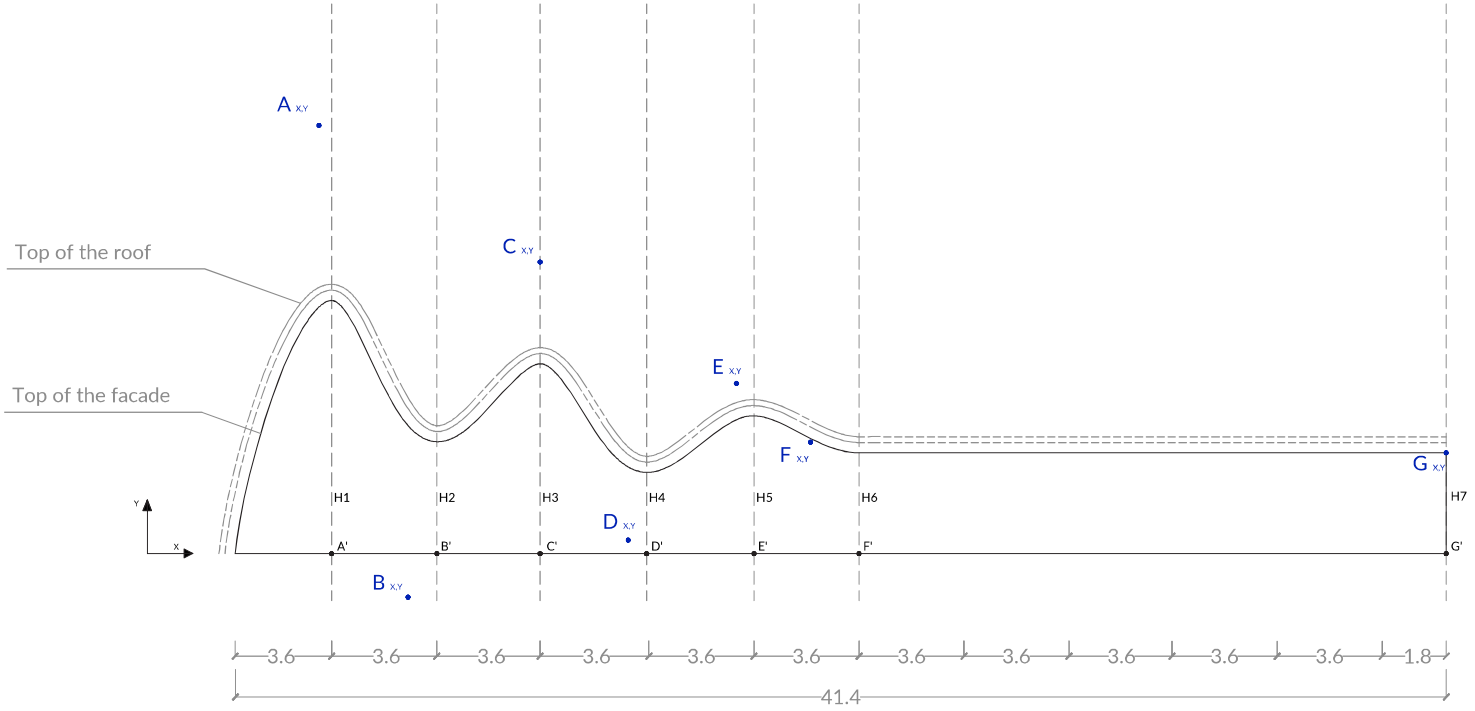
B1.9

Geometry - Entrance Elevation

The shape of the elevation is defined by spline curve with the control points A, B, C, D, E, F with following coordinates.



▲ E2



H1 = 8.7 M H2 = 3.9 M H3 = 6.5 M H4 = 2.8 M H5 = 4.7 M H6 = 3.45 M

H6 = 3.45 M

From A': A x,y = {-0,44; 14,62}

From B': B x,y = {-0.98; -1,50}

From C': C x,y = {0.0; 9,99}

From D': D x,y = {-0.66; 0,44}

From E': E x,y = {-0,60; 5,83}

From F': F x,y = {-1.66; 3,82}

From G': G x,y = {0.0; 3,45}

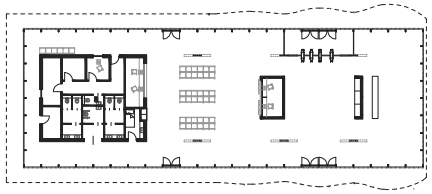
Facade

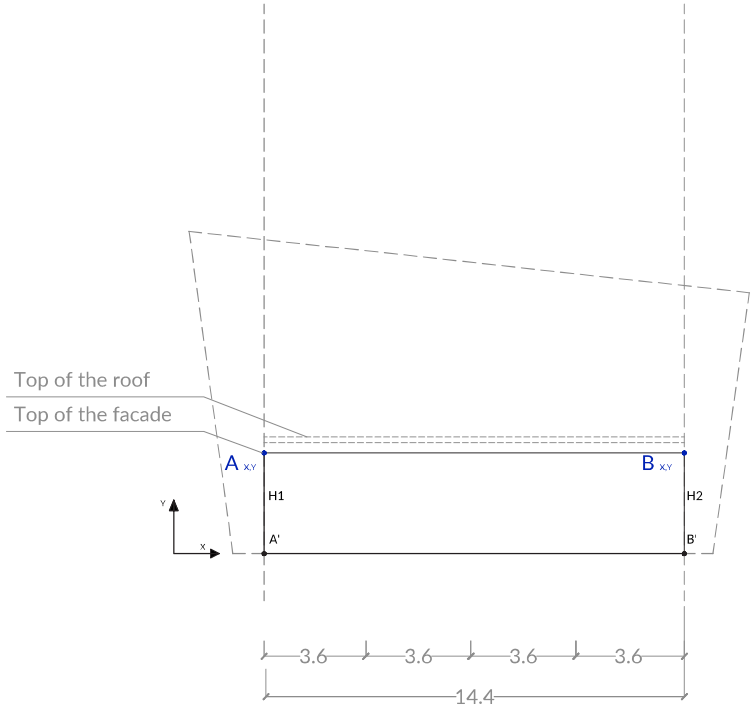
B1.9

Geometry - Terrace Elevation

The shape of the elevation is defined by points A, B and following coordinates.

E3





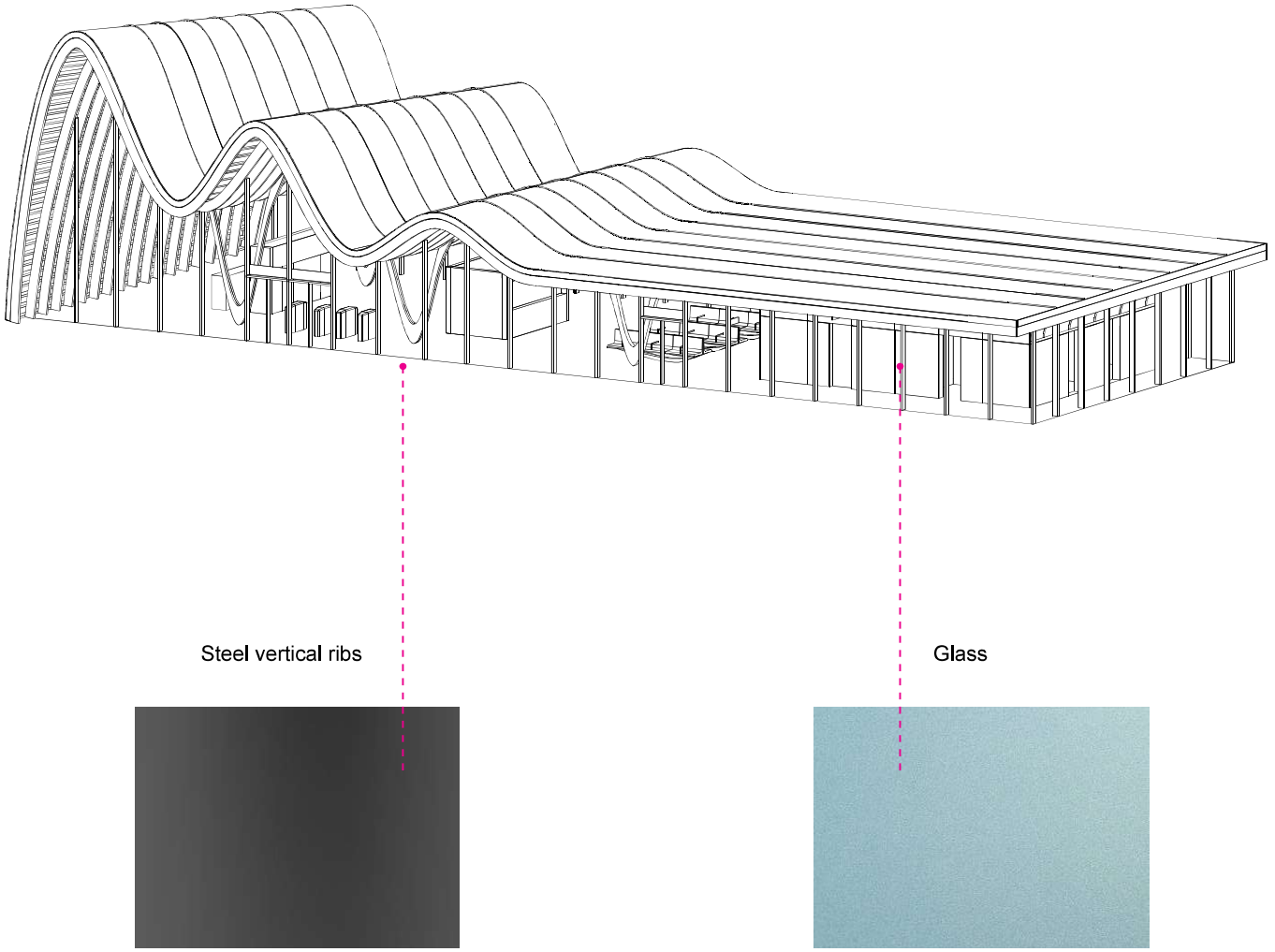
H1 = 3.45 M H2 = 3.45 M

From A': A x,y = {0,0; 3,50} From E': E x,y = {0,0; 3,50}

Facade

B1.9

Materials

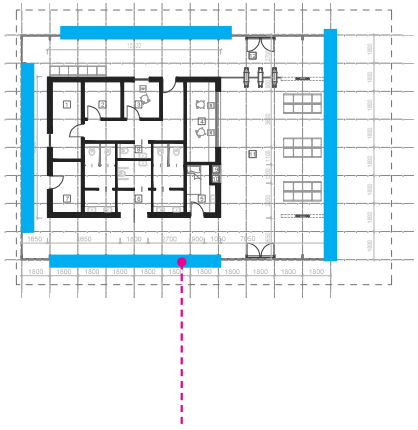


Facade

B1.9

Alternative Material Strategy

This type of alternative material strategy is used to decrease environmental impacts, such as energy usage, during the life-cycle of the station.







Glazing





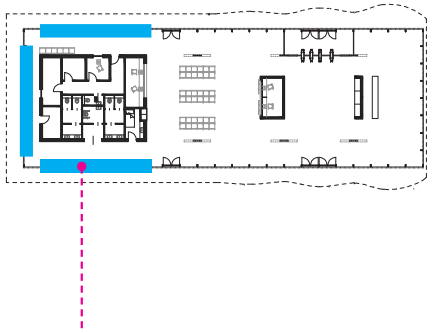
Glazing + Metal Cladding

Facade

B1.9

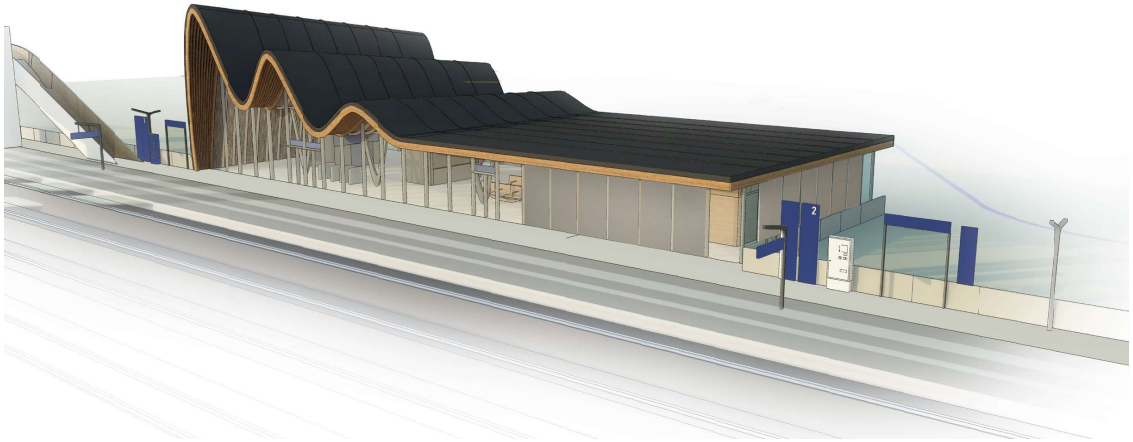
Alternative Material Strategy

This type of alternative material strategy is used to decrease environmental impacts, such as energy usage, during the life-cycle of the station.





Glazing



Glazing + Metal Cladding

Facade

B1.9

Branding Implementation

Glazed wall branding example

Module 1.8 m



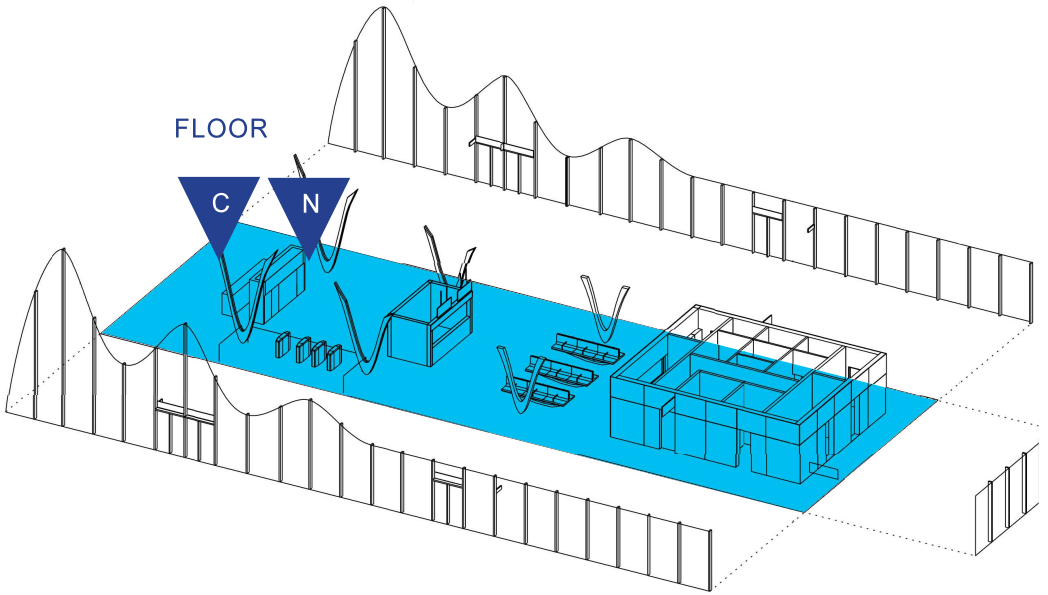
Note

For Rail Baltica visual identity instruction, please refer to *Visual Identity Guidebook*

Floor

B1.10

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Floor			

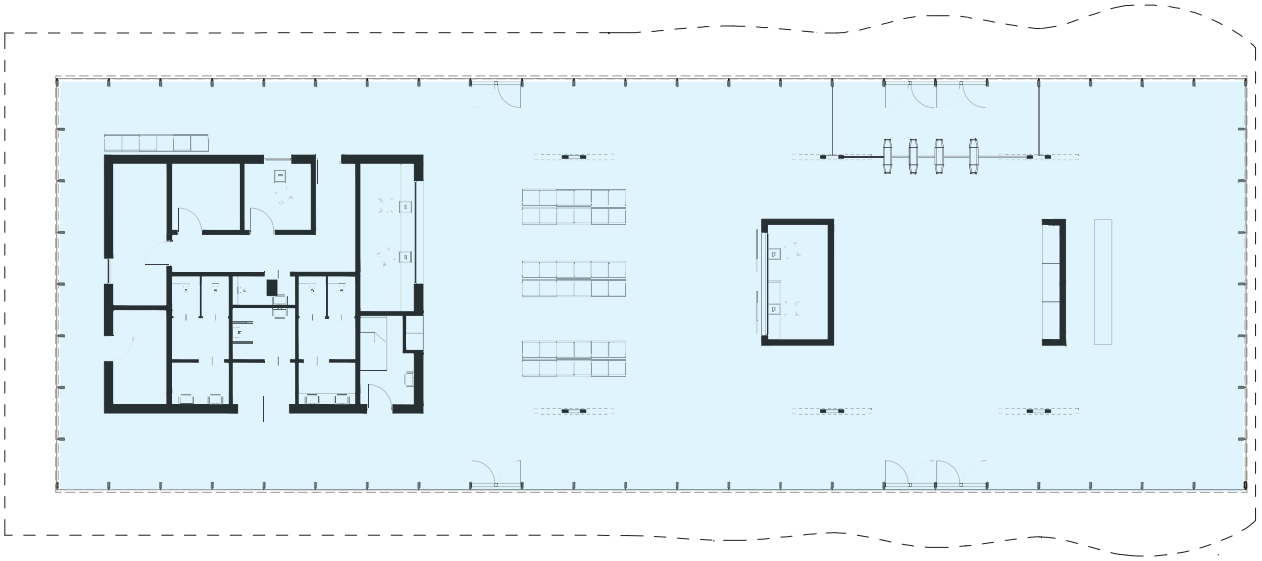
Floor

B1.10

Concept Design

Given the dense woodland nature of the Baltic countries, much of traditional architecture centres around timber. For centuries was the material for houses and villages as a natural resource. These structures are very simple with some unique architectural details such as the Landmark forms of the gabled roofs.

The floor design refers to the traditional materials, underlining the connection between the three countries but also emphasizes the idea of using sustainable materials.





Connecting three countries



Durability



Sustainability

Pictures
From left
Image 1 - *Credits: wikipedia.org*
Image 2 - *Credits: SBS Engineering*
Image 3 - *Credits: polandtour.pl*

Floor

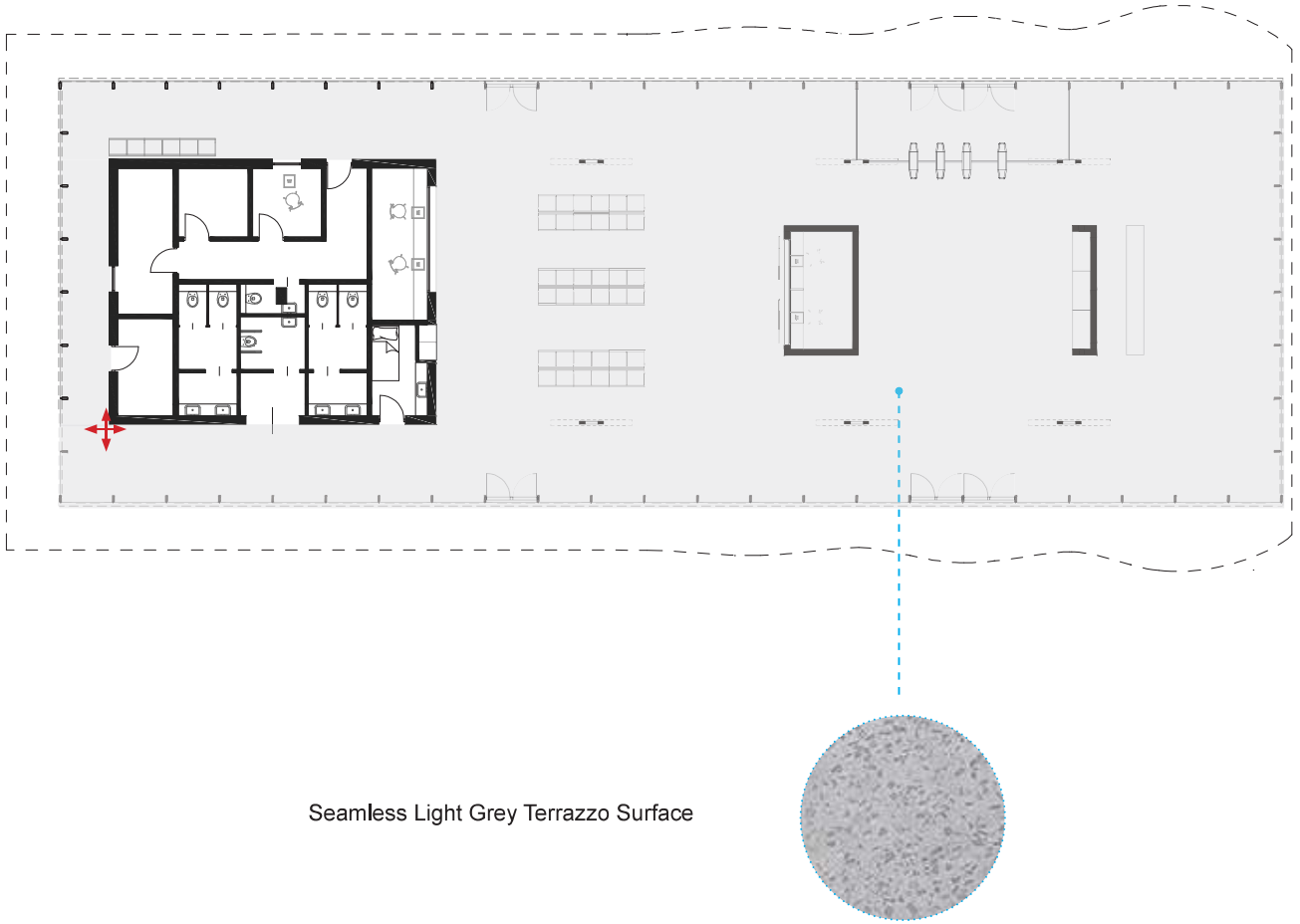
B1.10

FOH Geometry and Materials

Terrazzo, which is widely used in commercial environments for its durability, should use an additive such as carborundum to make it more slip resistant. The slip resistance of a floor in service is dependent upon the nature of its surface. It is important to recognise that this can change over time and in use. Generally resin terrazzo flooring is not inherently slippery in the dry but the combination of very smooth floors and hard smooth heel or sole material can be slippery. Typically a terrazzo surface with some carborundum (Silicon carbide) content has the abrasive powder distributed through the depth of the tiles decorative surface which once ground exposes the grains which enhance the materials slip resistance.

Light gray terrazzo



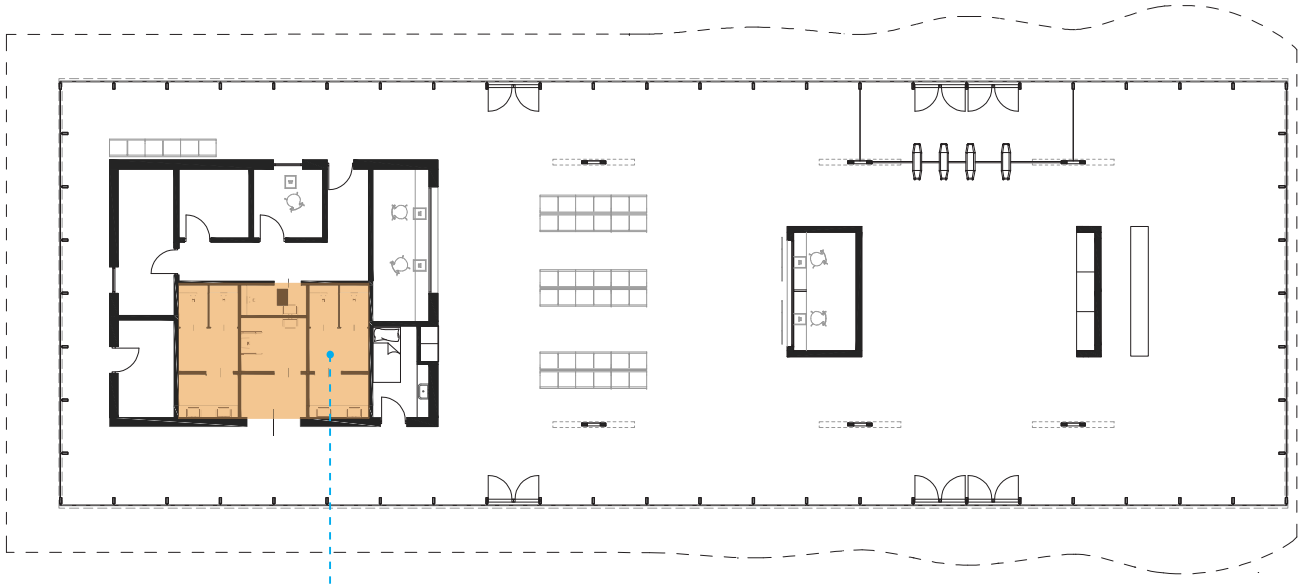


Seamless Light Grey Terrazzo Surface

Floor

B1.10

BOH Geometry and Materials



Epoxy Resin





Expoxy Resin

Floor

B1.10

BOH Identity Approach

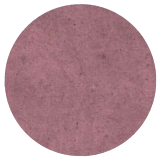
By applying the colors of the three countries to the epoxy floor on the back of the rooms of the house, designers can apply the identity of the country to this architectural element.





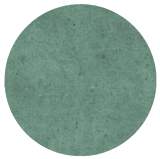
ESTONIA





LATVIA





LITHUANIA







Floor

B1.10

Tactile Tiles

In order to make it accessible and reachable in a broad sense, a station should be designed so that it is usable for all. Regulations and guidelines are found in both national and EU directives.
For people with disabilities, a well thought-out, integrated environment with few obstacles to ease and independence of movement in the environment is crucial. In addition to creating an integrated environment,stations and transfer points in their basic functions, construction and design should comply with the requirements and regulations regarding disabilities that society imposes on a station's function and physical design.

Tactile paths are one of the main important elements to ensure to all passengers an easy use of the station areas.

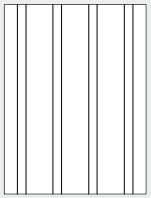
Based on the information that must be communicate to blind people, a specific tactile tile must be used.

Six are the main codes that should be used:

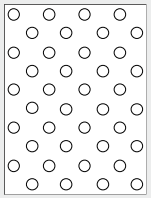
1. Straight
2. Stop / Danger
3. Crossroads between 3 or 4 roads
4. Turn 90°
5. Attention important service
6. Feasible danger

Note
Source: dascenzi.it

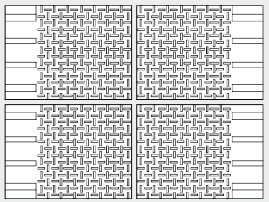
STRAIGHT



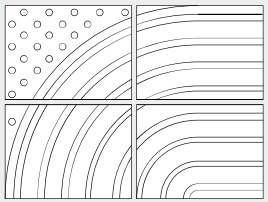
STOP / DANGER



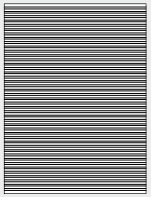
CROSSROADS 3 OR 4 ROARDS



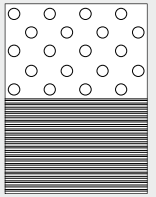
TURN 90°



ATTENTIONS SERVICE



FEASIBLE DANGER



TAG - TYPE 1



TAG - TYPE 2



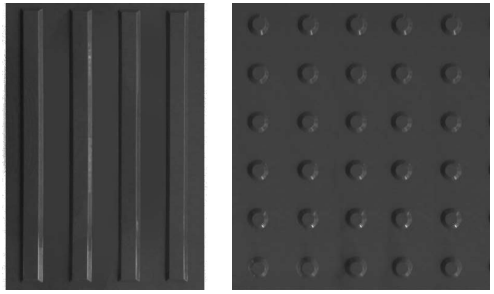
Floor

B1.10

Tactile - Layout

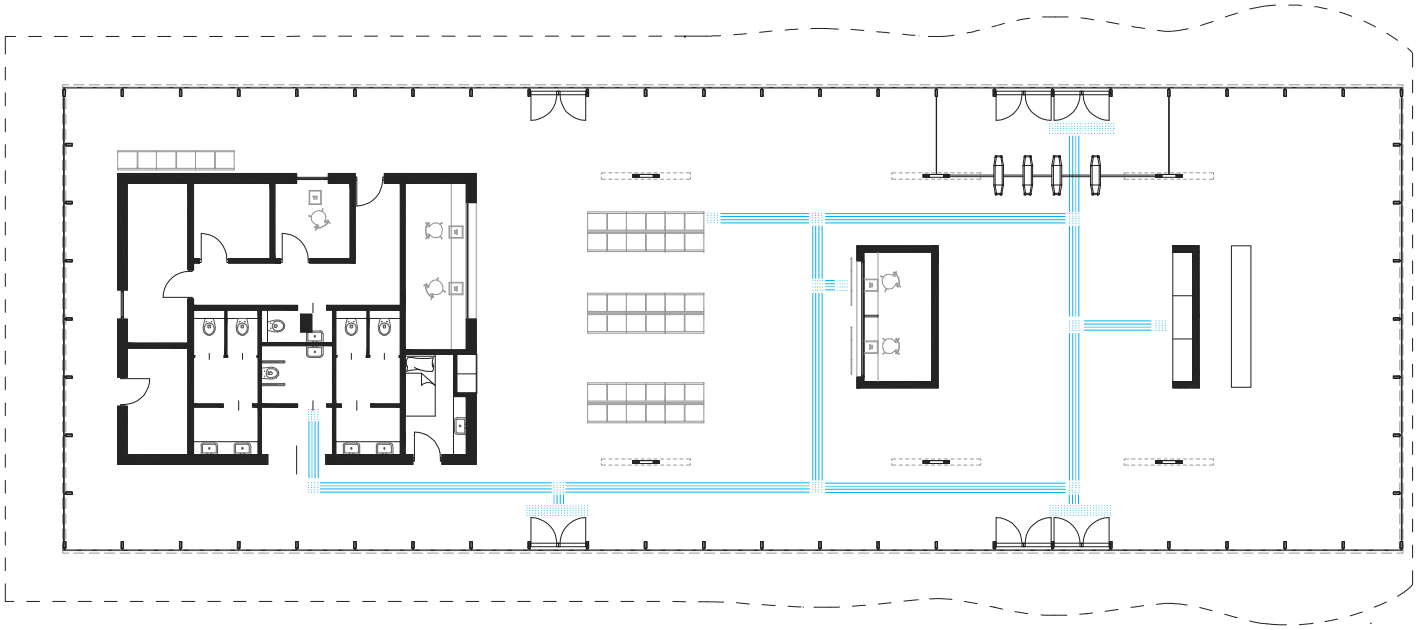
Tactile warning strip
Tactile warning strip are placed in dangerous place such as stairs, elevators and streets. Warning strip will be placed also at the platform edge.

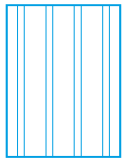
Tactile guide path
Lead visually travellers from the arrival zone to the platform and in all the other function of the public external area of the station.



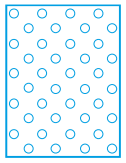
Light grey rubber

Material and color
Tactile should be easy to detect due to the high visual contrast with the floor. Black color was used to ensure this contrast with terrazzo Light grey floor. Due to the rubber material, the tiles are non-slip even in moist conditions, they are wheelchair-friendly and eliminate the tripping hazard. The tiles are glued onto existing floors or surfaces without damaging them.

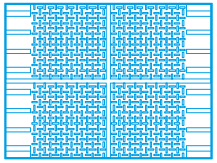




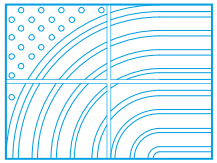
Straight



Stop / Danger



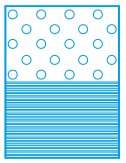
Crossroad



Turn



Service

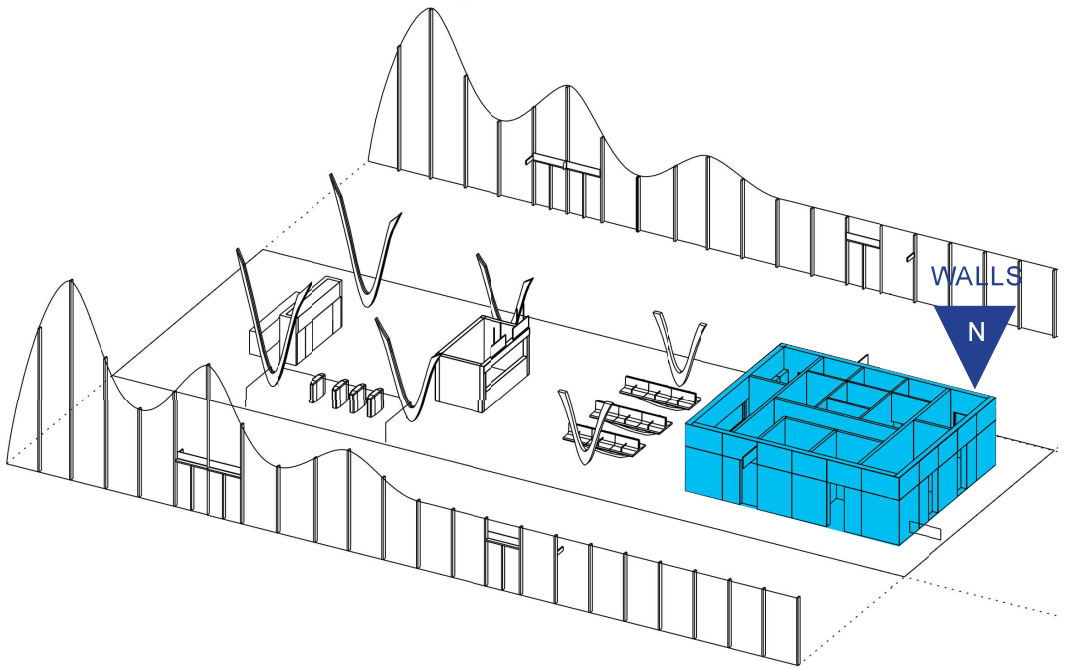


Feasible Danger

Wall

B1.11

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Floor			

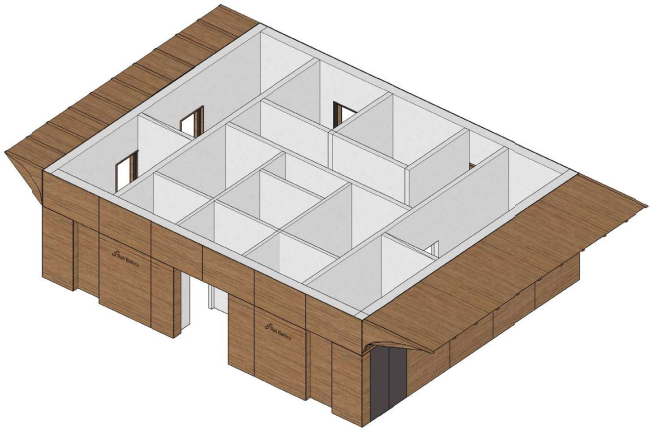
Wall

B1.11

Concept Design

Design of the station's back of house walls is elegant and efficient.

Design of the station's back of house walls to the traditional Baltic constructions utilizing the same materials but differs in form using baltic waves as a direct inspiration behnind parametric design.









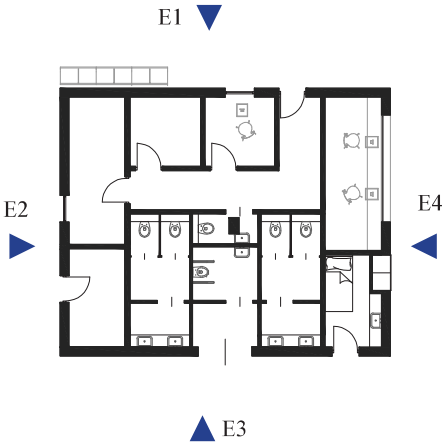
Pictures
From left
Image 1 - *Credits: SBS Engineering*
Image 2 - *Credits: pixabay.com*
Image 3 - *Credits: wikipedia.org*

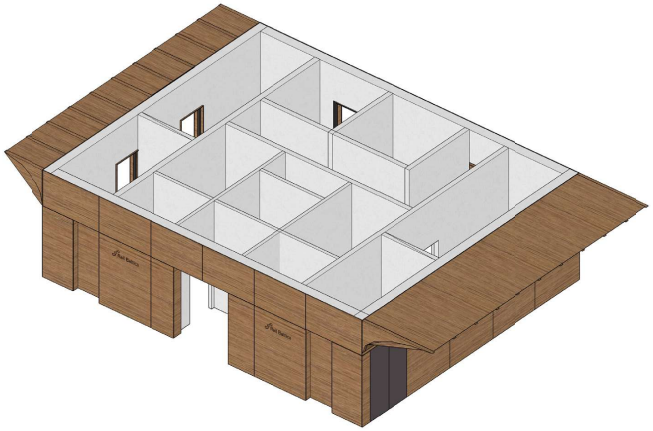
Wall

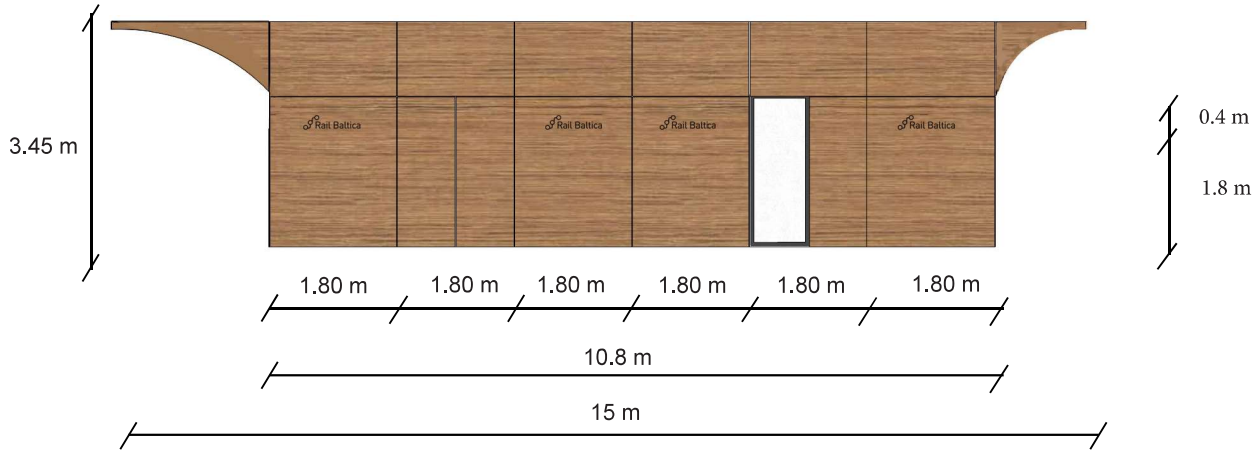
B1.11

Geometry

Front of house Internal wall system cladding







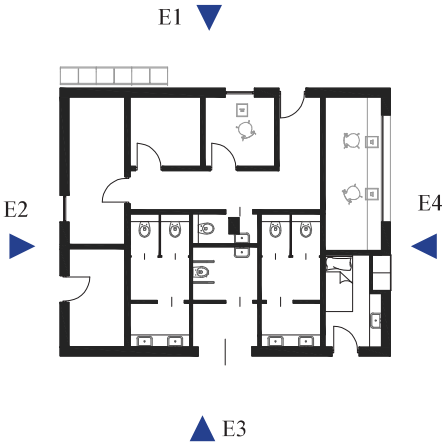
Note
For Rail Baltica visual identity instruction, please refer to *Facade chapter*

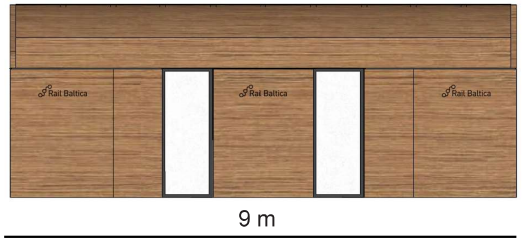
Wall

B1.11

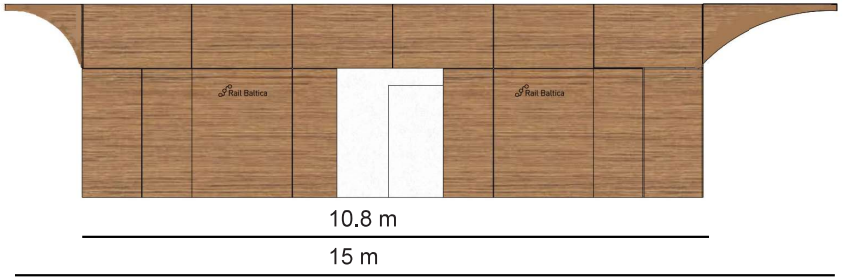
Geometry

Front of house Internal wall system cladding





E2



E3



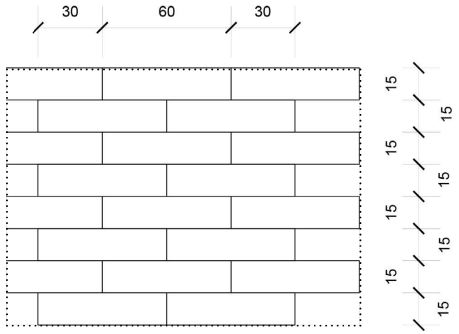
E4

Wall

B1.11

Materials

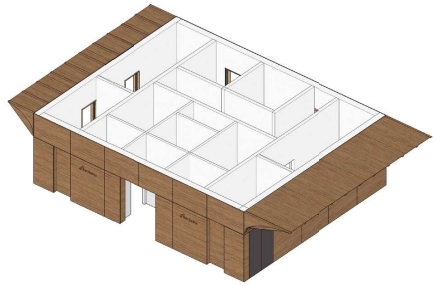
Front of house Internal wall system cladding utilises wooden panels, ceramic tiles and plaster.



Tiles positioning



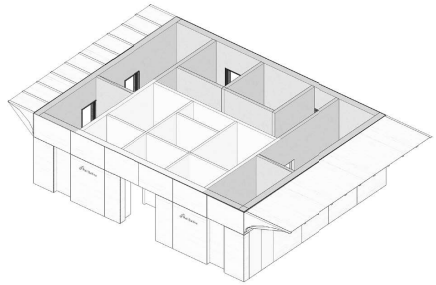
Laminated wooden panels



Back of house wall finishes:



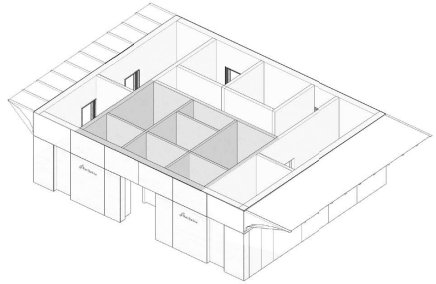
Plaster with paint finish



WCs wall finishes:



Ceramics tiles 15 x 60 cm



Wall

B1.11

Branding Implementation

Wooden panels allow easy implementation of the branding as well installation of the Signage.

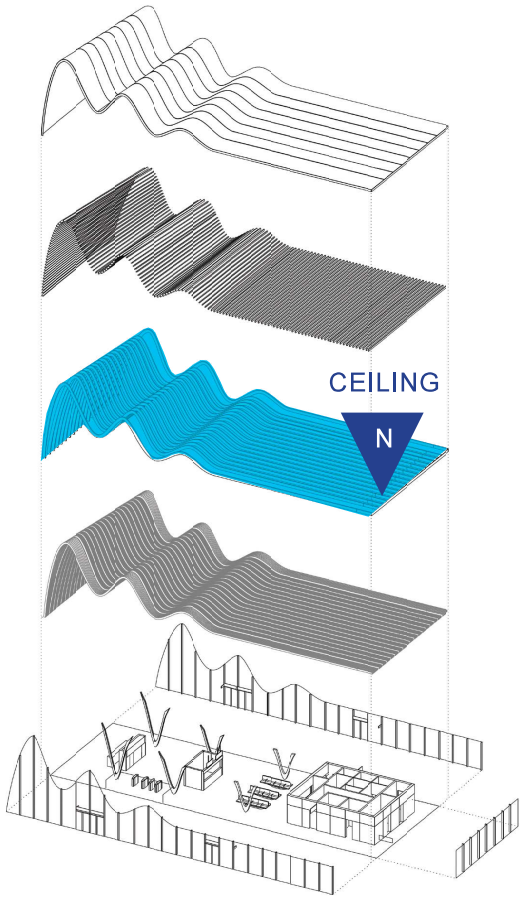


Note
For Rail Baltica visual identity instruction, please refer to *Visual Identity Guidebook*

Ceiling

B1.12

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Ceiling			

Ceiling

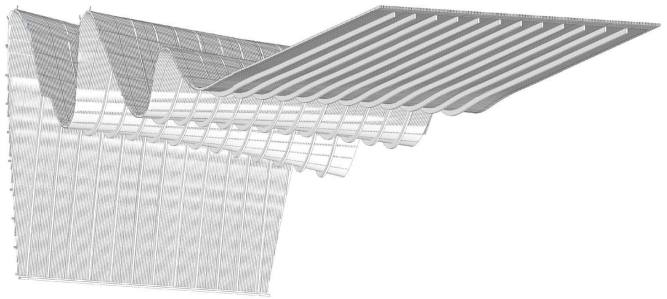
B1.12

Concept Design

The roof and ceiling is an important element of the construction. The proportions between the building's walls and the roof height are very important. Traditionally, the roof takes an exceptional place in building construction and its construction has been allocated about two-thirds of the total building height. Traditional buildings were either covered by a tent roof, a double pitch roof, or a double pitch roof with hip ends. Design of the station's roof refers to the traditional Baltic constructions utilizing the same materials but differs in form using baltic waves as a direct inspiration behind parametric design.

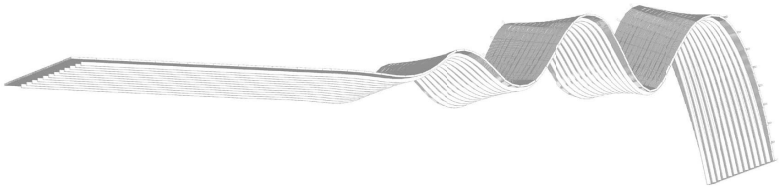
Traditional house





Baltic Sea





Pictures
From left
Image 1 - *Credits: SBS Engineering*
Image 2 - Credits: wikipedia.org

Ceiling

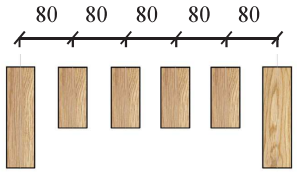
B1.12

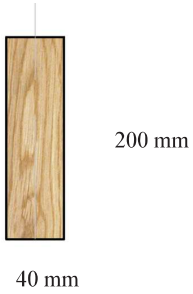
Materials

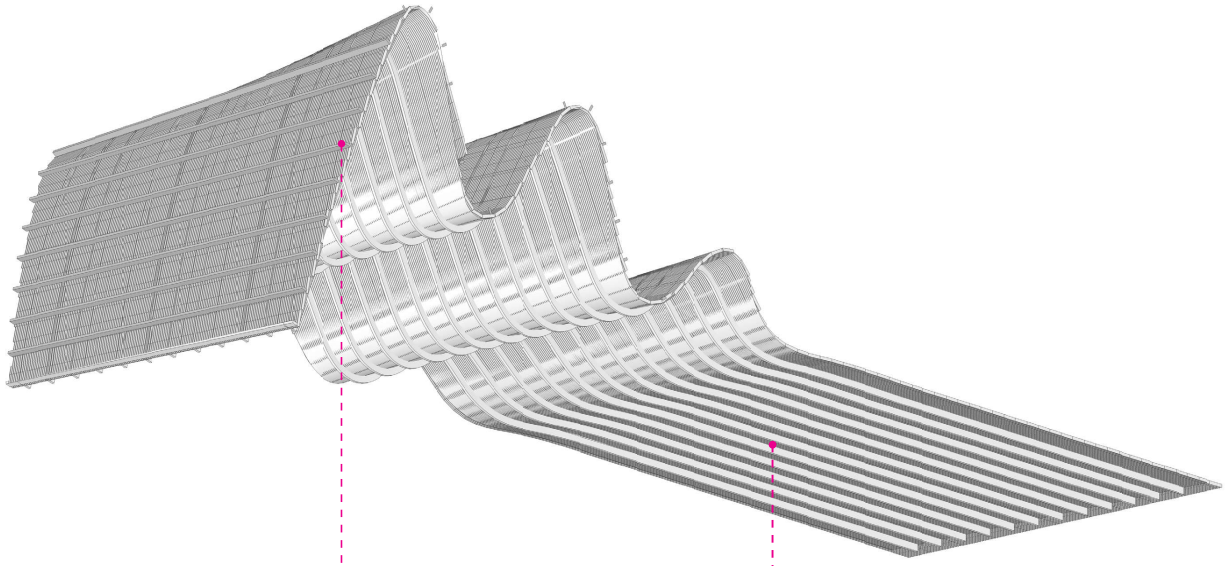
Wooden soffit

size - 200 x 40 mm

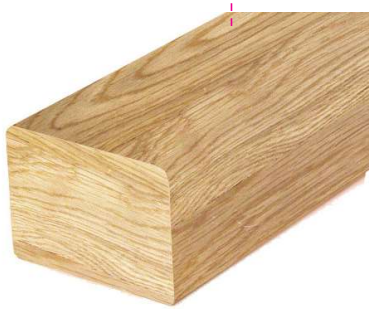
regular module of 80 mm







Glued laminated timber ribs



Glued laminated timber Soffit

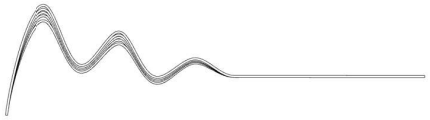


Ceiling

B1.12

Lighting

Incorporated into wooden soffit





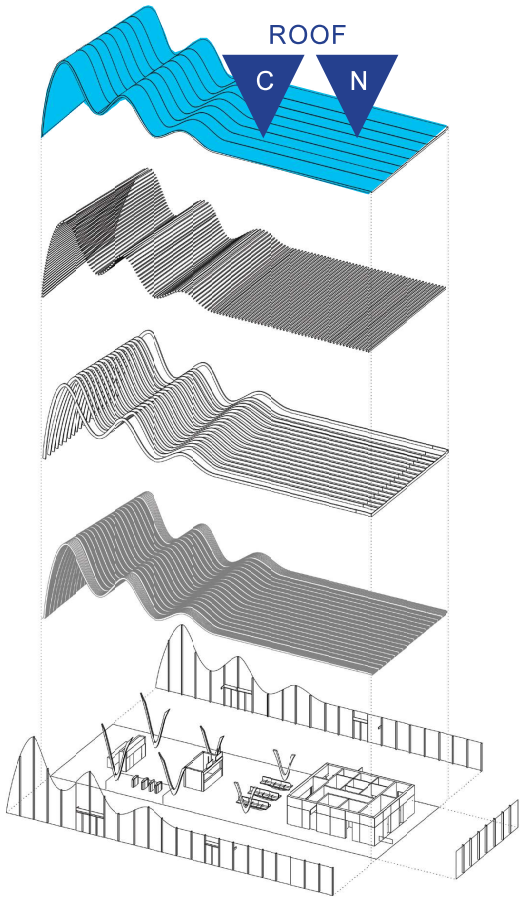


Continuous LED light

Roof

B1.13

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Roof			

Roof

B1.13

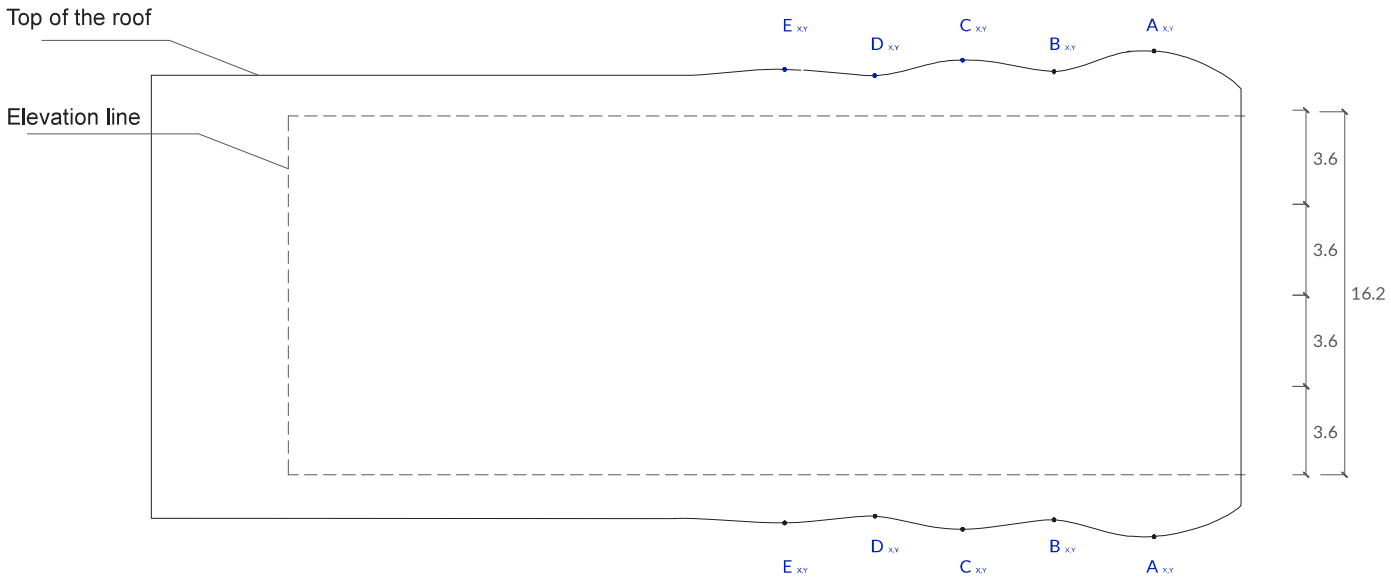
Geometry

Point A is generated from the cut of the side plane at an angle of 82°

Point B is generated from the cut of the side plane at an angle of 82°

Point C is generated from the cut of the side plane at an angle of 82°

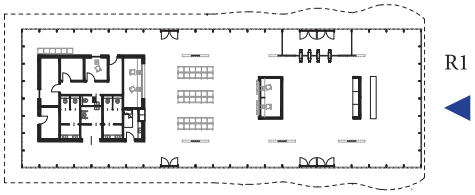
Point D is generated from the cut of the side plane at an angle of 82°

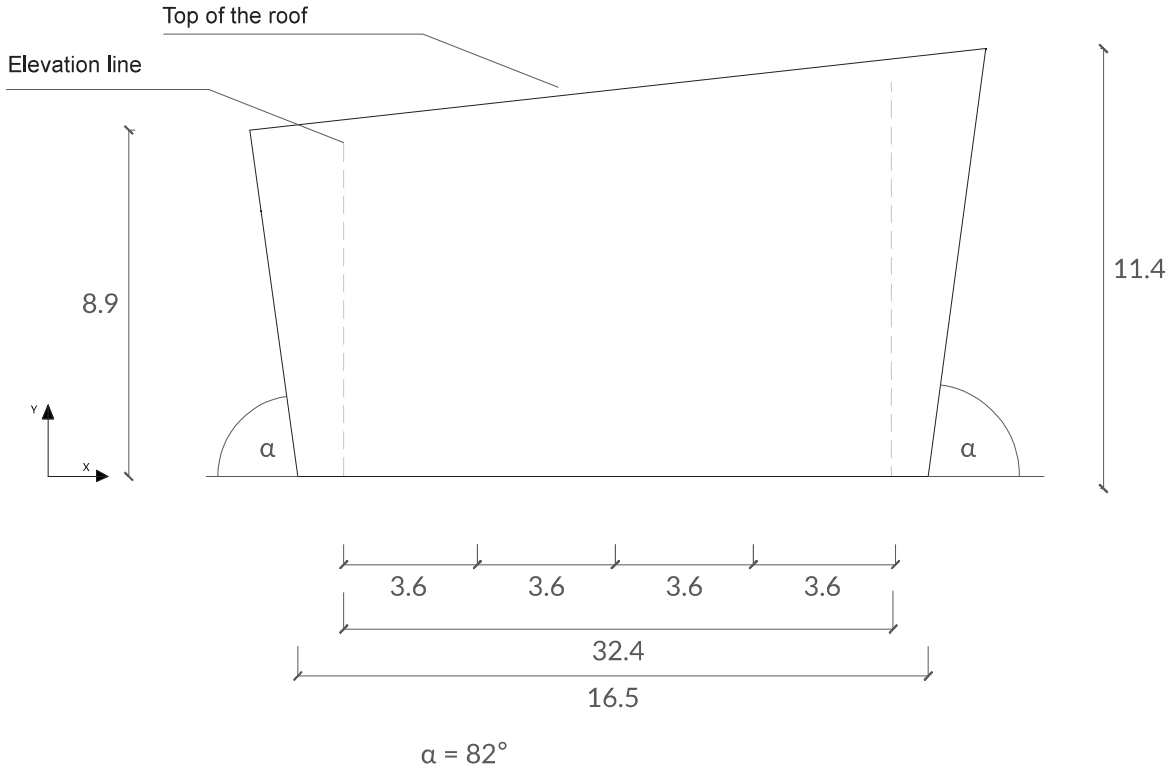


Roof

B1.13

Geometry





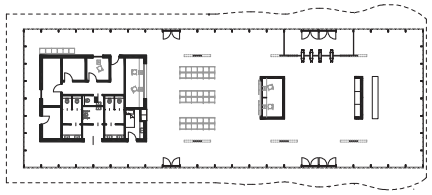
R1 East elevation

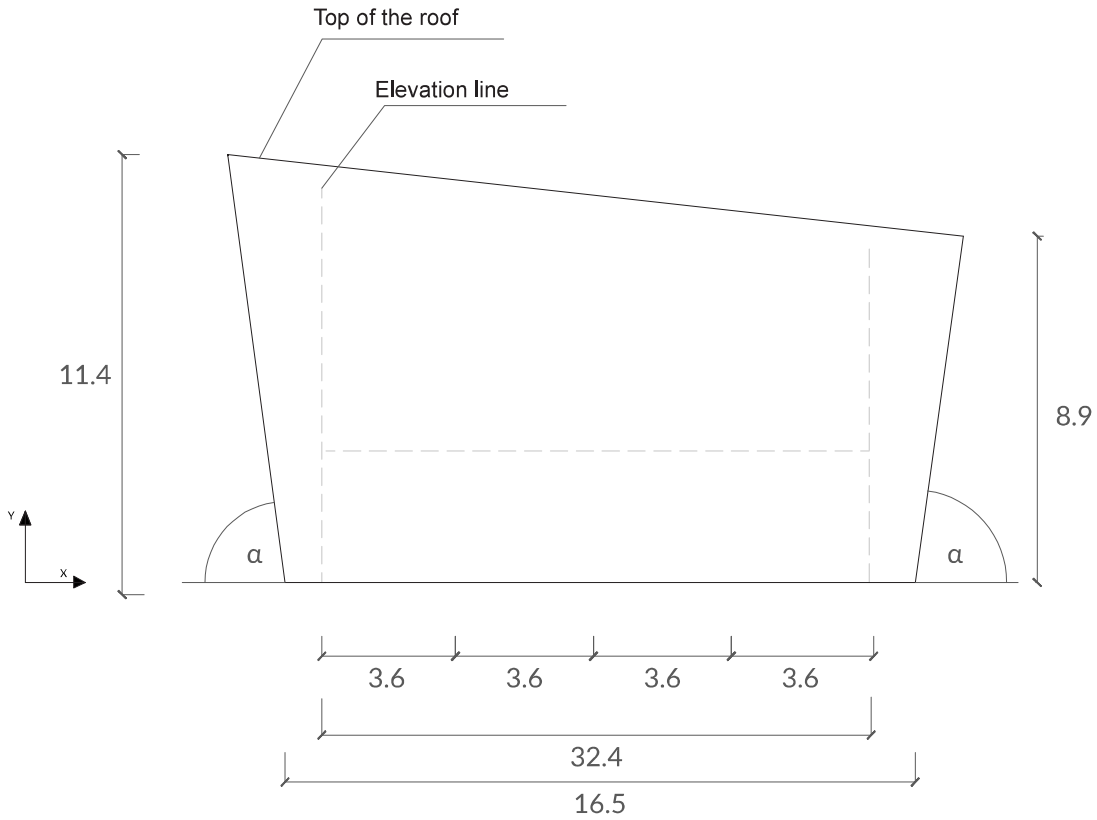
Roof

B1.13

Geometry

R2





R2 West elevation

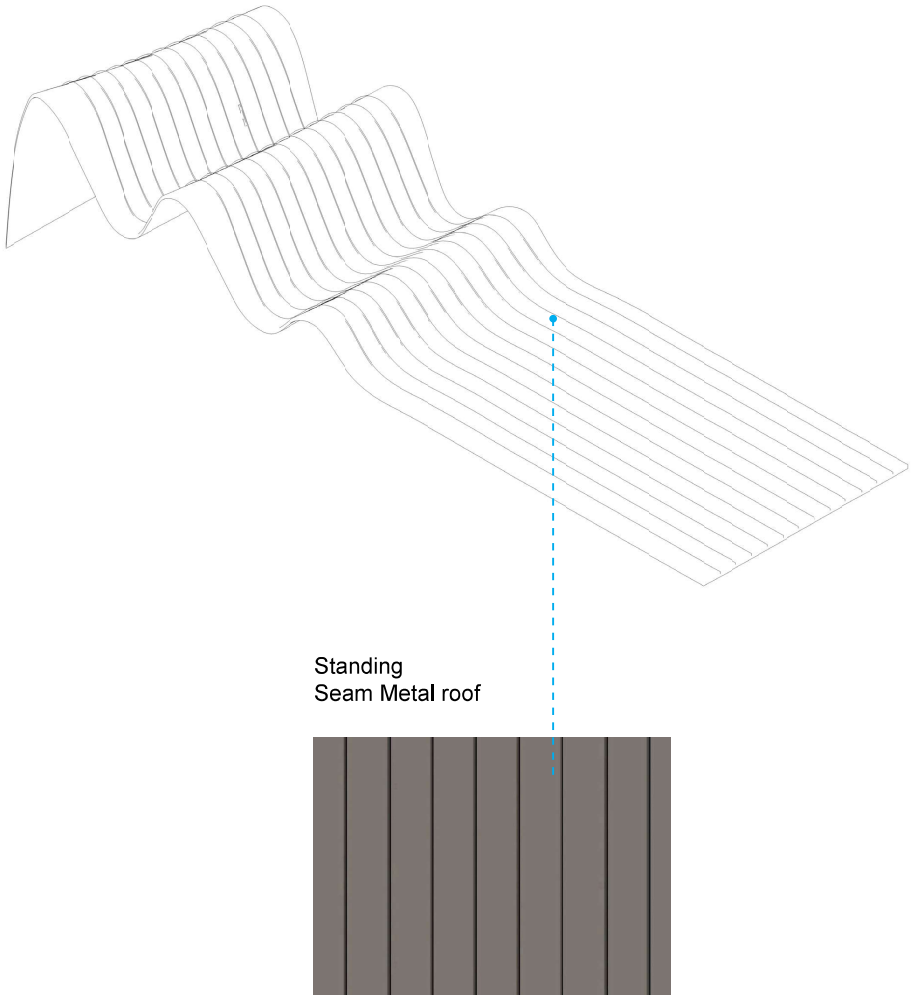
Roof

B1.13

Materials

A standing seam roof is among the most durable and maintenance-free type of any metal roof. Standing seam roofing provides additional energy reduction benefits and can be installed easily, in many instances over the existing roofing material.

Metal roof requires no or very little maintenance over the years and is able to withstand substantial wind pressure. It also offer fire resistant properties and will not collapse due to heavy water or snow loads. The metal reflects the sun's rays, which in turn reduces heat transfer so it will lower cooling costs in summer.

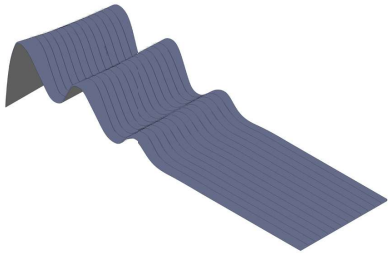


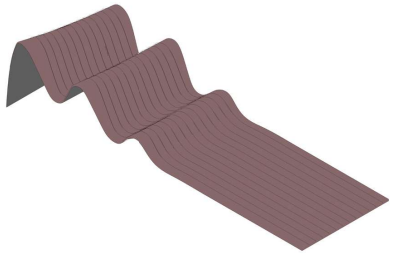
Roof

B1.13

Identity Approach

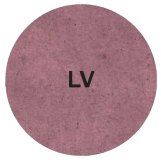
Designers will ensure to apply the country identity through the color on the roof of the station.

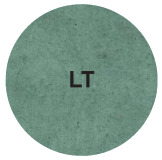


















Signage & Wayfinding

B1.14

Passenger Information
Station must have an accessible and legible design for passenger information and wayfinding which requires minimal signage and are well integrated with their surroundings. The philosophy underlying signing and passenger information at stations should be that of clarity, consistency and coherence in order to guide people through the stations in a steady, convenient and safe manner helping to ensure station users have a positive, stress-free experience. This philosophy supports a well-planned and well laid out station, and is integral to its design.

Information is a fundamental requirement for a positive passenger experience. Information can serve multiple uses including: rail services, station and facility opening hours, maps of the local area and information for interchange modes. Information should be delivered across the full range of media including audio, visual and tactile to meet with the needs of all interchange facility users.



Material
Geometry
Modularity
Color
Vegetation

	N	C	R
Signage			

Signage & Wayfinding

B1.14

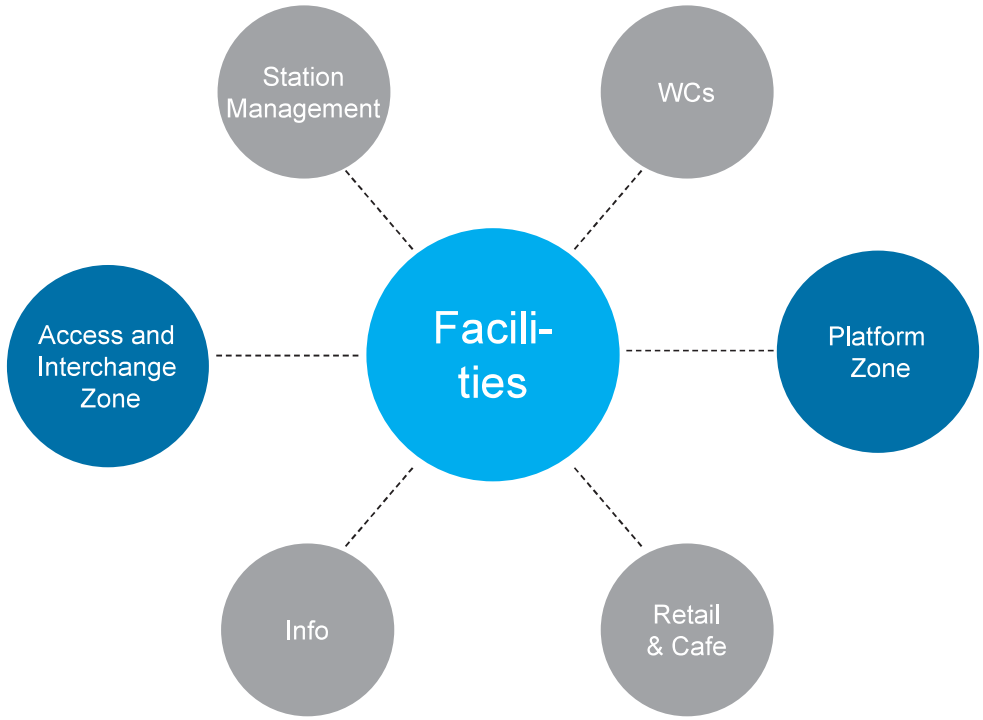
Signs must be positioned where people need them most. These locations are generally route decision points, such as entrances, exits and junctions. Decision point signs normally provide directional information to way out routes, inter-modal transport connections, platforms and key facilities. Integrated wayfinding minimises physical obstructions to movement and helps station users.

General rules are:

• Design wayfinding to be seamless to help passengers move between different locations, using all modes of transport in one continuous journey.

• Design routes to be simple and legible requiring minimal signing by integrating spatial planning, lighting and surface finishes alongside other building elements such as public art and landscaping.

• Wayfinding signage must always take visual priority over other information and its view must always remain unobstructed from key reading directions.

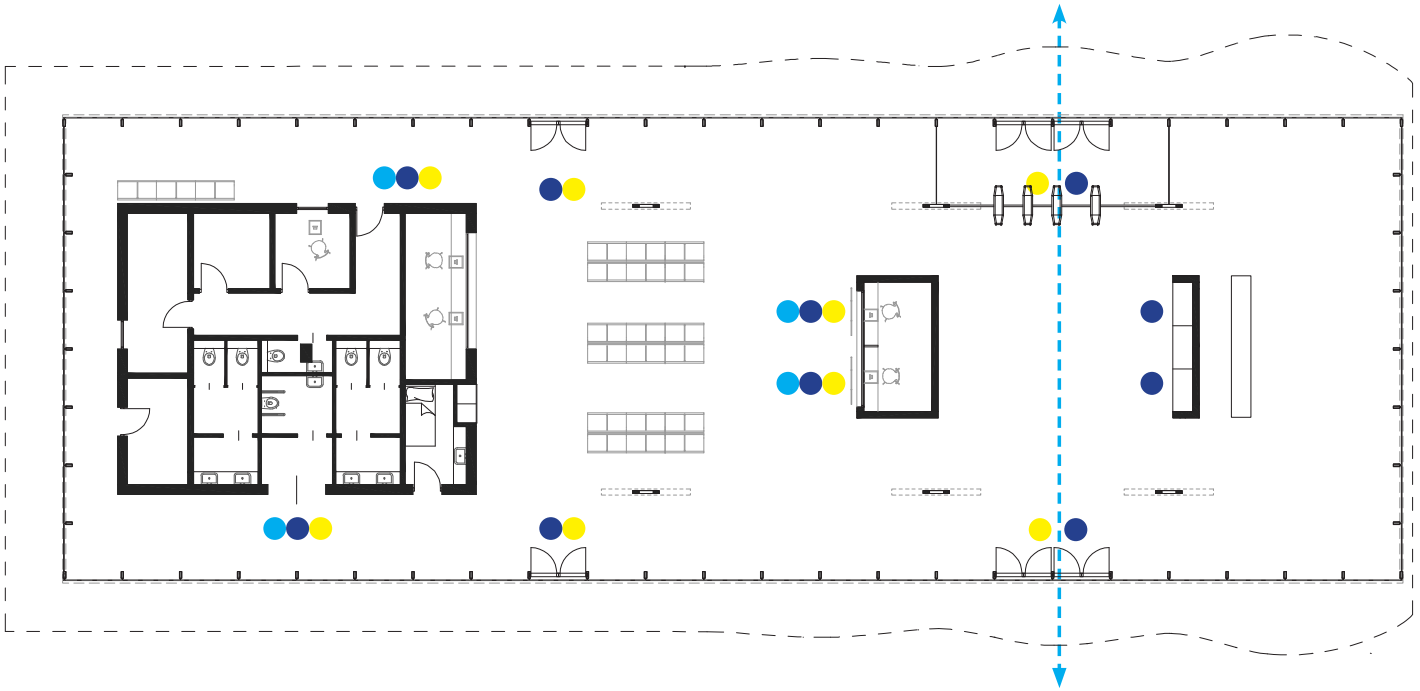


Signage & Wayfinding

B1.14

Signs shall be placed perpendicular to sight lines.

For signage design please refer to Book G.



Legend

- Identification Sign
- Directional Sign
- Information Sign
- Main pathway

Furniture

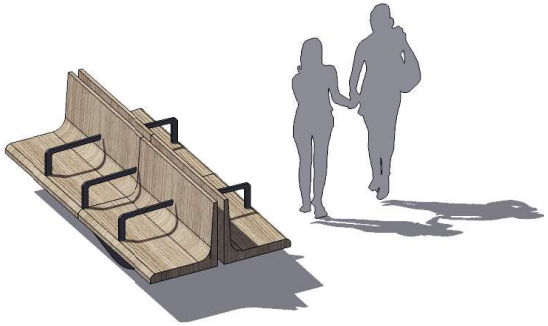
B.15

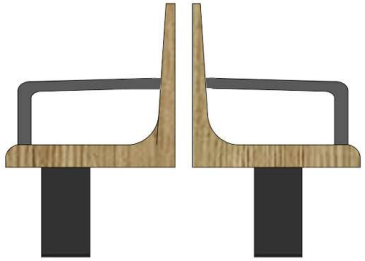
Furniture for station
Modular seating systems for public areas could be provided. Solutions could be made with individually shaped wood slats that can be joined to form a range of seating configurations and to have its own design.

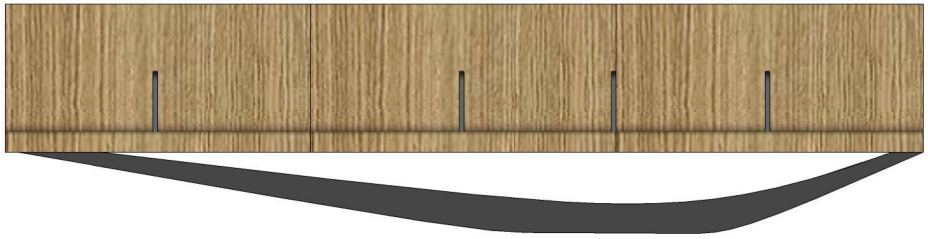
The modular furniture shall be made to fit any space. Customized furniture will include workstations and device chargers, which aim to improve customer satisfaction and sales and to be used in Stations Type I and Type II.

The furniture must provide railway seating comprising durable materials in ergonomic, durable and sustainable designs and shall enhances public spaces by providing them with identity, meaning and function.





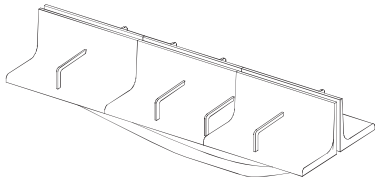


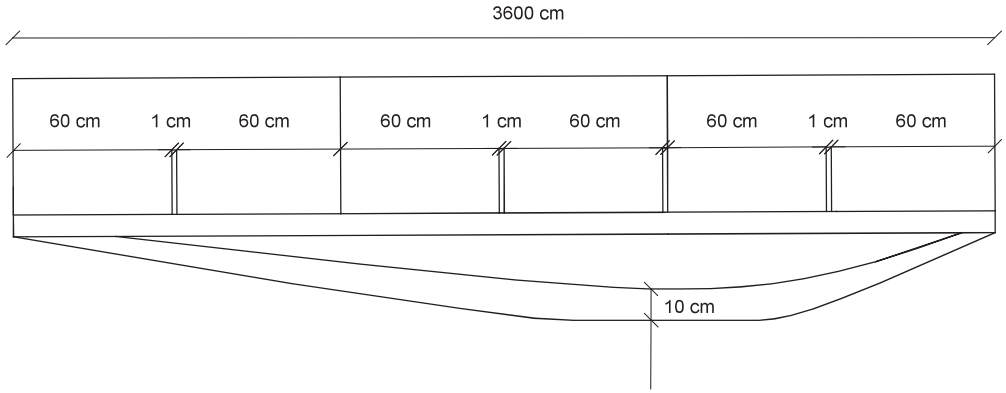


Furniture

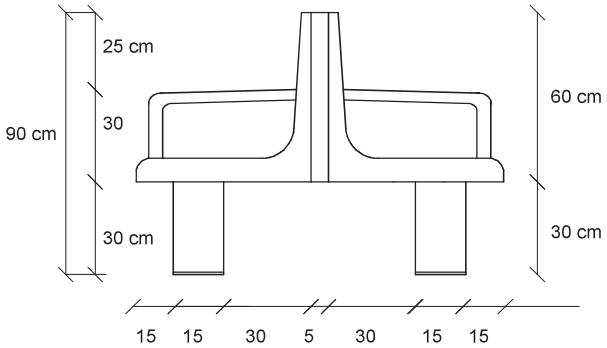
B.15

Technical Details





Front View

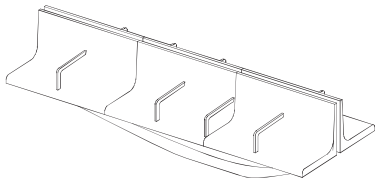


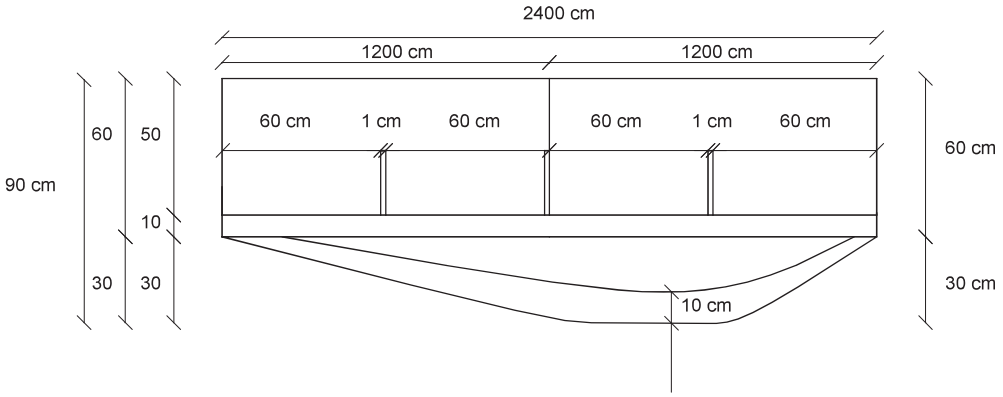
Side View

Furniture

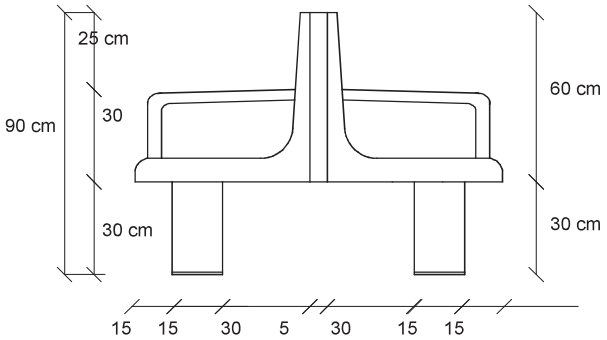
B.15

Technical Details





Front View



Side View

Equipment

B1.16

Principles

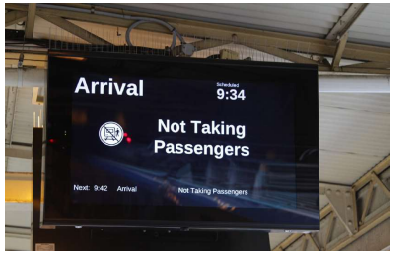
Although many passengers have tickets when they arrive at the station, they should be able to buy tickets, renew their monthly card, download discount cards or collect paper tickets. Ticket machines should, therefore, be provided at type I, type II, type III and type IV stations. The biggest stations should also house a staffed ticket booth for selling tickets manually.

Ticket vending machines should to be placed so that they do not interfere with either traveller flows or the flow of the general public through the passage. Ticket vending machines for different operators must be coordinated so that their function is clear, and they must be consciously designed.

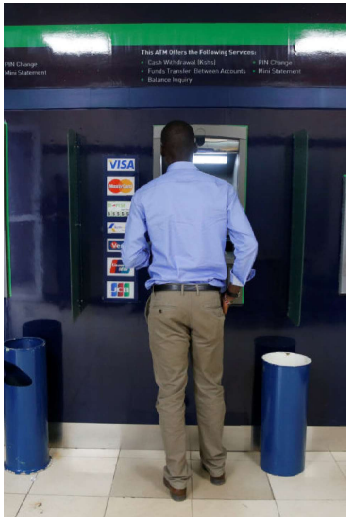
Installation of ticket machines should comply with applicable requirements of ISO 21542.

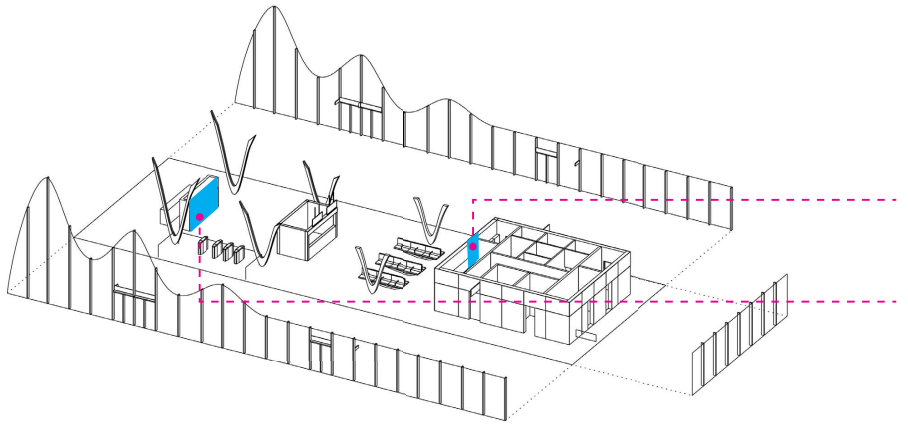












Electronic displays are distributed over the station and on the platform.

Underpass

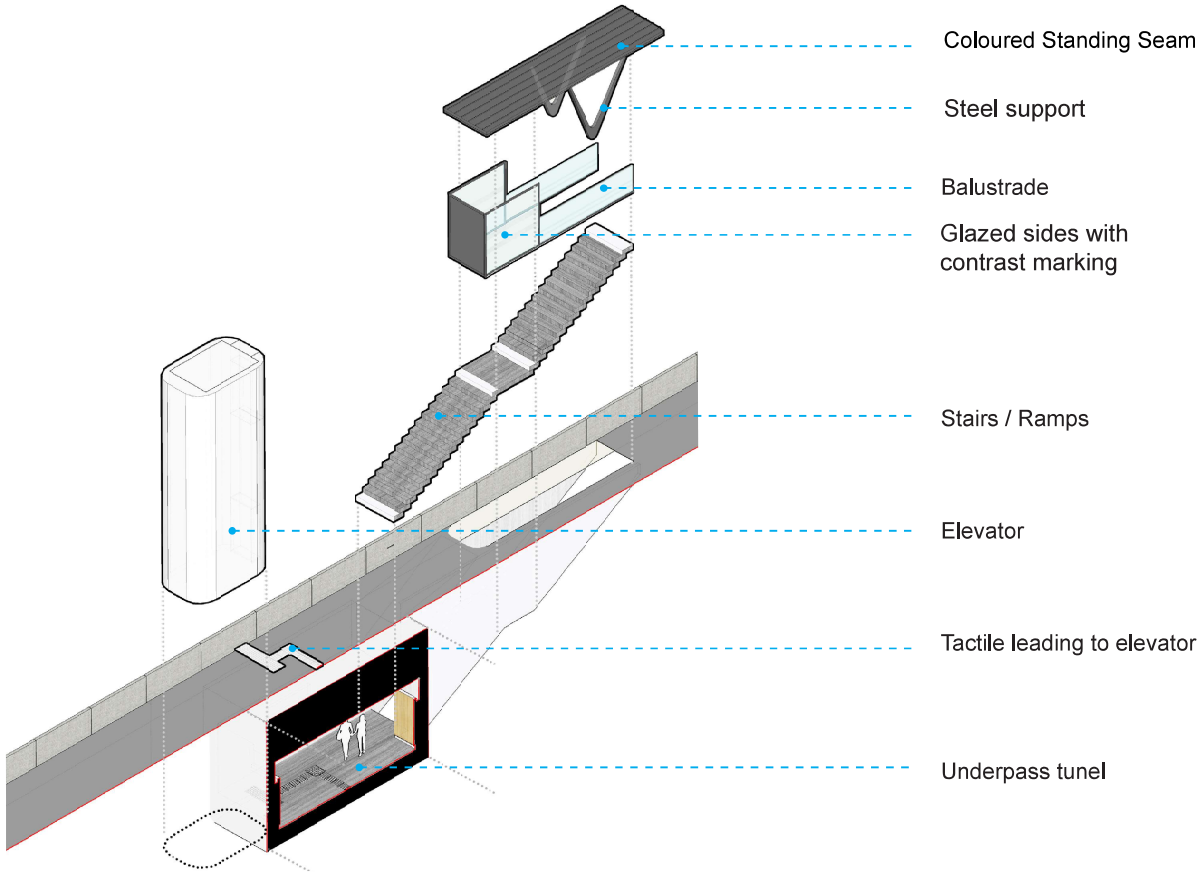
B2

B2.1 Matrix
B2.2 Concept Design
B2.3 Layout
B2.4 Materials

Matrix

B2.1

Identity Matrix



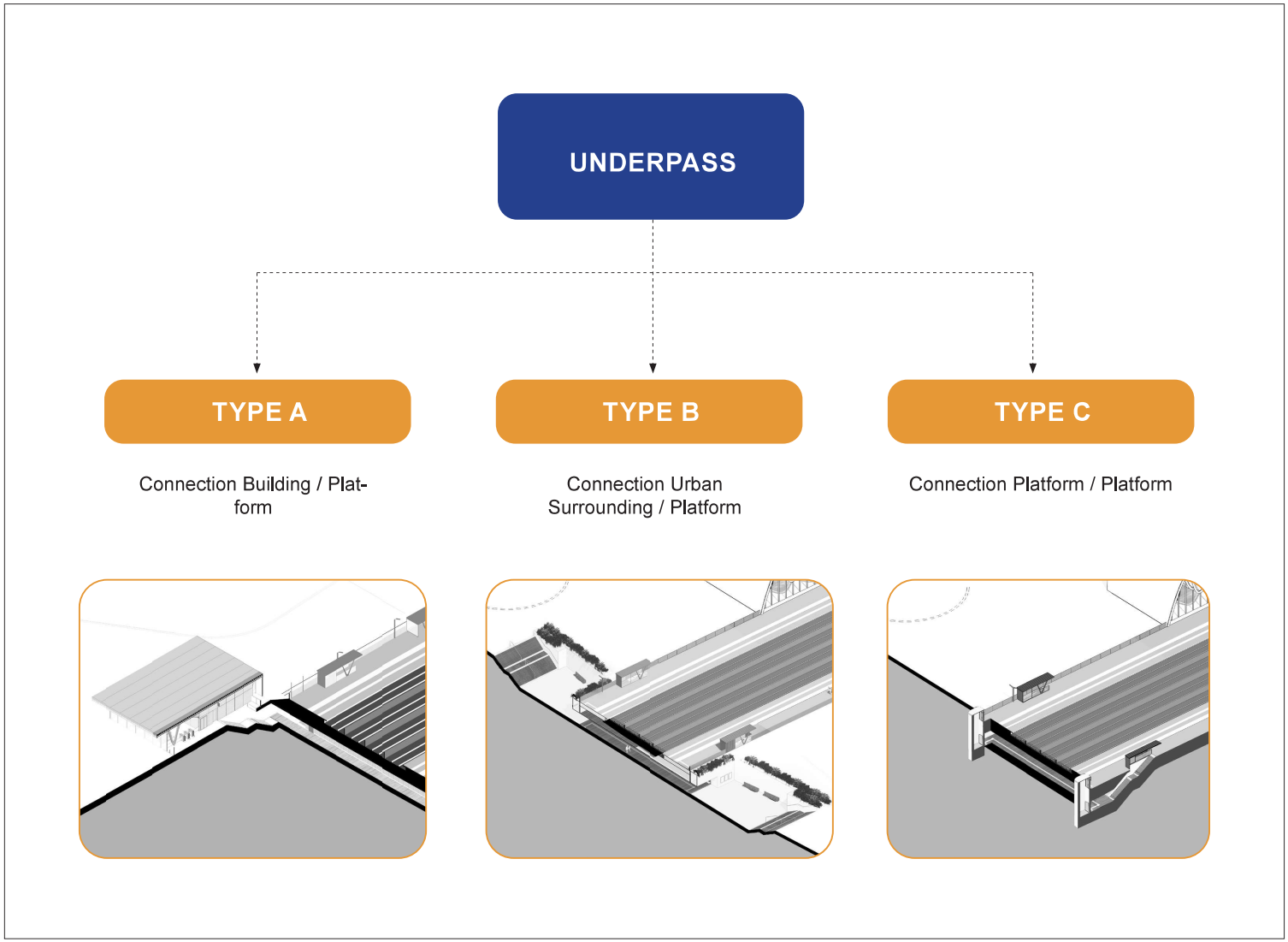
Material
Geometry
Modularity
Color
Vegetation

	N	C	R
Underpass			

Concept Design

B2.2

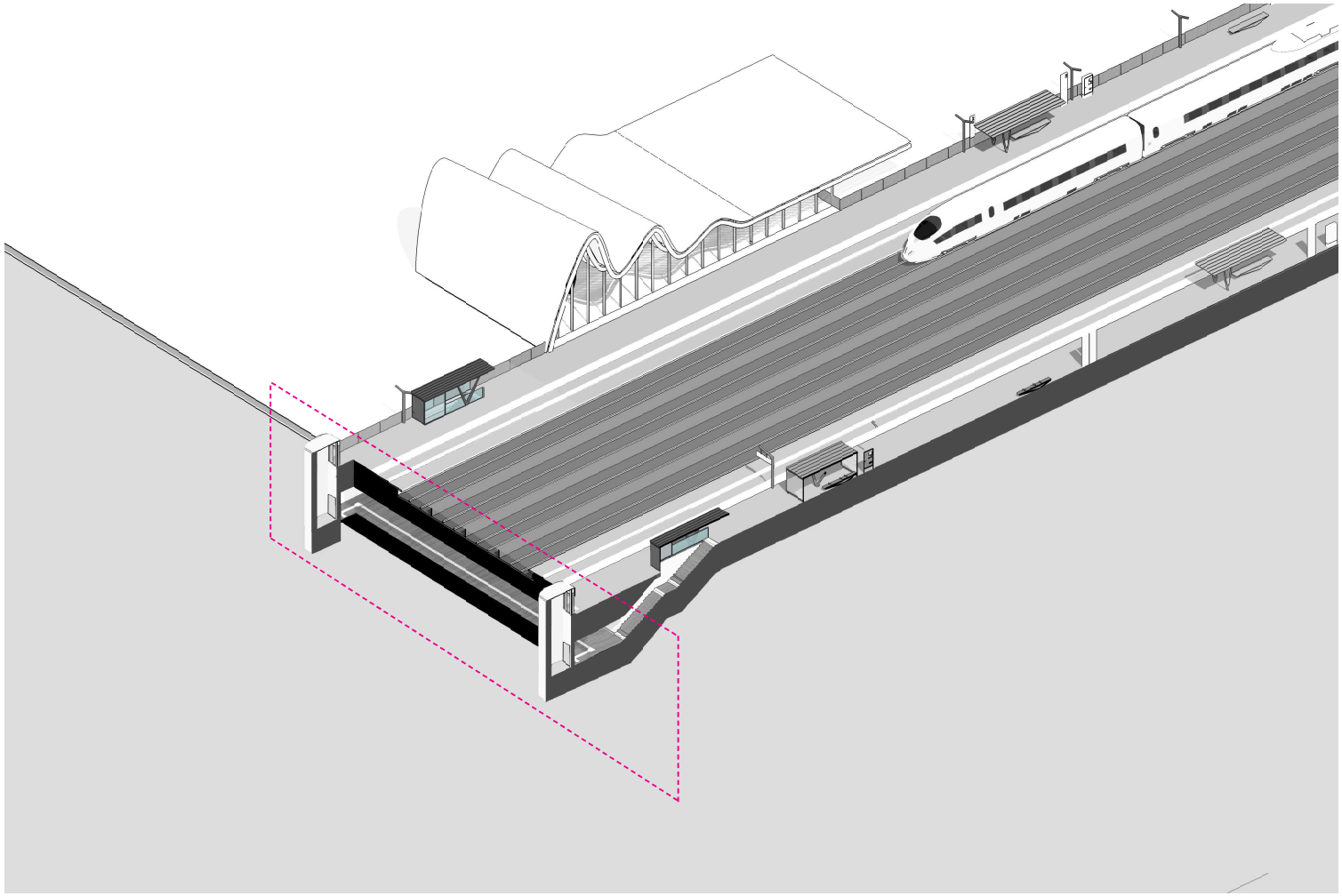
Designers, considering specific site conditions, can define and select the best type of underpass to use to connect the platforms with the station building and the urban context.



Layout

B2.3

Type A Overview

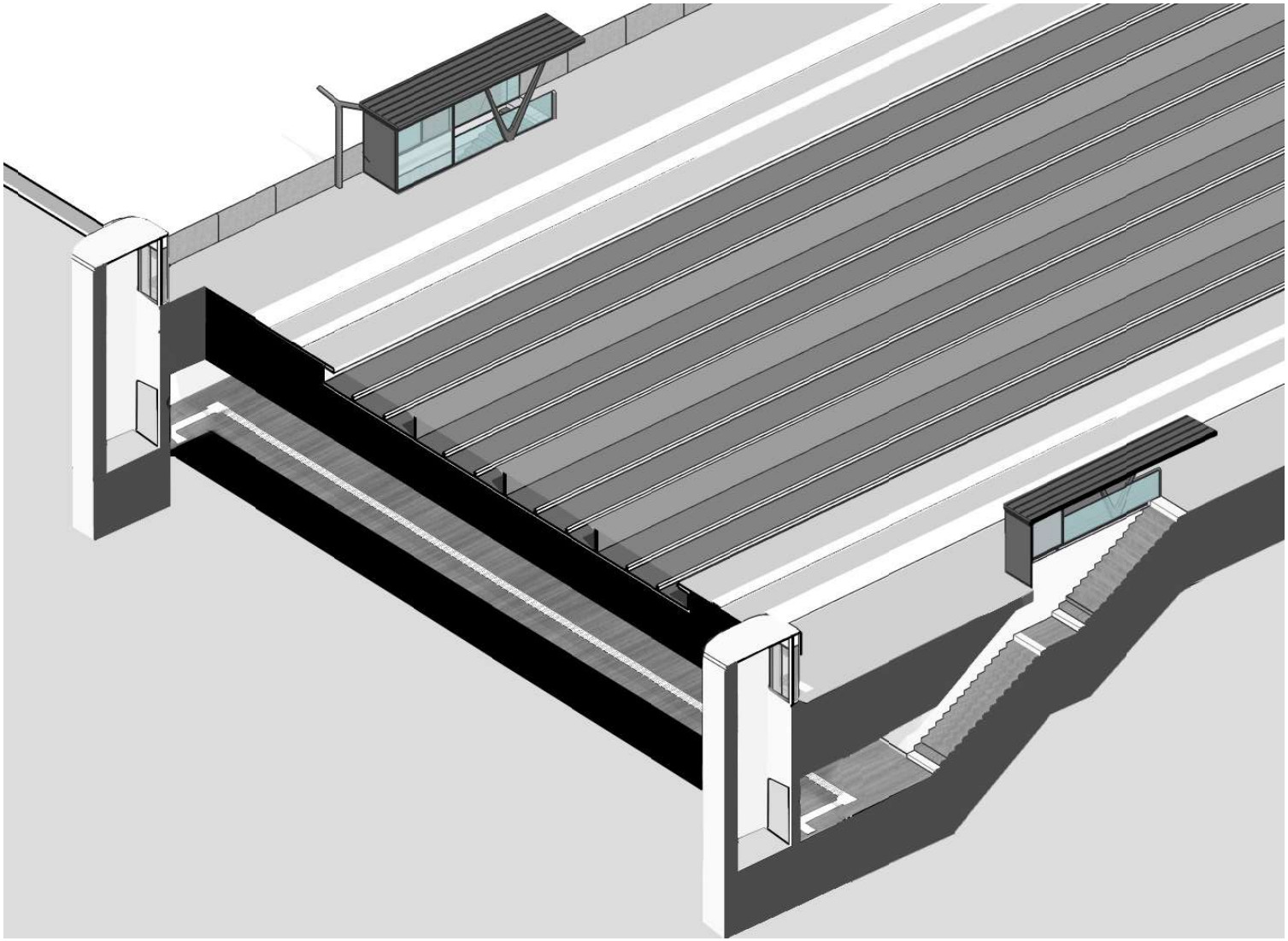


Layout

B2.3

Type A

Underpass as all other Station elements refers to the traditional materials form Baltic countries, underlining the connection between the three countries but also emphasizes the idea of using sustainable materials. Its logical shape allows to commute easily between different platforms.

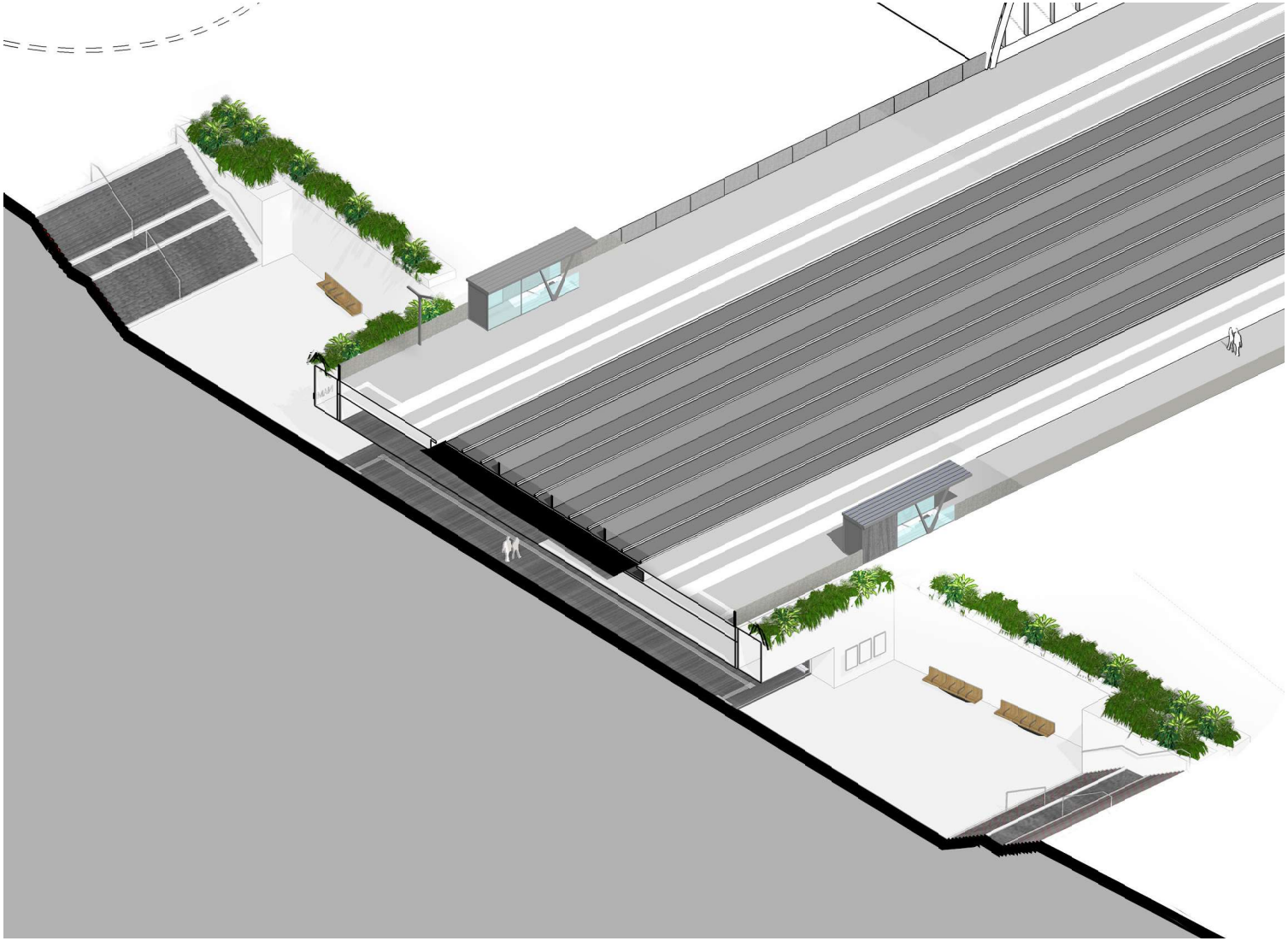


Layout

B2.3

Type B Overview

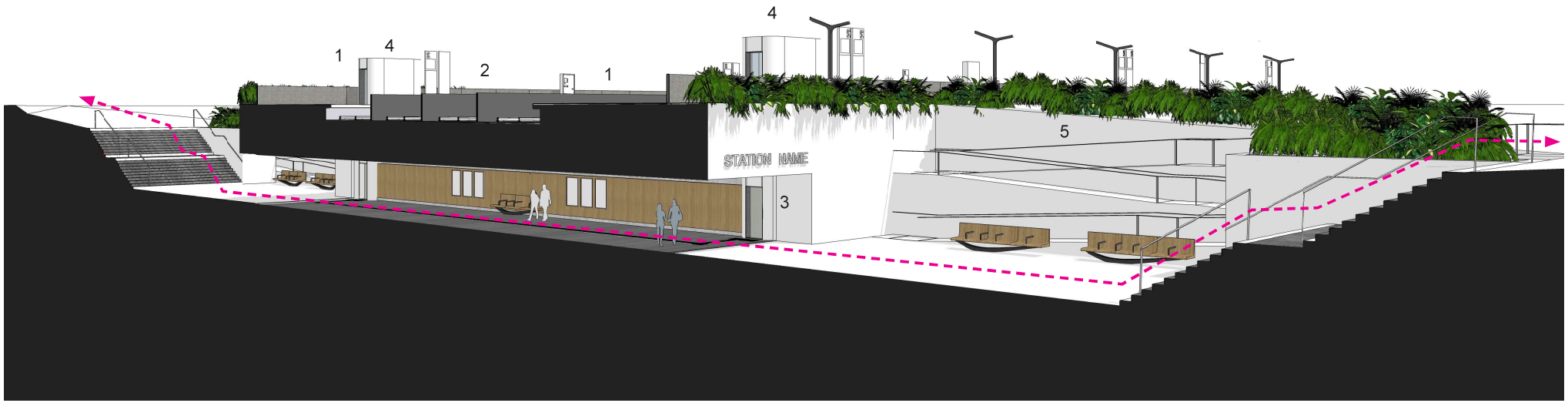
In most cases, platform connections under railway tracks also involve a connection between the parts of the city/community located on different sides of the railway. Properly located and designed, a passage under the tracks can provide a natural and comfortable link that, in many cases, also provides a transit route for cyclists. Passage location has a significant impact on station function. A central location along the platform will shorten travellers' walking times to the right carriage on the train. How the interior of a passage is designed plays a significant role in how it is perceived as both a station entrance and a city thoroughfare.



Layout

B2.3

Type B



Legend
1. Platform Walkway
2. Tracks
3. Underpass entrance
4. Elevator
5. Platform
6. Ramp

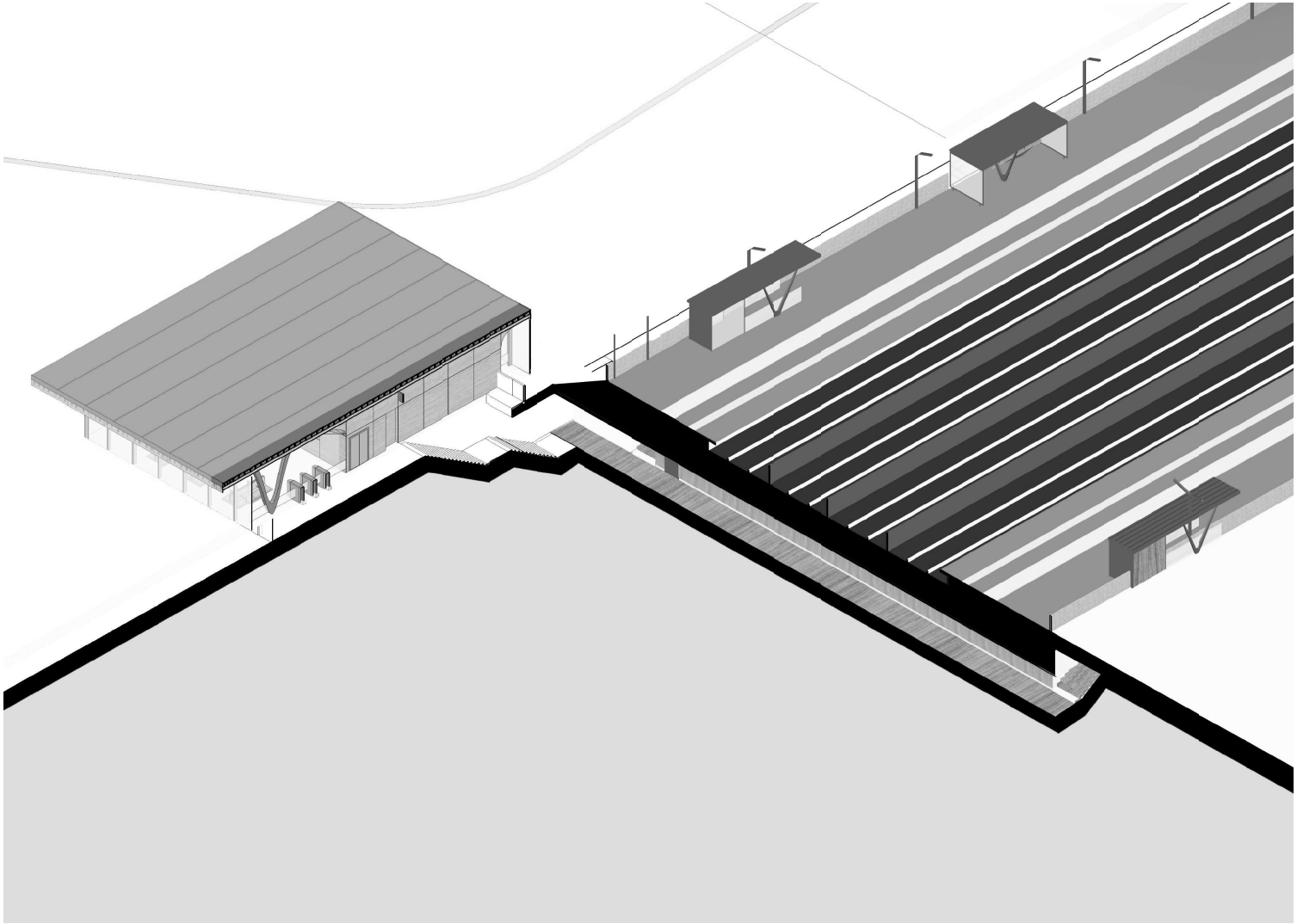
Flow of passengers

Layout

B2.3

Type C Overview

As the passage under the tracks can be the first interaction with a station, it is important for it to be designed in a way that contributes to a positive and welcoming 'first contact'. Through judicious use of materials and lighting, as well as elements of artistic inspiration, the passage can give travellers the best possible first impression and give a station and the town/city a distinct identity.

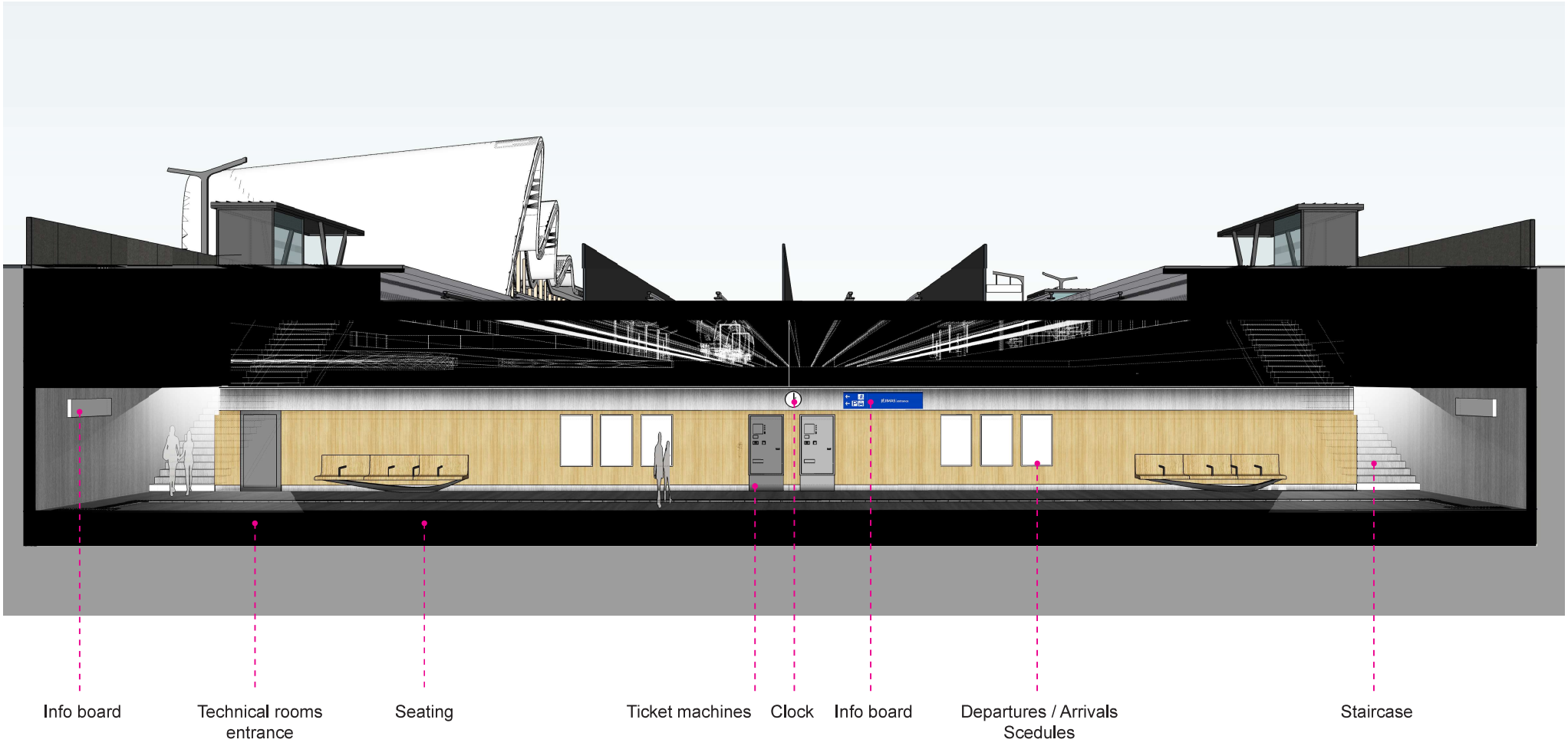


Note
Plan of station with underpass inside the building is at page 18.

Layout

B2.3

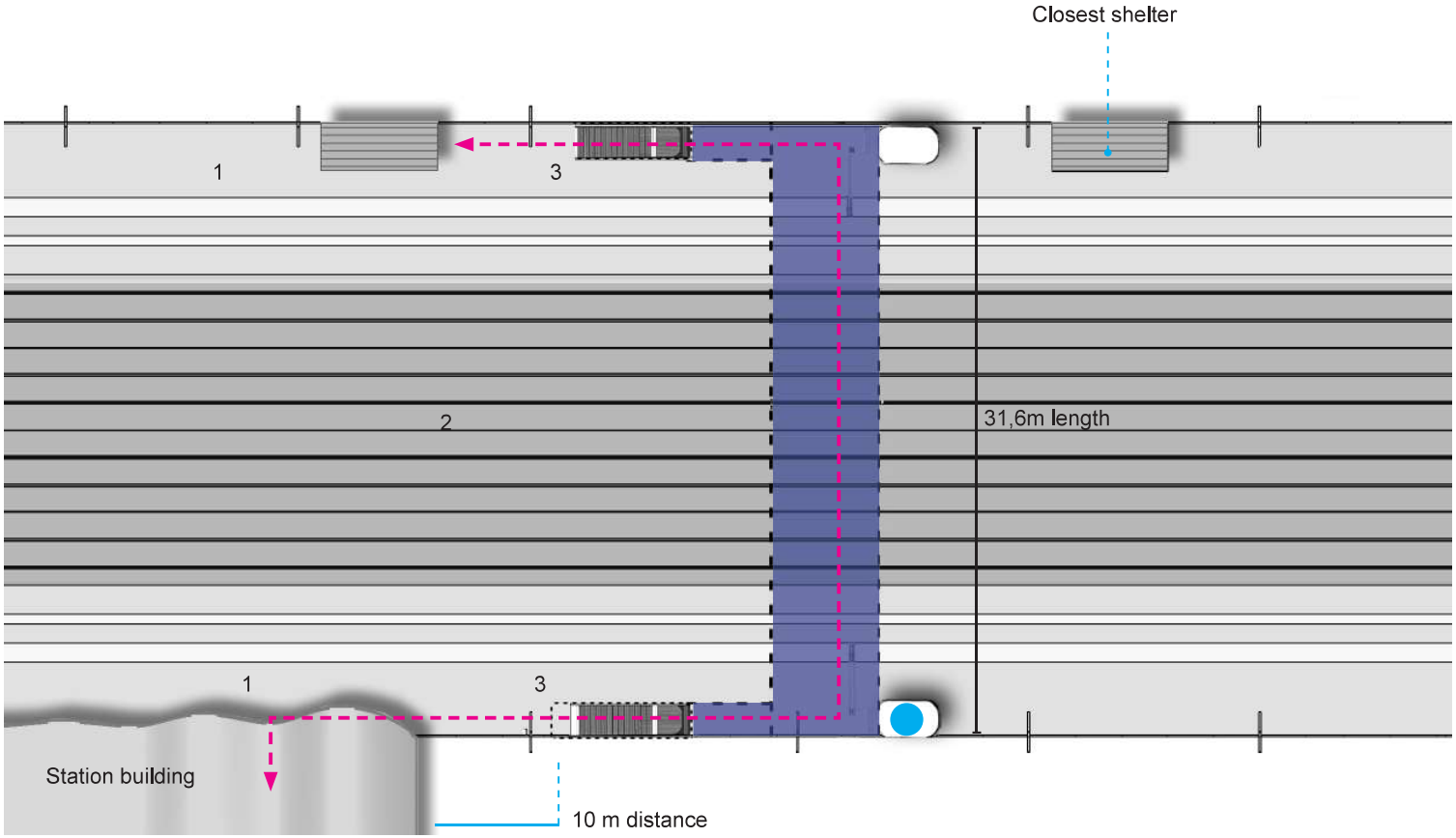
Longitudinal Section



Layout

B2.3

Route



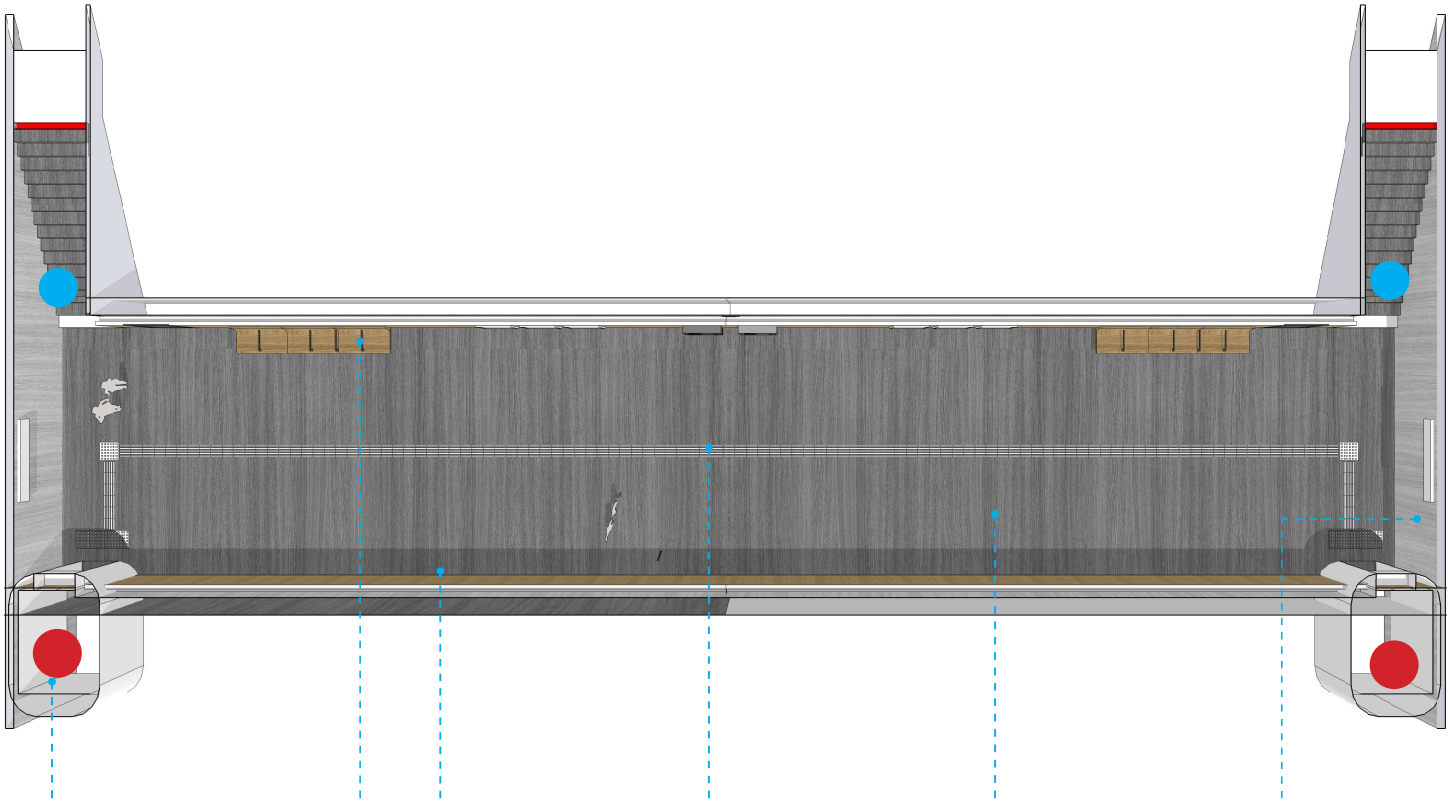
Legend
1. Platform
2. Tracks
3. Underpass entrance
4. Elevator

Flow of passengers
Underpass Floor
Elevator

Layout

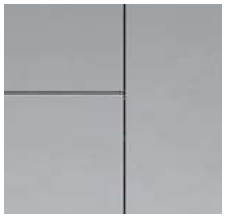
B2.3

Underpass level



Legend

- Elevator
- Staircase entrance



Metal Cladding
Lift



Laminated wood



Light Grey Concrete



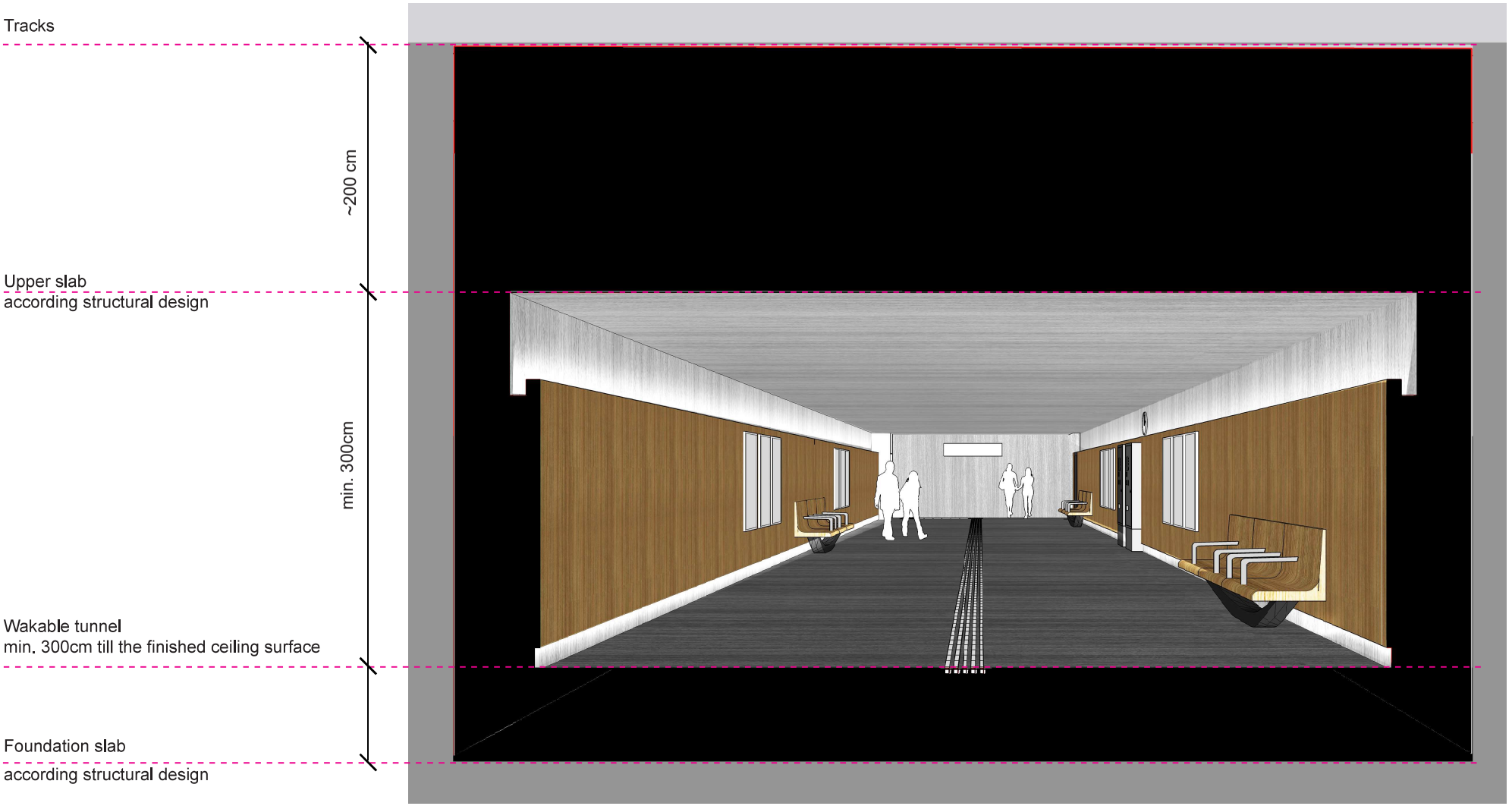
Walkway Dark
Grey Concrete



Light Grey Concrete

Layout

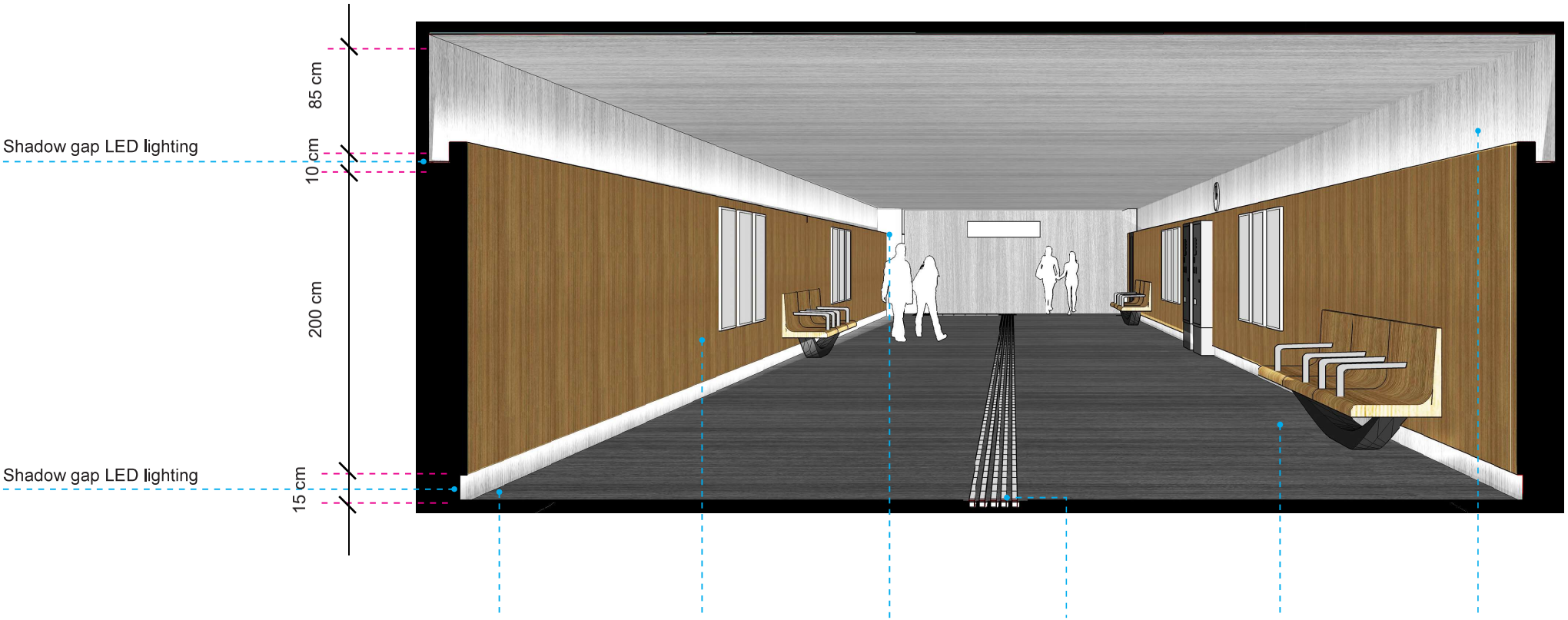
Cross Section



Layout

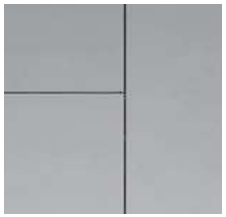
B2.3

Cross Section




Light Grey Concrete


Laminated wood


Metal Cladding
Lift


Light Grey Concrete


Walkway Dark
Grey Concrete

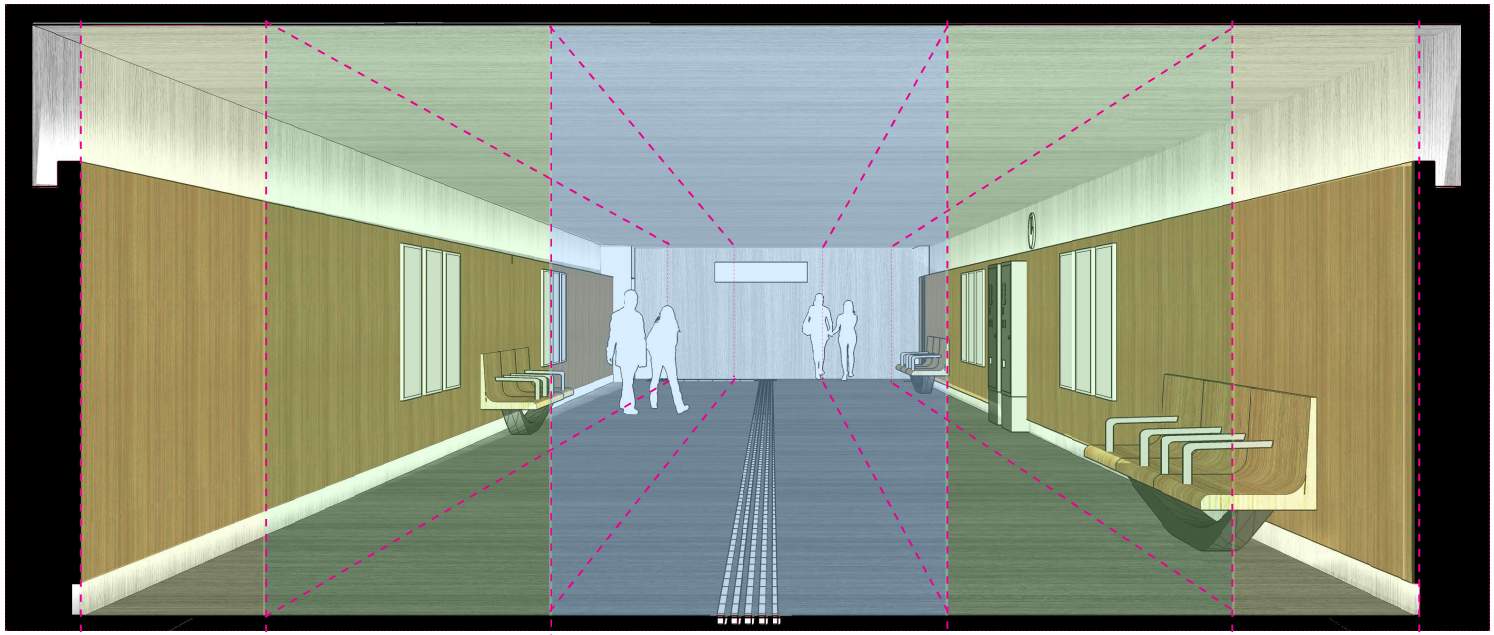

Light Grey Concrete

Note
Dimensions are only for reference. If local regulation provides different dimensions, designers have to follow that instruction.

Layout

B2.3

Zoning



Note
Dimensions are only for reference. If local regulation provides different dimensions, designers have to follow that instruction.

Materials

B2.4

Overview

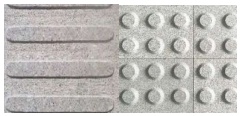
















Coloured Standing Seam Metal Roof

Panoramic Glass enclosure

Light Grey Concrete

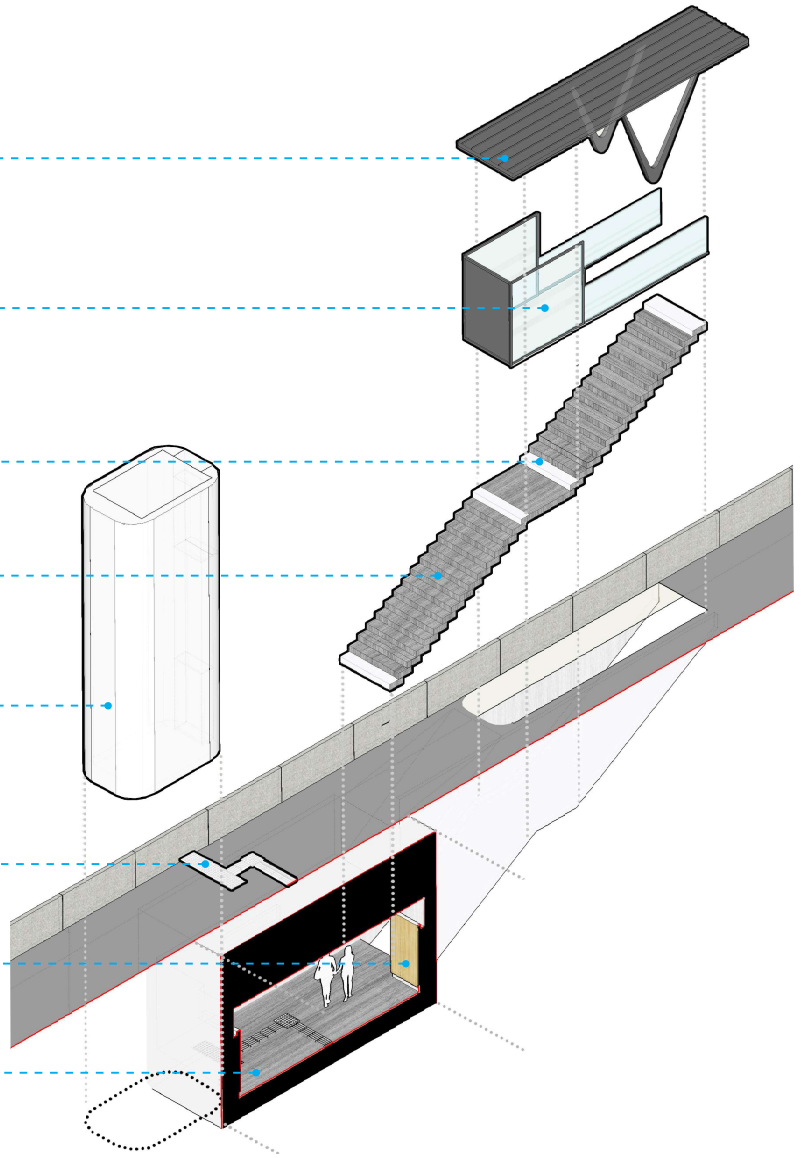
Walkway Dark Grey Concrete

Metal Cladding

Light Grey Concrete

Laminated wood

Walkway Light Grey Concrete



Platform

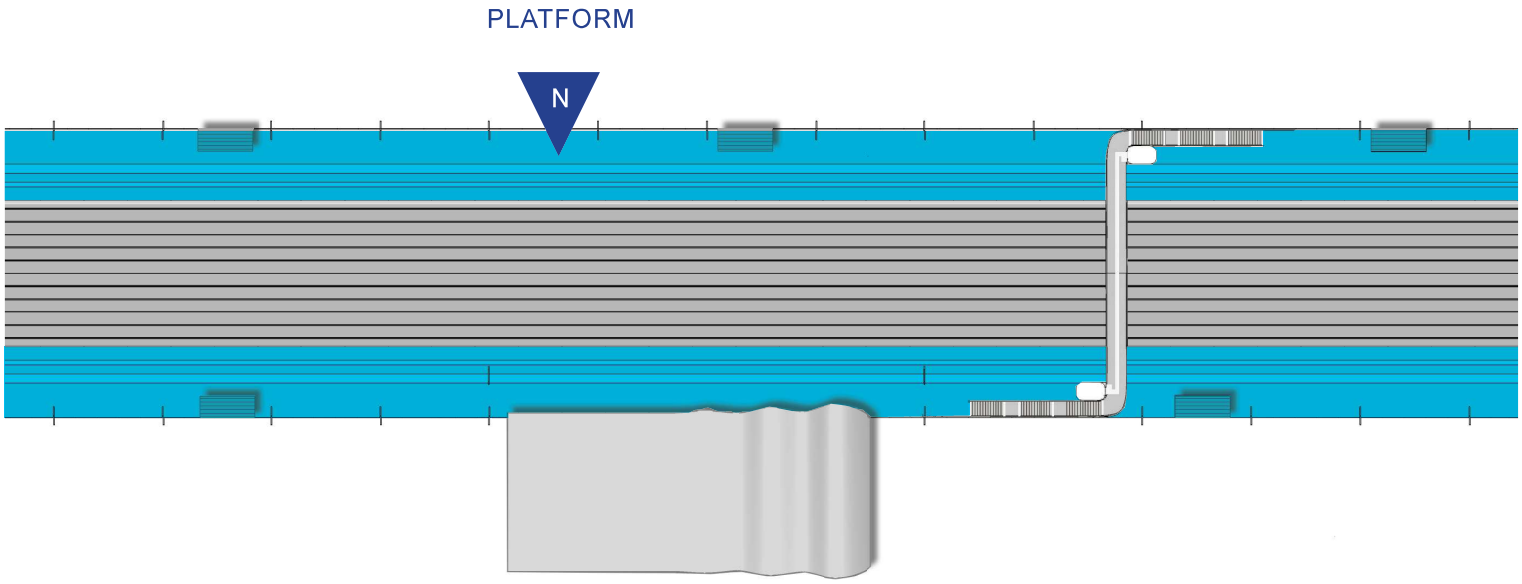
B3

B3.1 Matrix
B3.2 Layout
B3.3 Floor
B3.4 Shelter
B3.5 Lighting
B3.6 Signage and Wayfinding
B3.7 Furniture
B3.8 Universal Design

Matrix

B3.1

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Underpass			

Layout

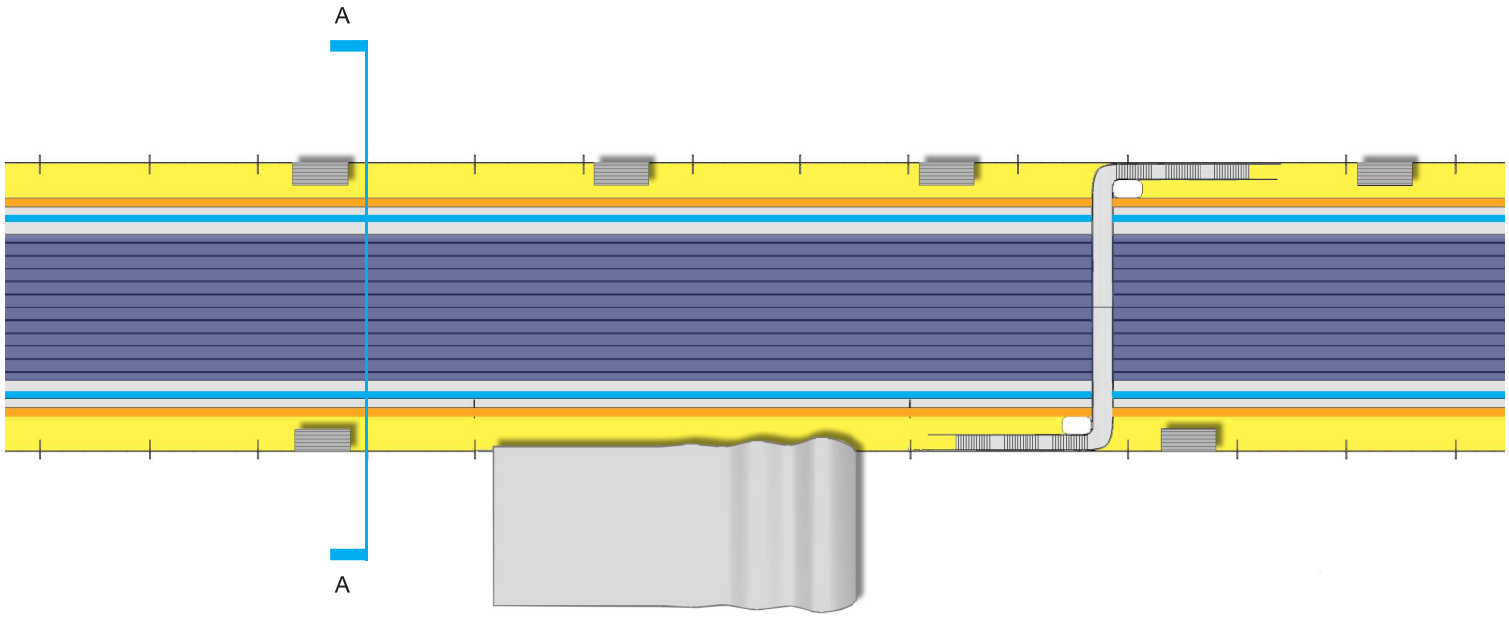
B3.2

Zones

The platform floor is an important part of a station's spatial layout. The floor should have a pleasing overall design and help passengers understand how the platform should be used. It should include protective zones from the track area and guide paths

All floor surfacing should be even, firm and non-slip. The platform floor should have a well-maintained impression and must be in- stalled with care.

Simple concrete slabs provide higher quality, longer durability and lower maintenance costs than an asphalted surface. Concrete slabs should have straight, not bevel-led edges. Adaptation to fixtures such as poles etc. by cutting plates, should be taken into consideration in the material selection.



Legend

- Rail track zone
- Safety zone
- Furniture zone
- Walking Zone

Layout

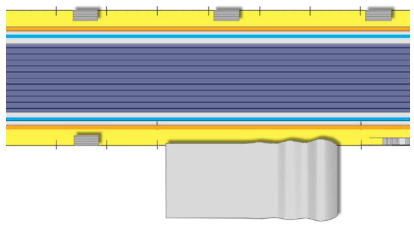
B3.2

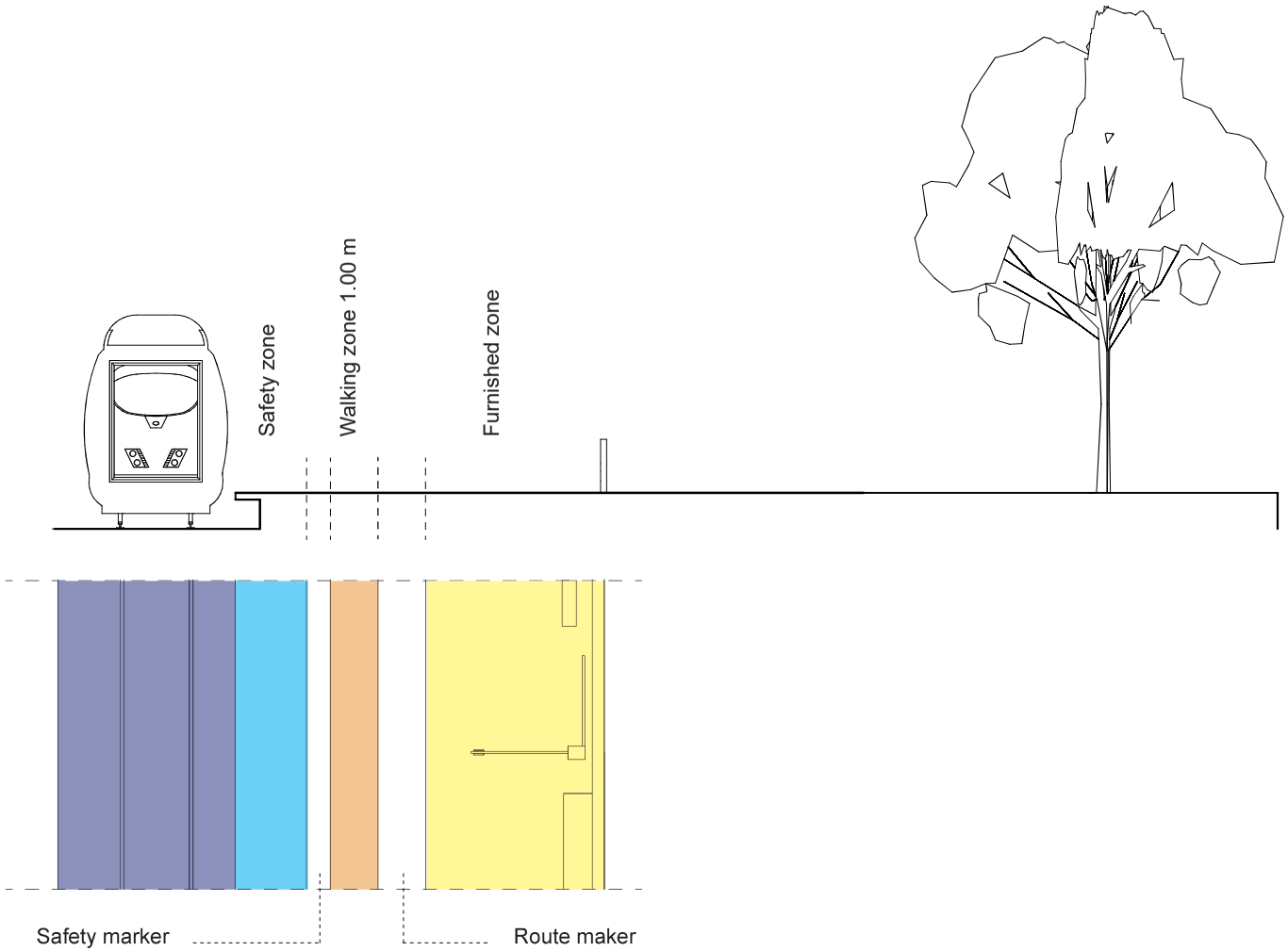
Zones Layout

The platform is divided into different zones. On the platform, pedestrian areas and furniture zones can determine whether the platform roof is supported by one or two pillars. Pedestrian areas must include guides in order to assist people who are visually impaired.

A buffer zone gives the traveller a clear warning that they are close to the tracks. Buffer zone width is determined by the highest speed of passing trains.

The boundary between the platform and the surrounding area is must be clear. This could be done by the installation of a wall or canopies in the boundary. Towards the tracks, there must always be a safety zone with a tactile warning line.





Legend

- Rail track zone
- Safety zone
- Furniture zone
- Walking Zone

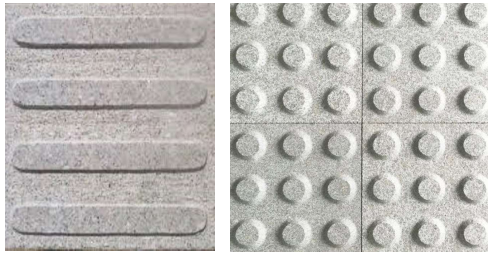
Layout

B3.2

Zones Layout

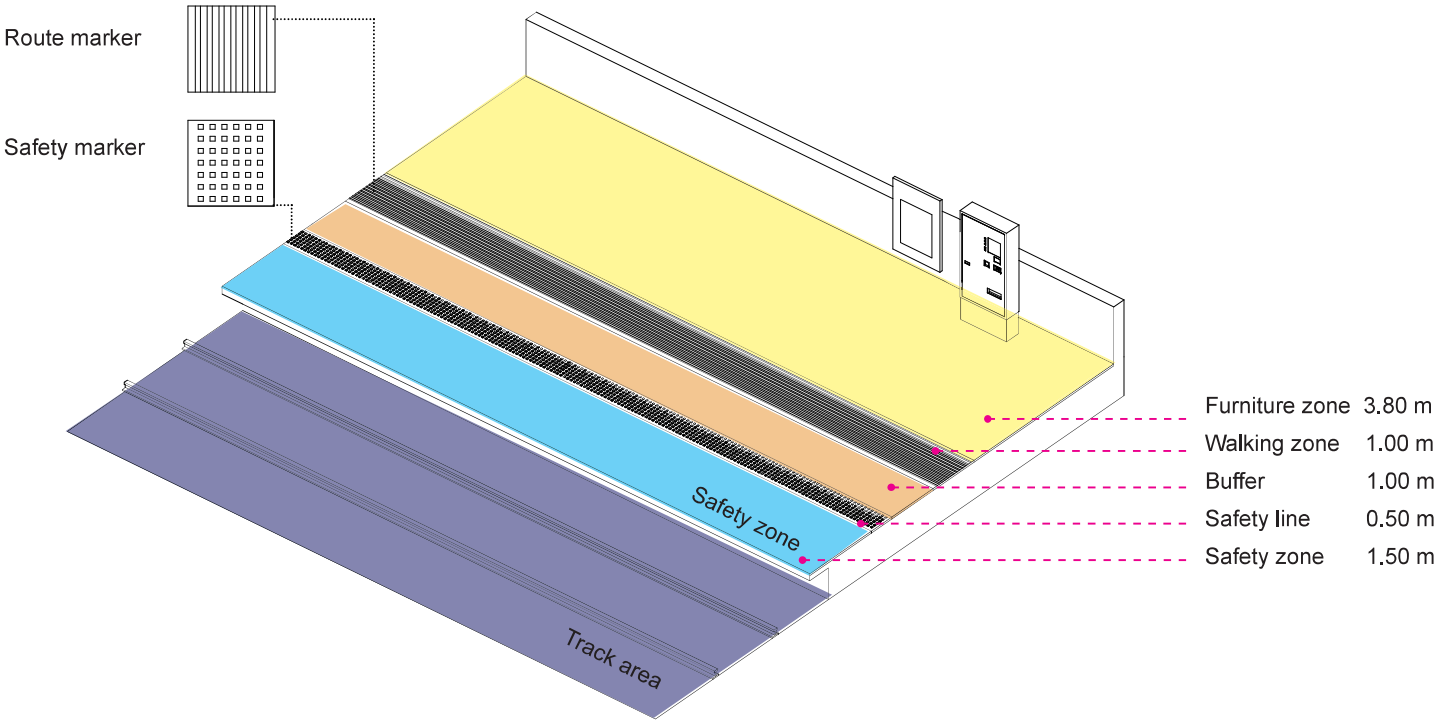
The boundary between the platform and the surrounding area is often vague This boundary must be made clear in terms of liability and safety issues and brought into specific relief. This could be done by the installation of a wall or canopies in the boundary. Such measures shall, inter alia, ensure that no vehicle accidentally runs onto the platform, with the risk of falling down onto the track. They also act as control tools, making the traveller flows between the platform and the surrounding area clear.

Safety zone, safety line, buffer zone and walking zone must be designed with dimensions indicated in the drawing. Furniture zone dimensions may be reduced dependent on forecasted passenger flow and type of the station. In cases when furniture zone dimensions are decreased, furniture and shelters must be placed in platform pockets.



Light Grey Concrete Tiles

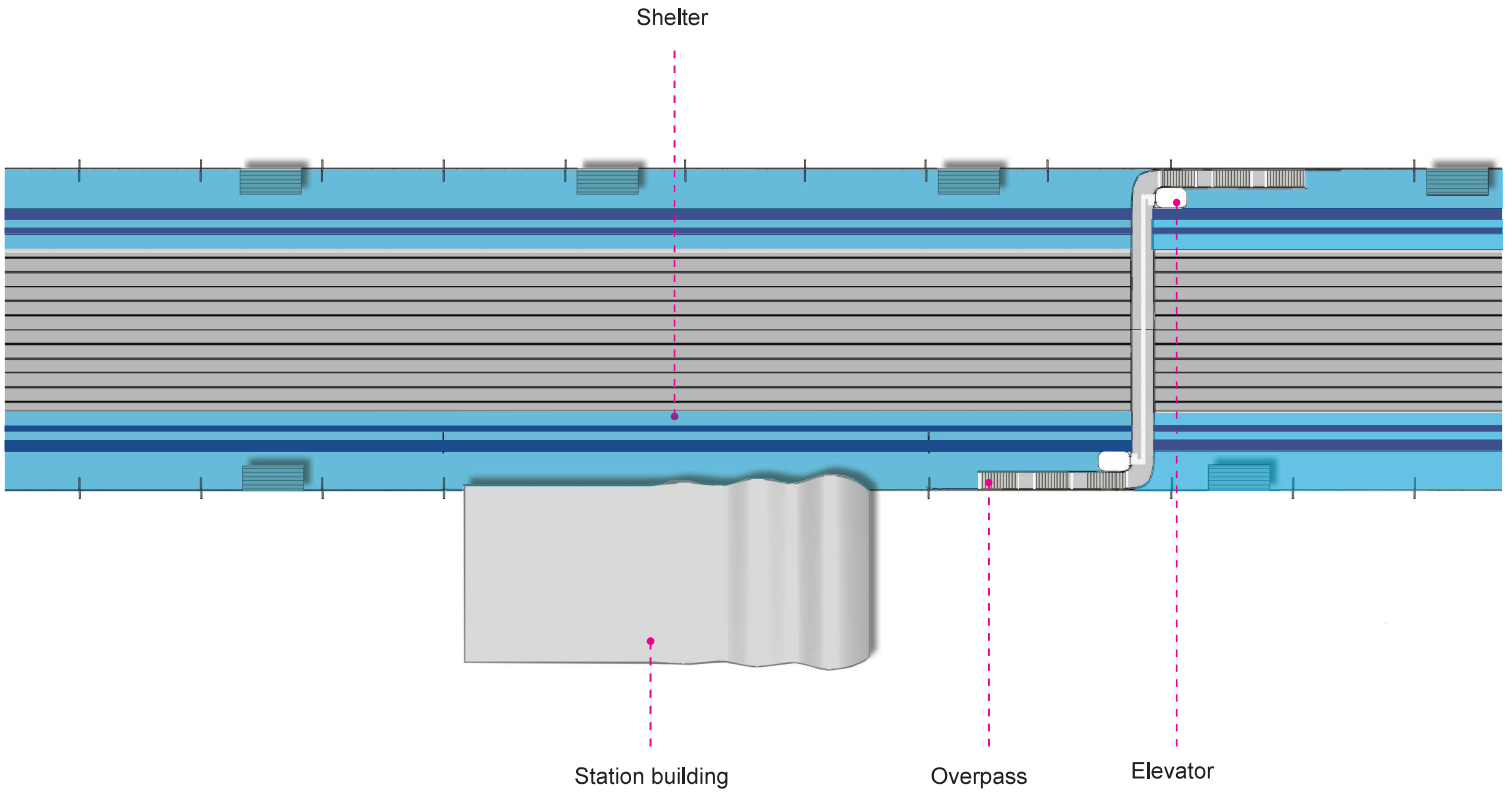
Material and color
Tactile should be easy to detect due to the high visual contrast with the floor. L ight g rey c olour w as used to ensure this contrast with dark grey floor. Concrete tiles should be non-slip even in moist conditions, they should be wheelchair-friendly and eliminate the tripping hazard. Materials should comply with relevant requirements of ISO 21542 and ISO 23599.



Floor

B3.3

Overview



Legend

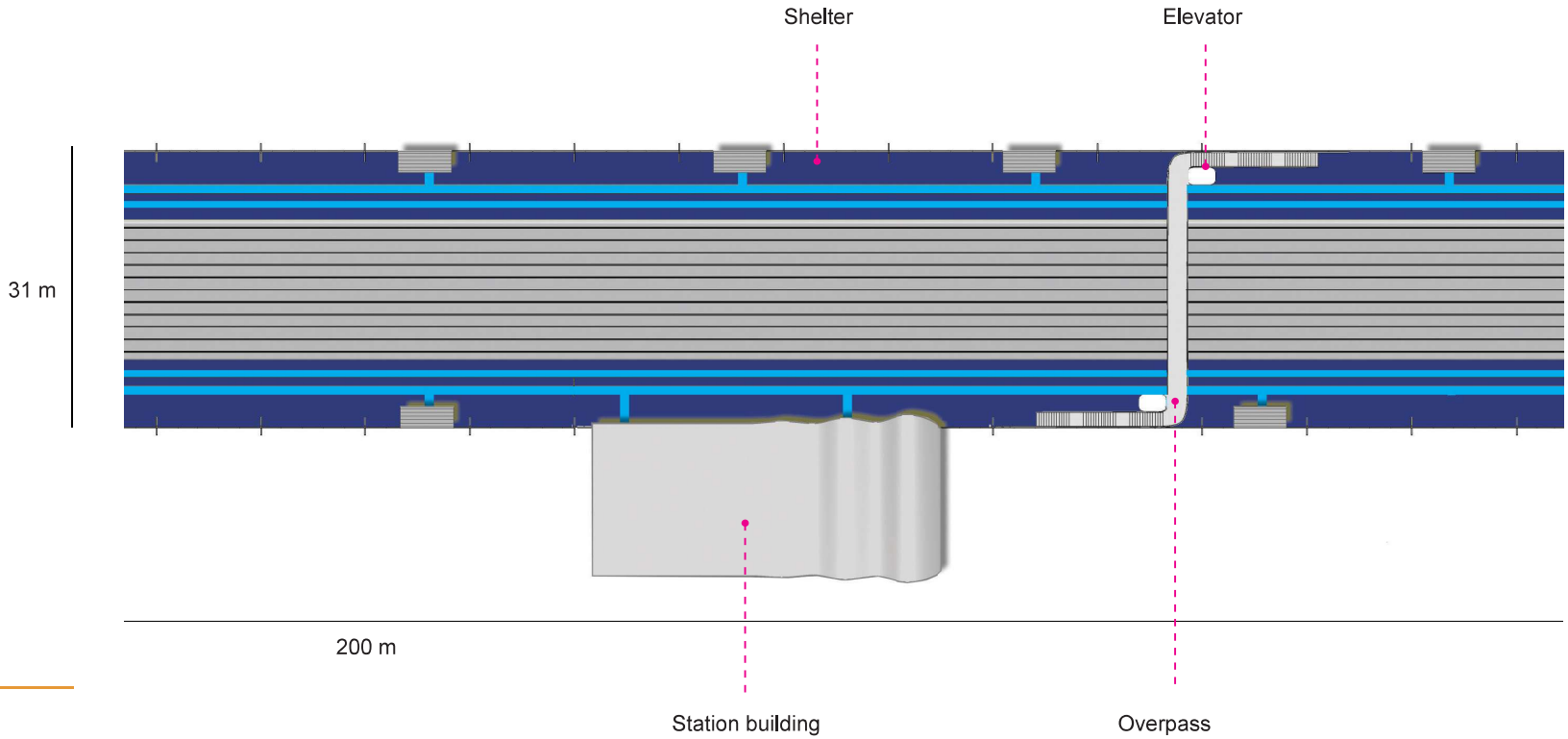
- Tactile path
- Concrete

Floor

B3.3

Tactile

The image shows the location of tactile routes on the platform and the division of the platform paving and tactile marking. Tactile route is provided along the whole length of the platform.



Legend

- Dark grey concrete platform paving
- Light grey concrete tactile tiles

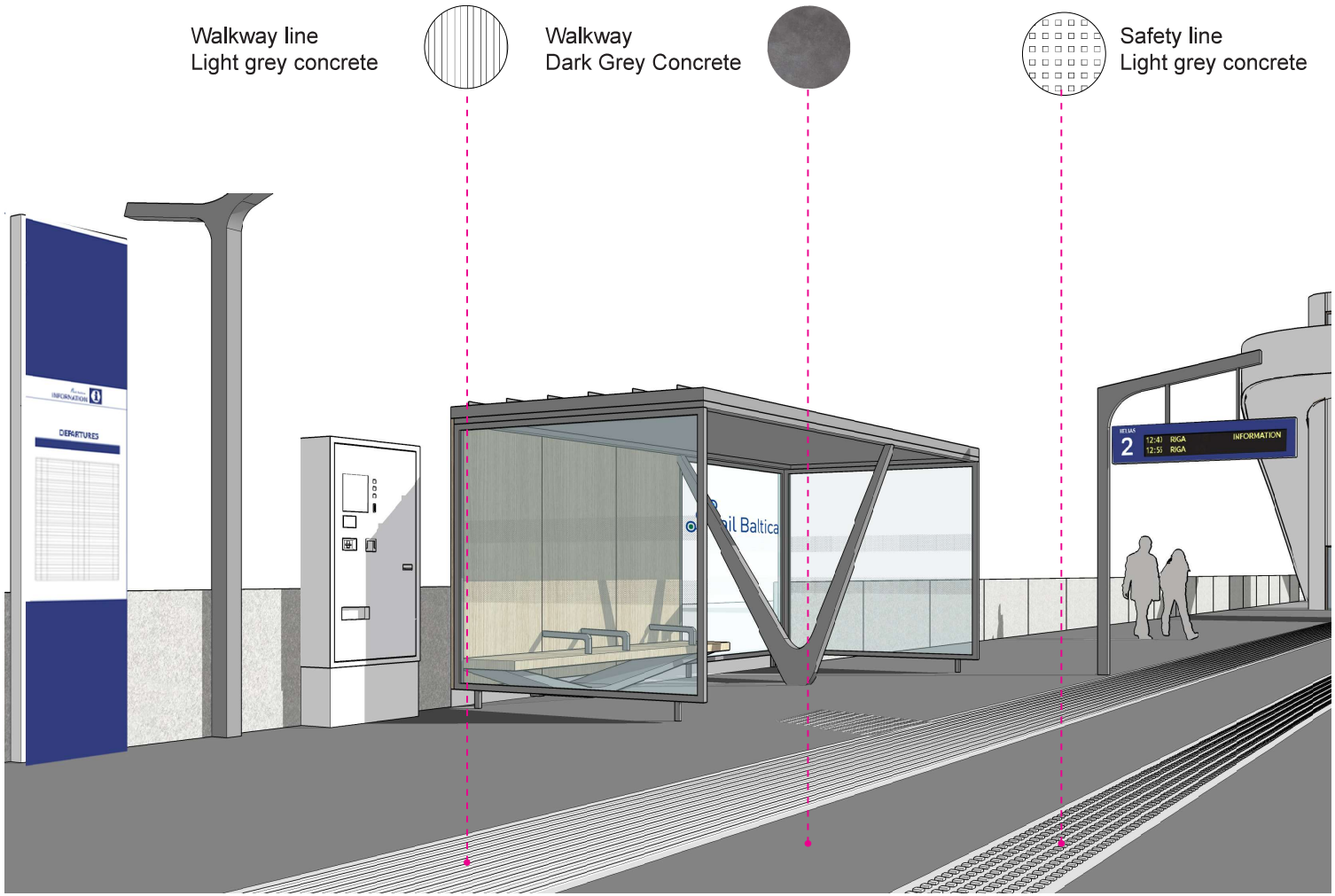
Floor

B3.3

Materials

The platform is a space where travellers can stay for shorter or longer periods of time. Platform floor must help the traveller understand how the platform is to be used. It must include a safety zone in relation to the track area and guide paths for the visually impaired.

A floor should provide a pleasant experience must be able to satisfy the basic requirements for safety and accessibility. A design that uses a few good materials can contribute to a good entity and a facility that lasts over time and is optimised for efficient operation and maintenance.



Note
The platform floor must be designed according to all safety and accessibility requirements, whilst being a well-designed and coherent surface.

Shelter

B3.4

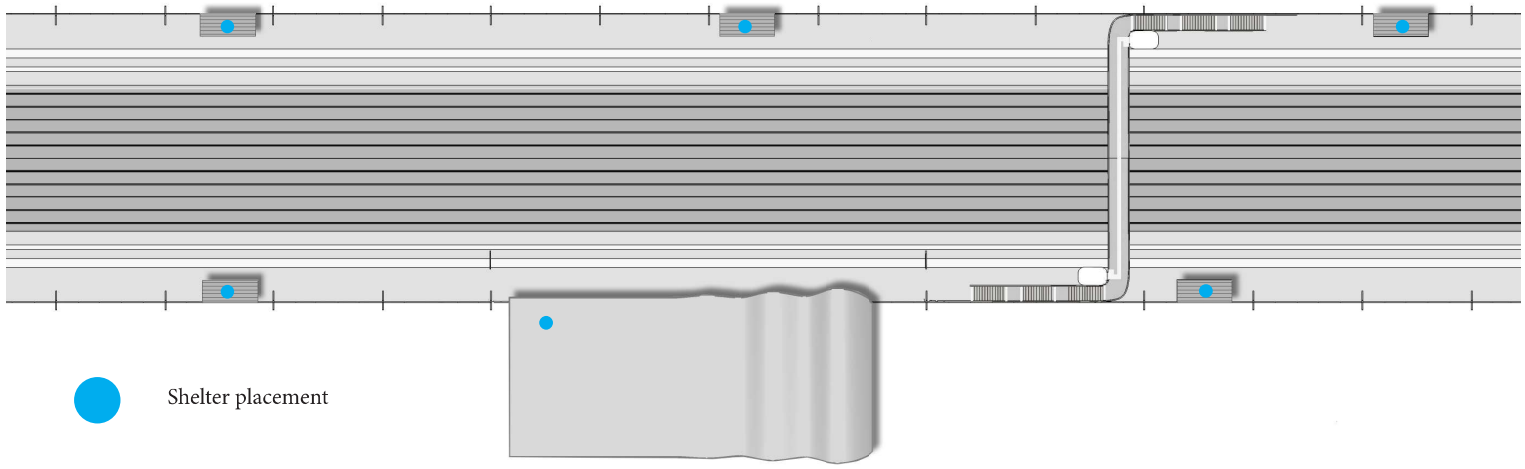
Identity Matrix

Number of shelters on the platform is design to fit maximum number of passengers at the same time at the peak hours.

Station Type II 6 shelters on the platform

Station Type III 4 shelters on the platform.

Station Type IV 2 shelters on the platform.



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Shelter			

Shelter

B3.4

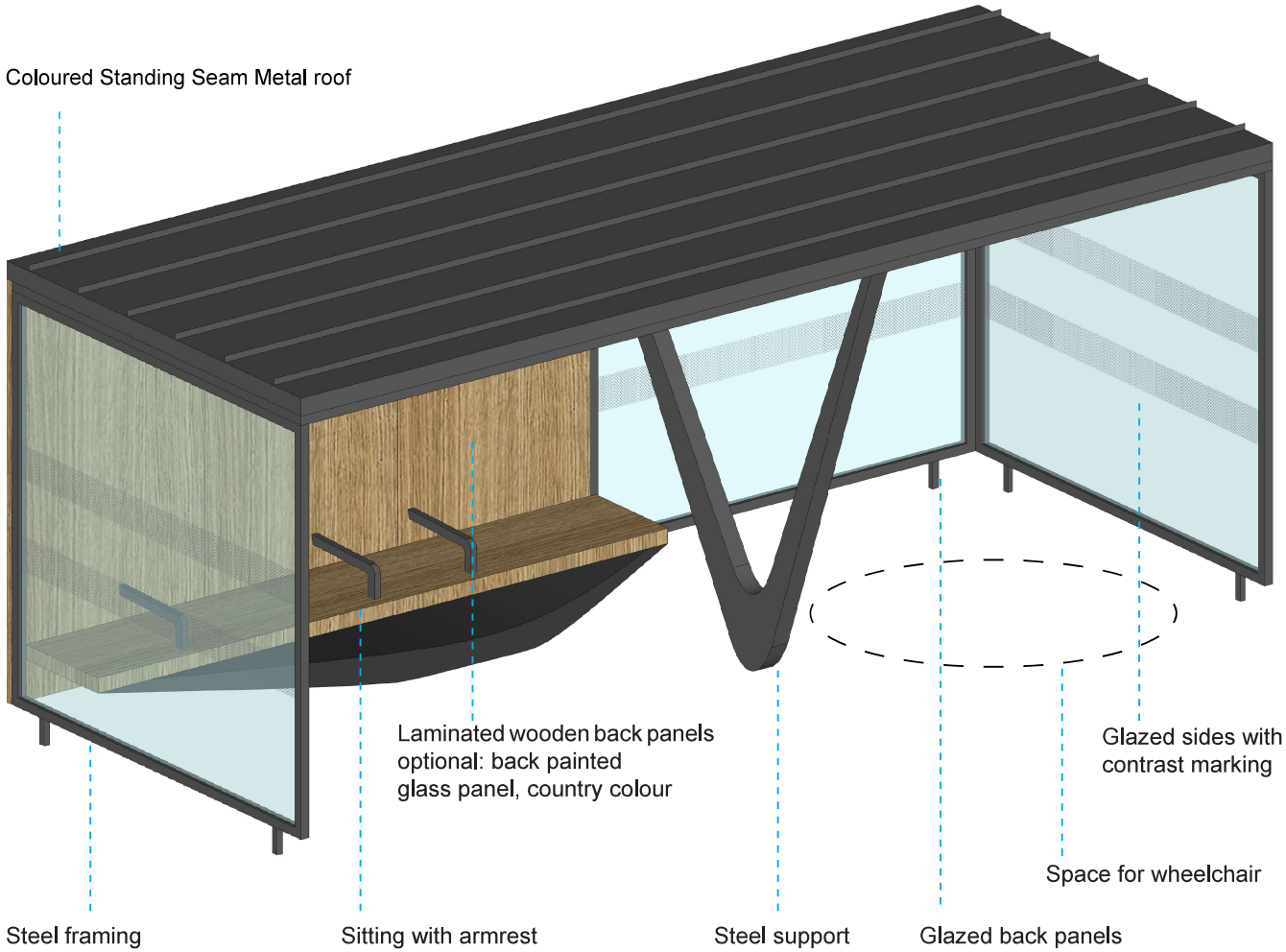
Overview

Shelters must be available at all stations. Waiting areas may be located adjacent to the platform connection from passages above or below tracks. This makes the waiting area the point at which the traveller interacts with the platform.

Standalone waiting areas on platforms must be transparent, provide space for wheelchairs and be designed, illuminated and furnished to provide a warm and welcoming impression. All categories of traveller must be able to use these waiting areas throughout the day and to feel comfortable.

Shelters on platforms must be designed to provide open and unheated protection against rain and wind. Shelters must be transparent in order to allow travellers to see into the shelter and to see the platform and arriving trains. Shelters may have openings to the tracks, to the middle of the platform, or both, depending on the width of the platform and how flows and other furniture are organised.

The areas should be well illuminated to create a sense of security and overview. Shelters must be constructed in dimensions strong enough.



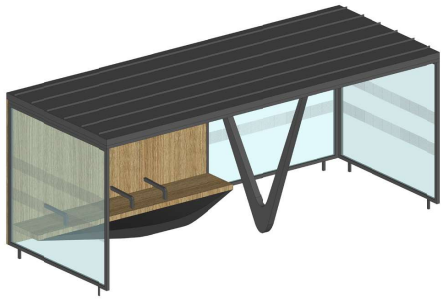
Shelter

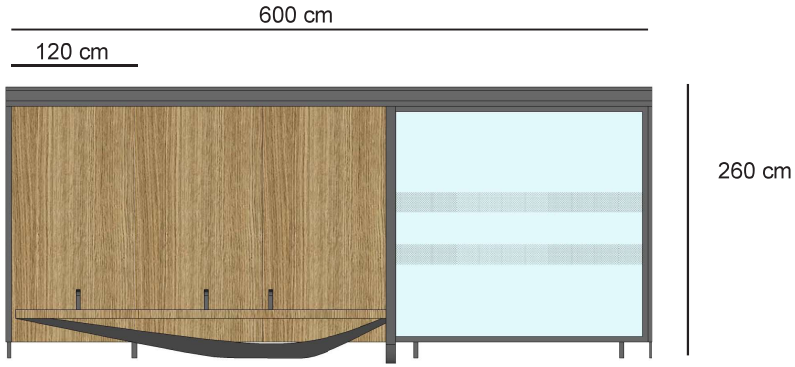
B3.4

Geometry

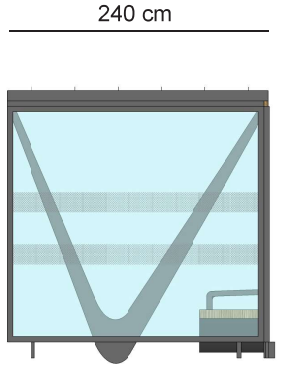
Shelters must be available in different sizes, depending on the size of the station, The smallest shelters can consist of a canopy with two glass panels on the sides, while the larger ones should be wider and have glass-panelled walls on several sides.

Shelters are designed on the module of 120cm and can be adjusted by adding or substracting 120cm module





Front elevation



Side elevation

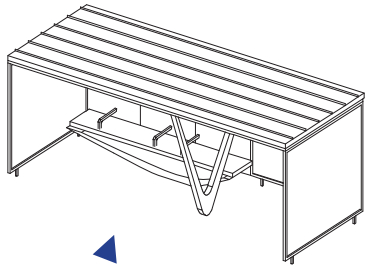


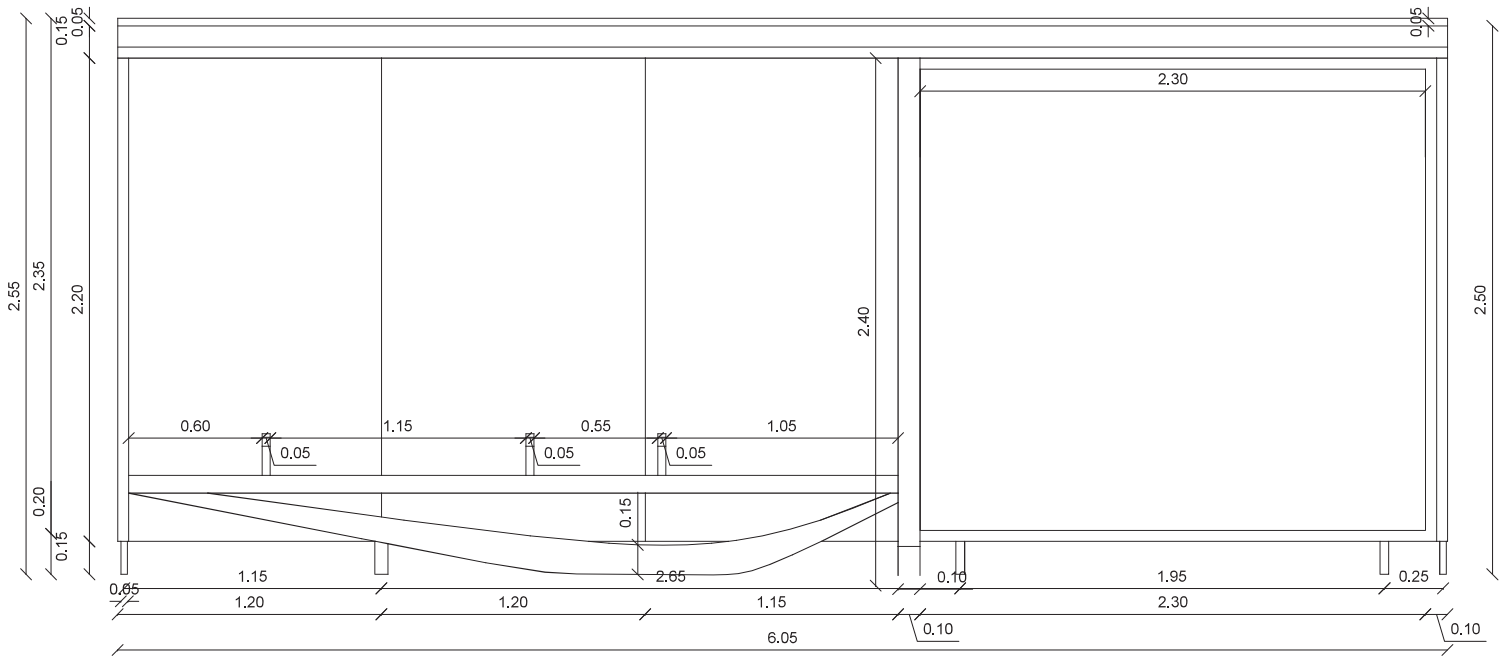
Back elevation

Shelter

B3.4

Geometry



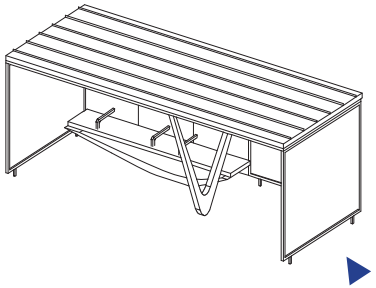


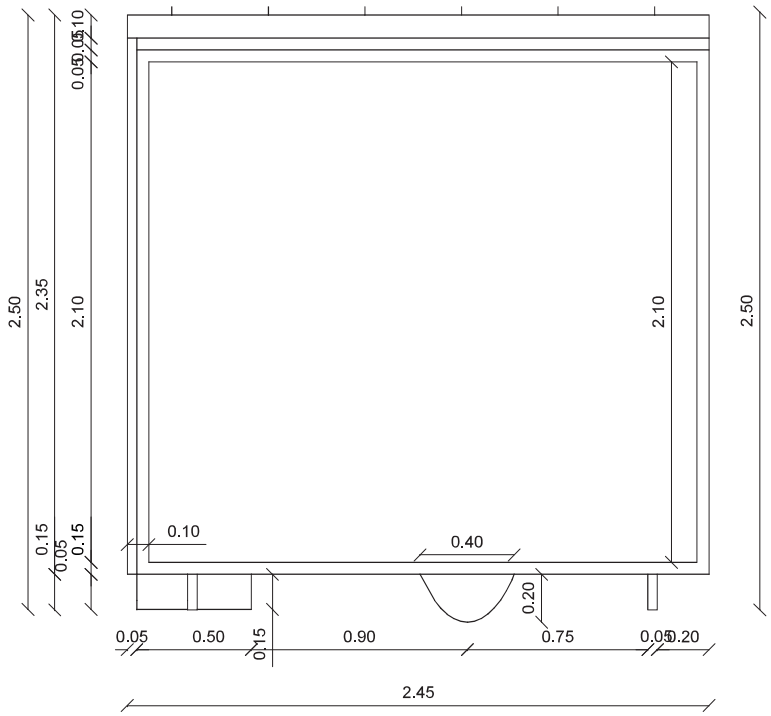
Front View

Shelter

B3.4

Geometry





Side View

Shelter

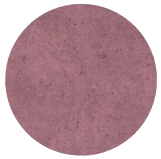
B3.4

Identity Approach and Branding Implementation

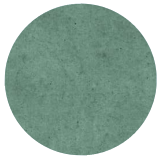
Finishing 1 - Estonia

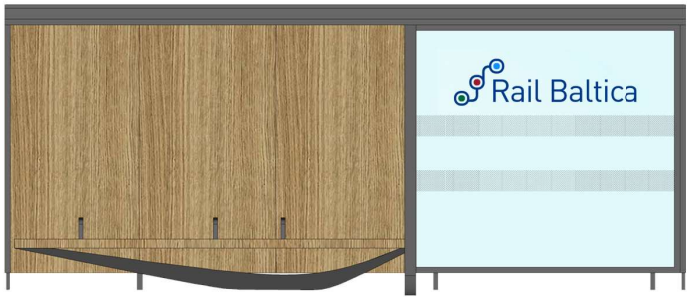


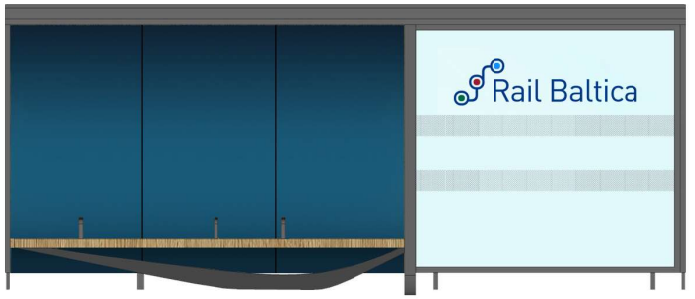
Finishing 2 - Latvia

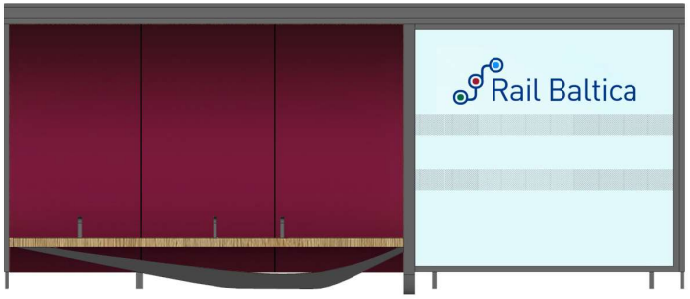


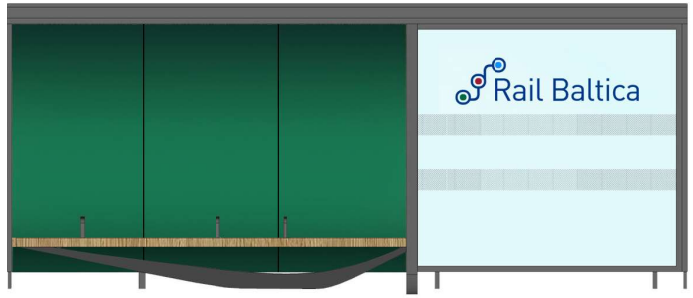
Finishing 3 - Lithuania











Note

For Rail Baltica visual identity instruction, please refer to *Visual Identity Guidebook*

Lighting

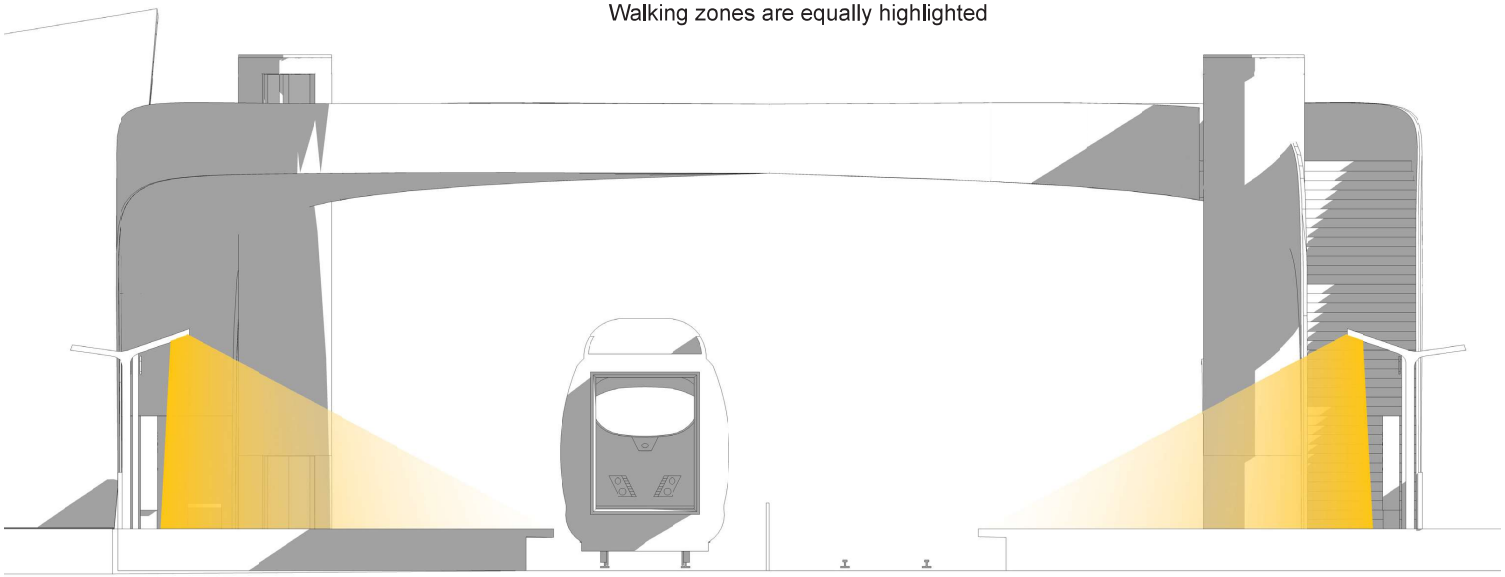
B3.5

Design principles

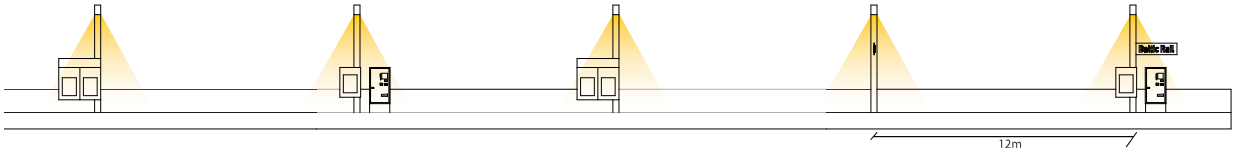
Lighting on platforms must be designed with safety and to make the platform easier to navigate for people who are visually impaired. In addition, well-designed lighting and illumination may help to create a positive impression of a station environment.

Lighting and illumination can actively promote spatial experience on the platform. Good general lighting brings together the various zones of the platform. Different functions and areas can be highlighted using supplementary lighting.

Lighting on platforms shall comply with requirements of EN 12464-1 and EN 12464-2. Applicable provisions of ISO 21542 and EN 1838 should be fulfilled.



Platform lighting design

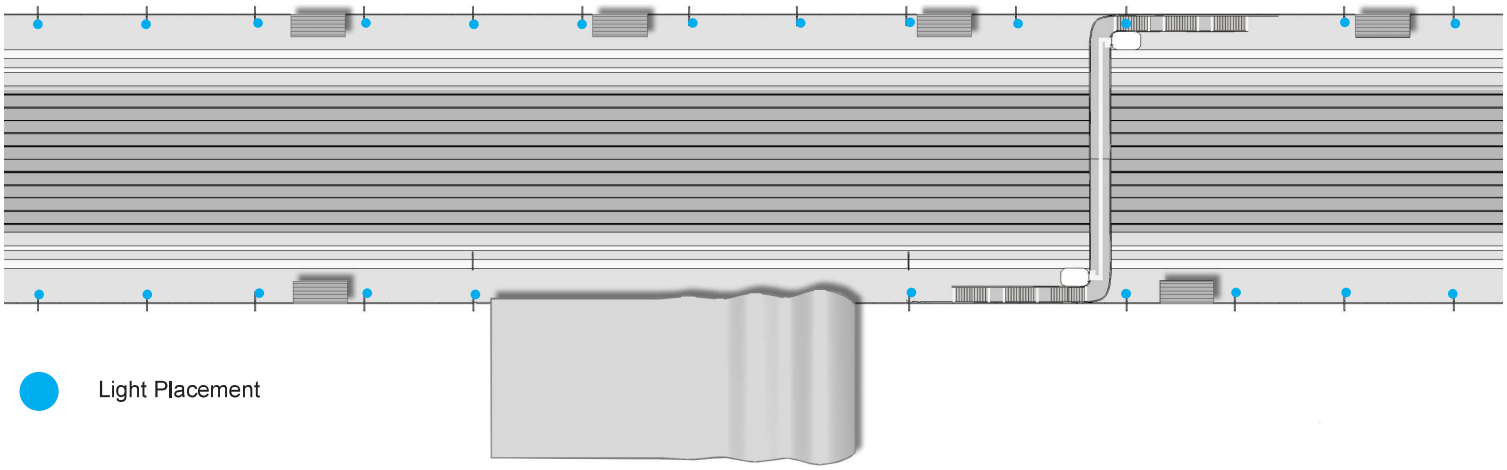


Elevation lighting principle for the platform

Lighting

B3.5

Position Strategy



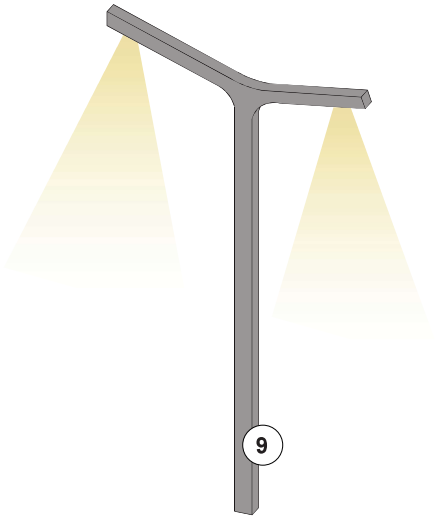




Lighting

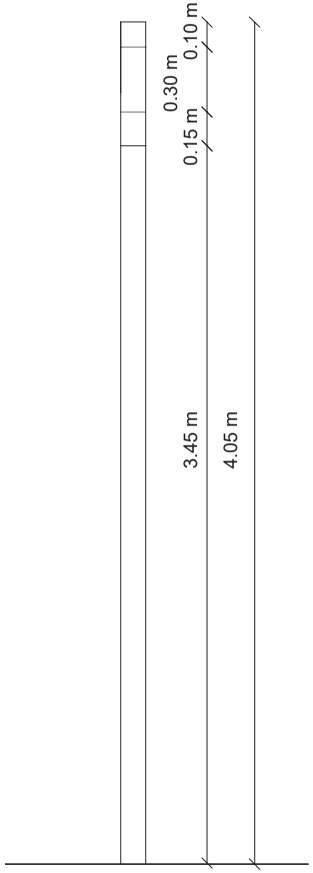
B3.5

Geometry

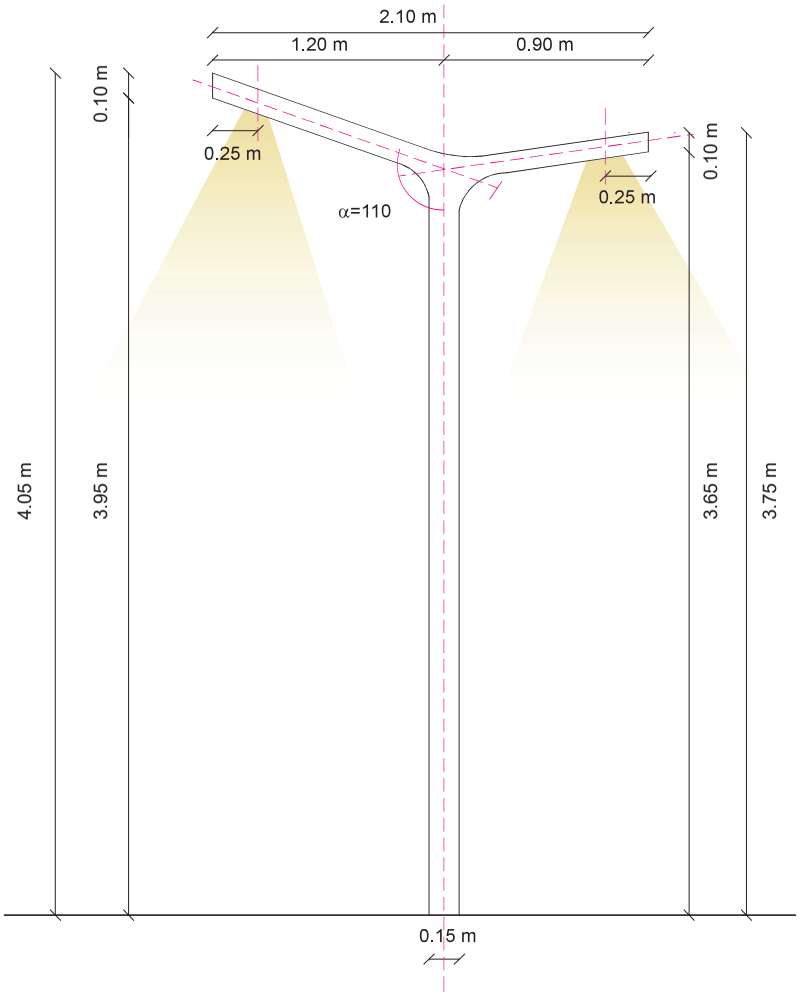


Isometric View





Side View

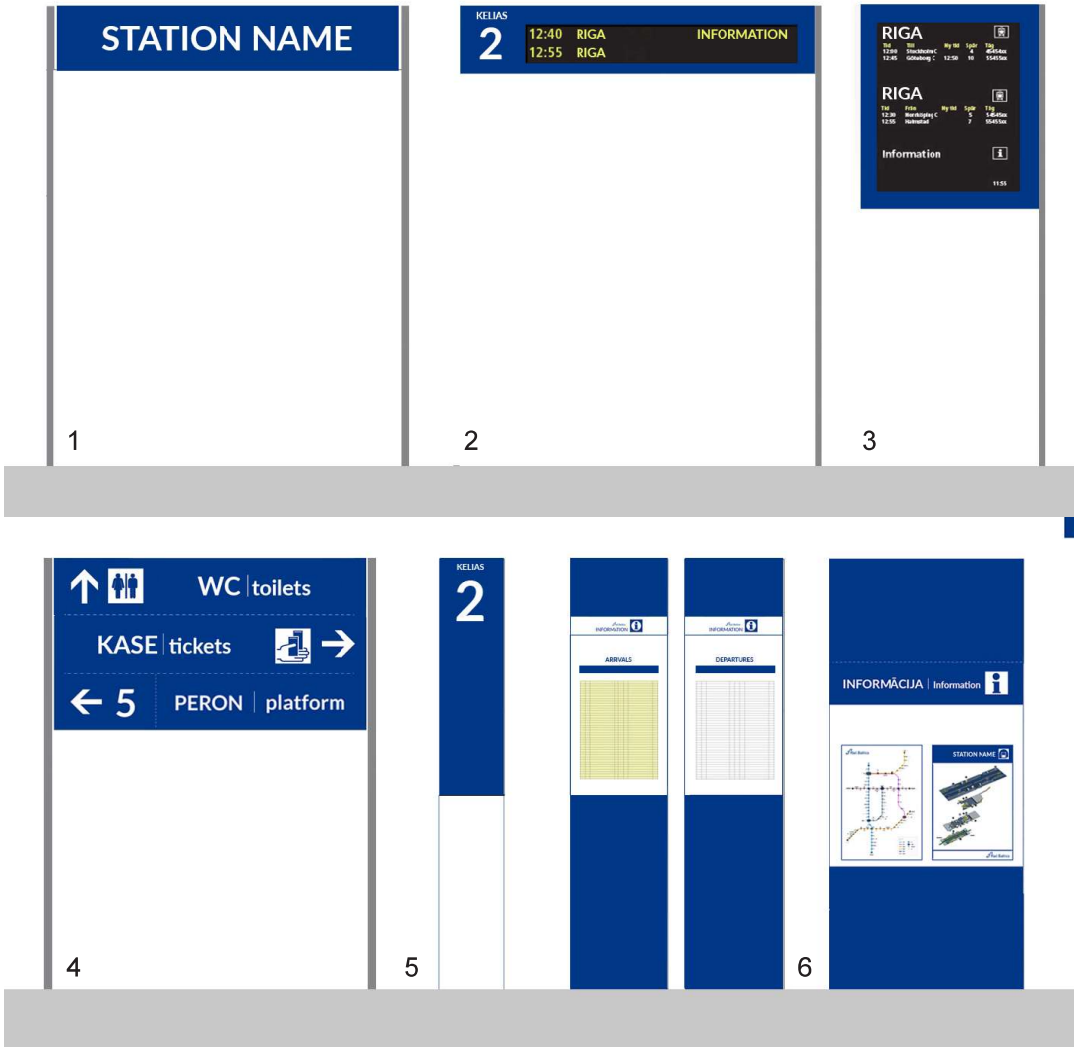


Front View

Signage & Wayfinding

Overview

Signs on platform
Platform signs include: platform signs, multi-train displays with real time information, station name sign, track number signs, direction signs as well as loudspeakers and clocks.



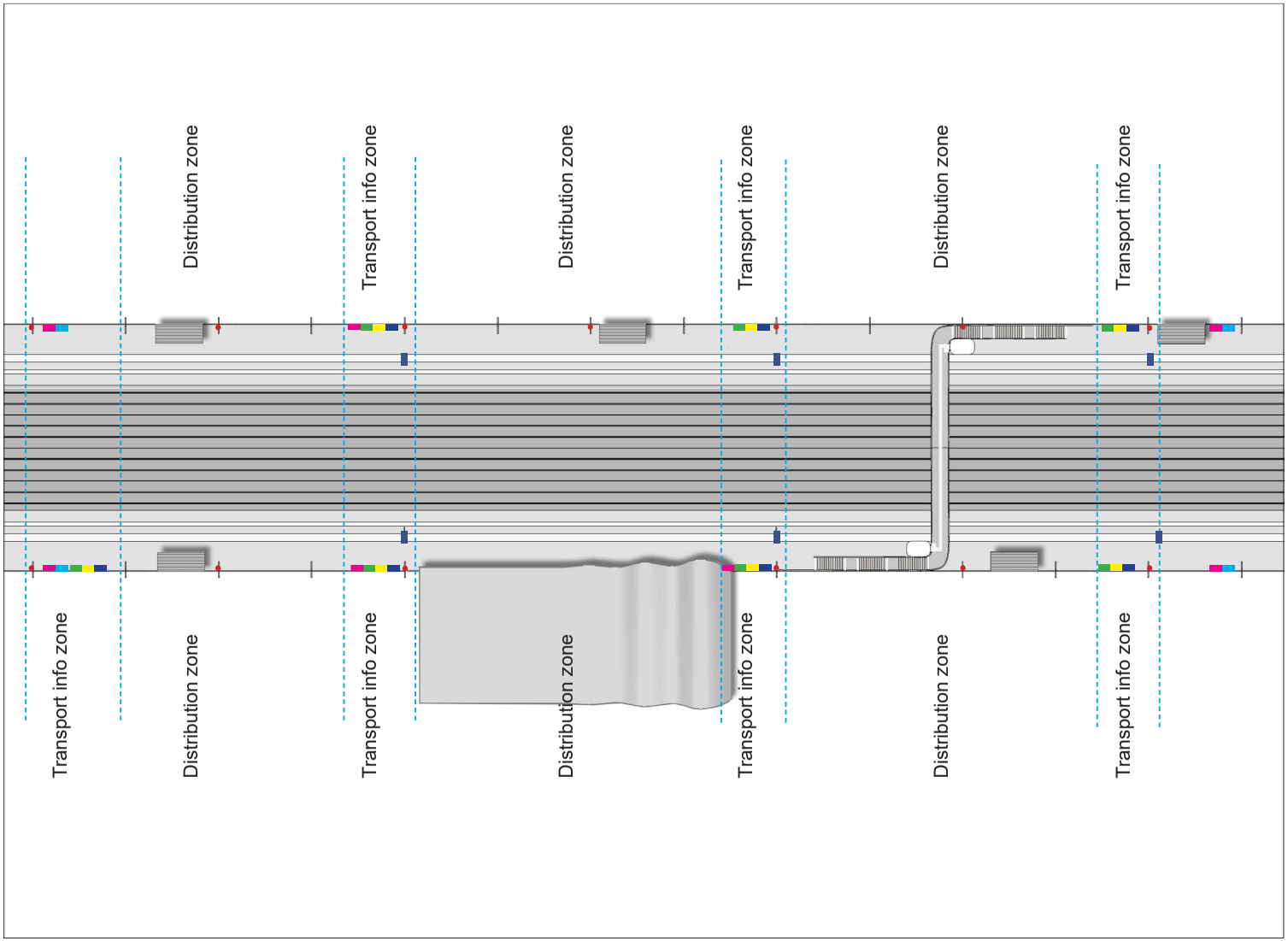
Picture
1. Station name
2. Platform sign
3. Multi-train display
4. Directional Signage
5. Track number sign
6. Informational boards

Signage & Wayfinding

B3.6

Position Strategy

Signs on platform
It is important for the signs to be allocated in the best possible way in the limited space of the platform in order to ensure safety and accessibility. The flow of the passengers on the platform heavily depends on the location of the overpass and lifts and how many entrances are there.



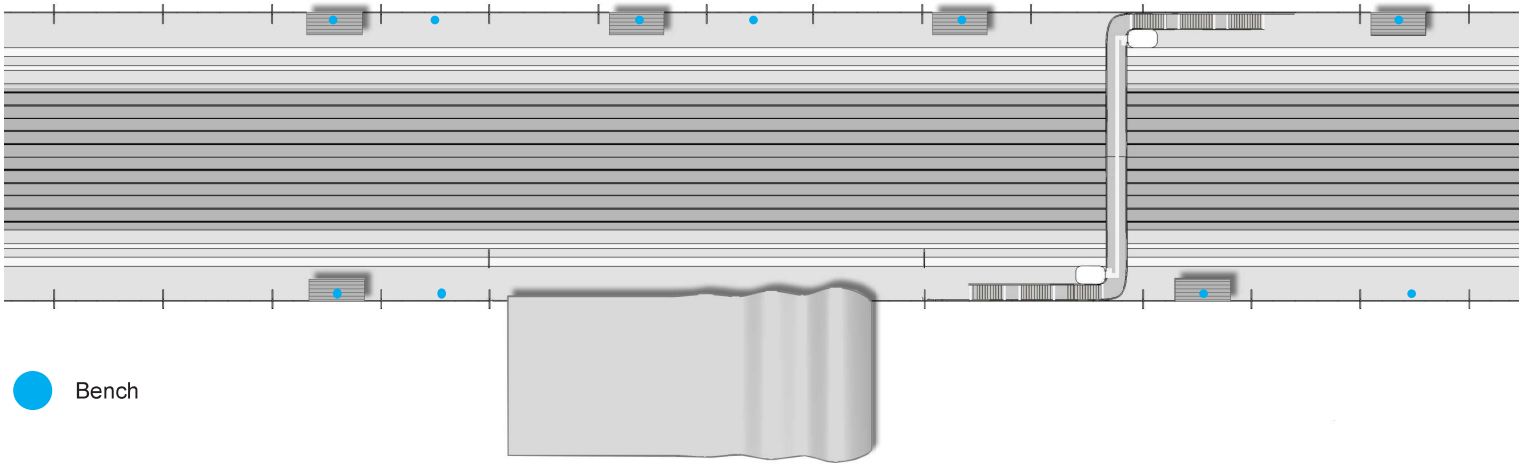
Legend

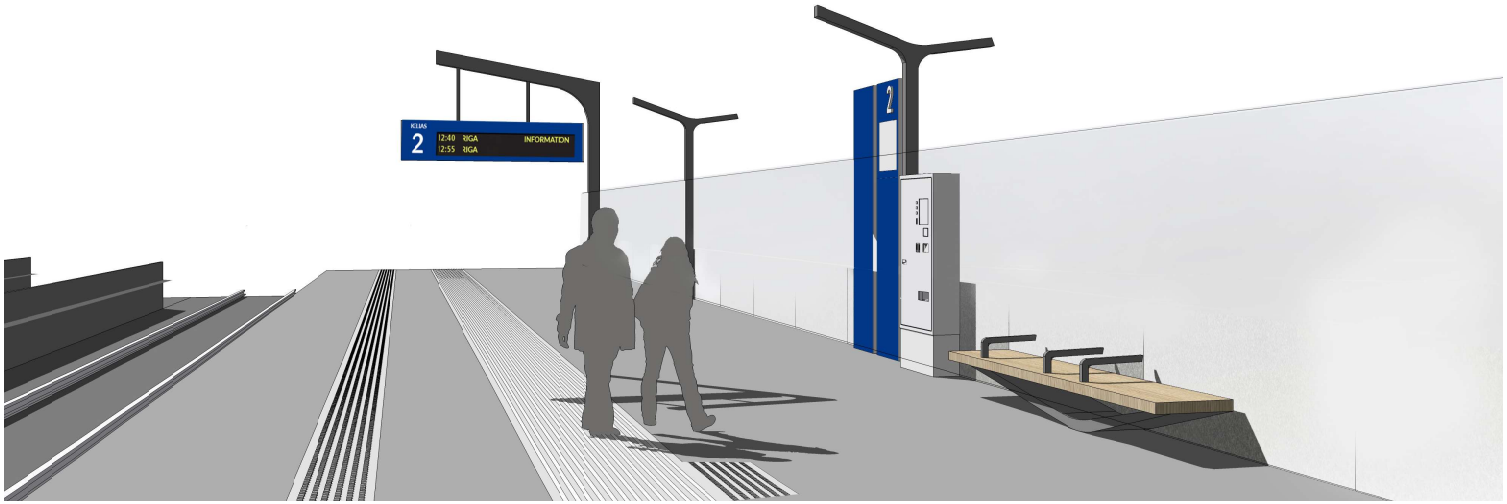
- Station name
- Platform sign
- Multi-train display
- Directional Signage
- Track number sign
- Informational boards
- Loudspeaker

Furniture

B3.7

Bench Position Strategy

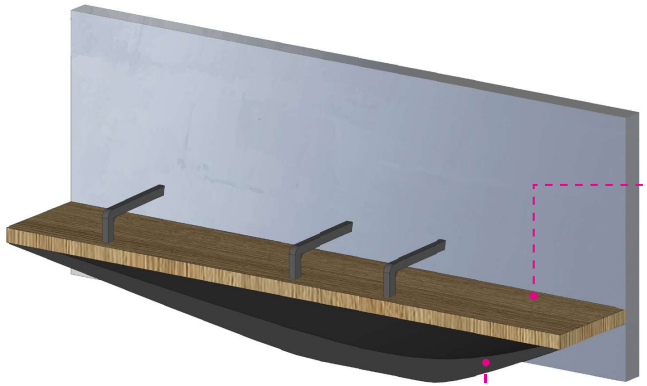




Furniture

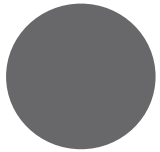
B3.7

Bench



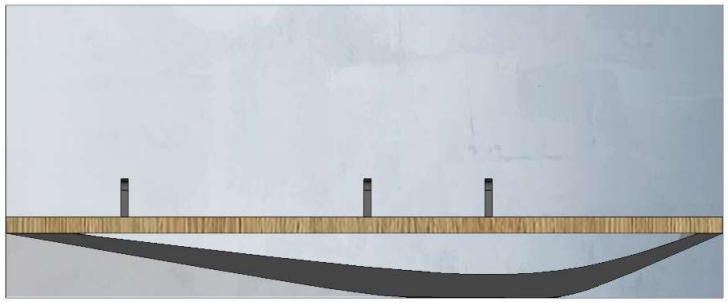


Oak wood finishing

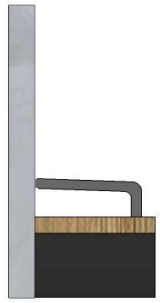


Steel support

240 cm / 355 cm



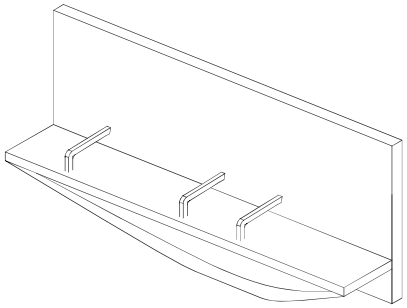
70 cm

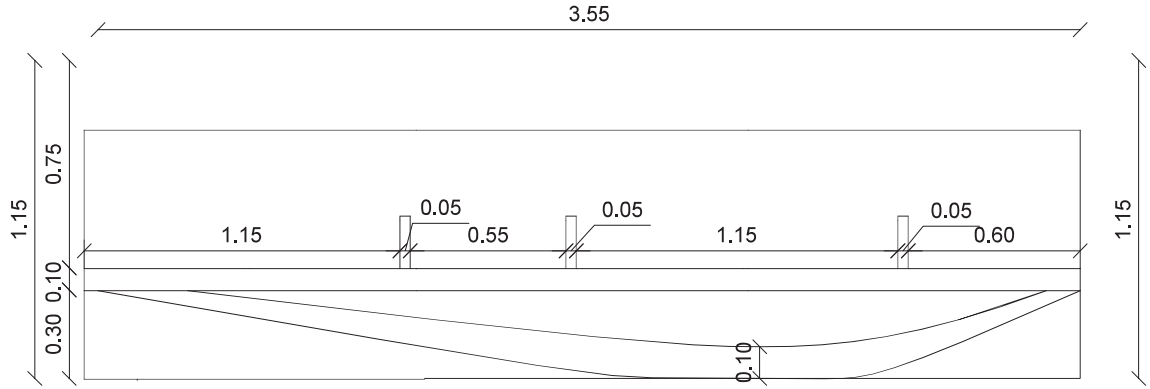


Furniture

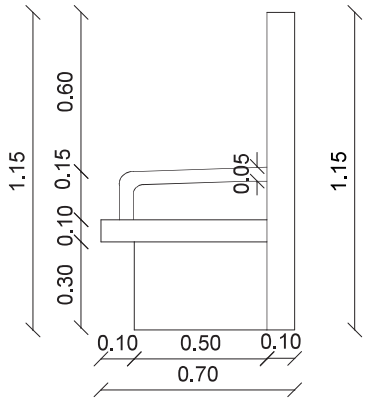
B3.7

Geometry





Front View



Side View

Universal Design

B3.8

The designed station must be fully accessible to everyone. This includes people with reduced mobility as well as:

- People moving on wheelchairs,
- People with other physical limitations,
- Visually impaired people,
- People with the elderly and children.

Station design must allow safe and collision-free movement inside the building and in its immediate surroundings. The building should also meet the highest requirements regarding the safety of travellers and clients of the Rail Baltica.

Rules of accessible design:
A) Full adjustment of the facility and its surroundings to be used by persons with reduced mobility should be assumed
B) At the station building, special parking spaces for the disabled should be provided with provision of manoeuvring space
C) Access to the building and platforms should have an obstacle-free route
D) Both in the building, as well as access to the platforms, tactile routes for the visually impaired should be provided
E) Use as appropriate possibility of a non-threshold door
F) Ticket office should be equipped with counter tops with reduced height of 80-90 cm for the wheelchair users and low-height people
G) Braille inscriptions should also be used in public areas marked with information boards.



Braille directions on handrails



Tactile information map



Tactile floor for visual impaired

Rules of Universal Design

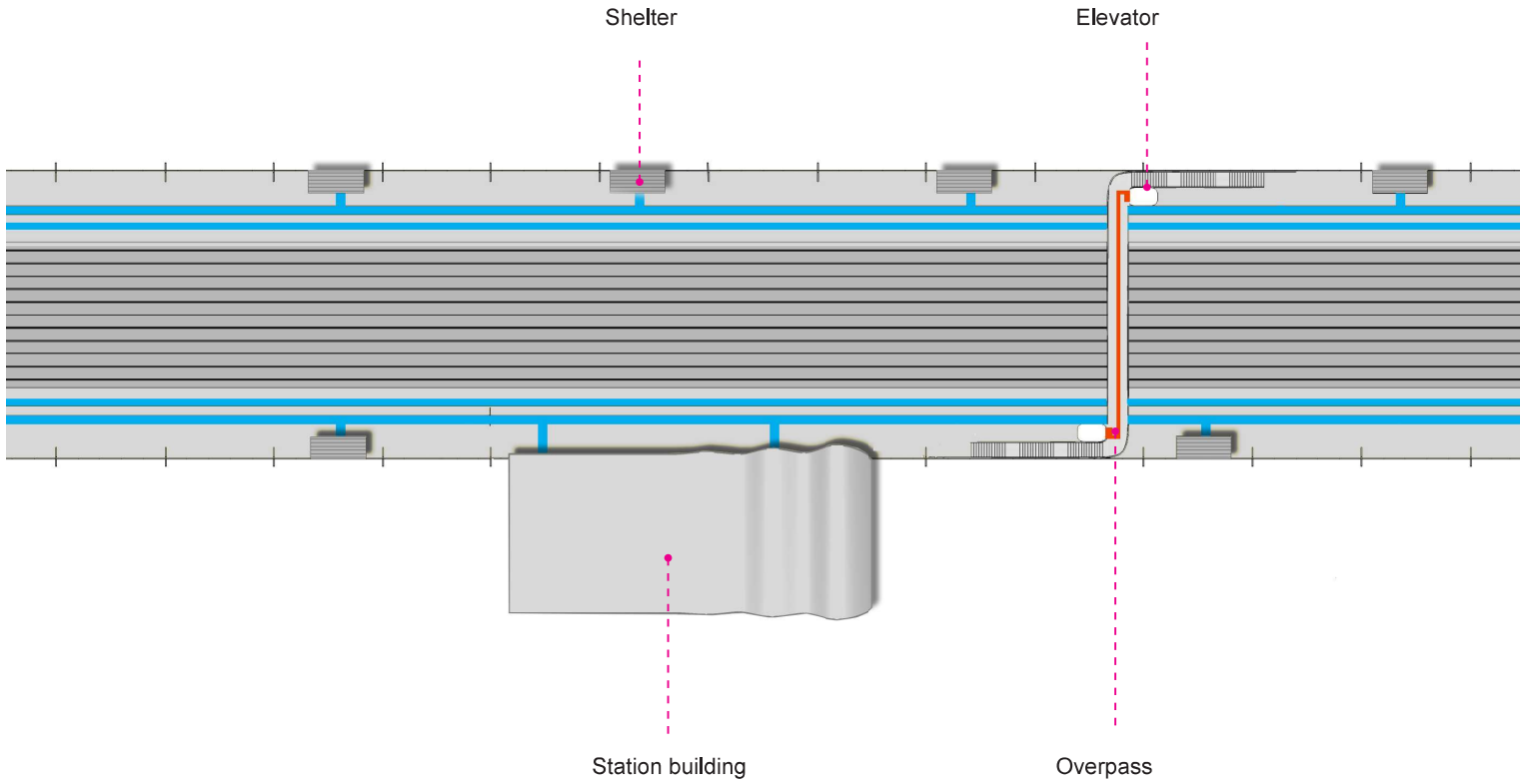
1. Usability for people with different immobility
2. Flexibility in use
3. Simplicity
4. Clear communicated information
5. Tolerance for errors
6. Comfortable use without effort
7. Size and space suitable for access and use
8. Equality perception

Universal Design

B3.8

Tactile Position Strategy

Image illustrates tactile routes on platform and overpass. Tactile route is provided along the whole length of the platform and along the overpass.



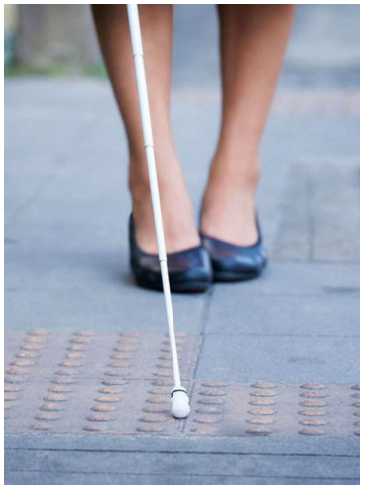
Legend

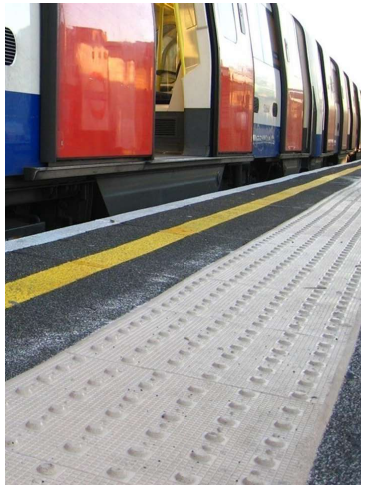
- Tactile path on the overpass
- Tactile path on the platform

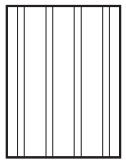
Universal Design

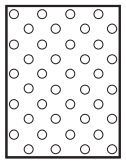
B3.8

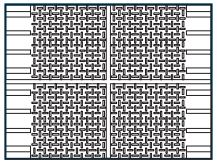
Tactile tiles

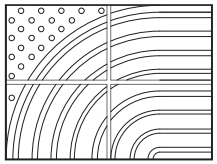




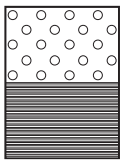


Straight


Stop / Danger


Crossroad


Turn


Service


Feasible Danger

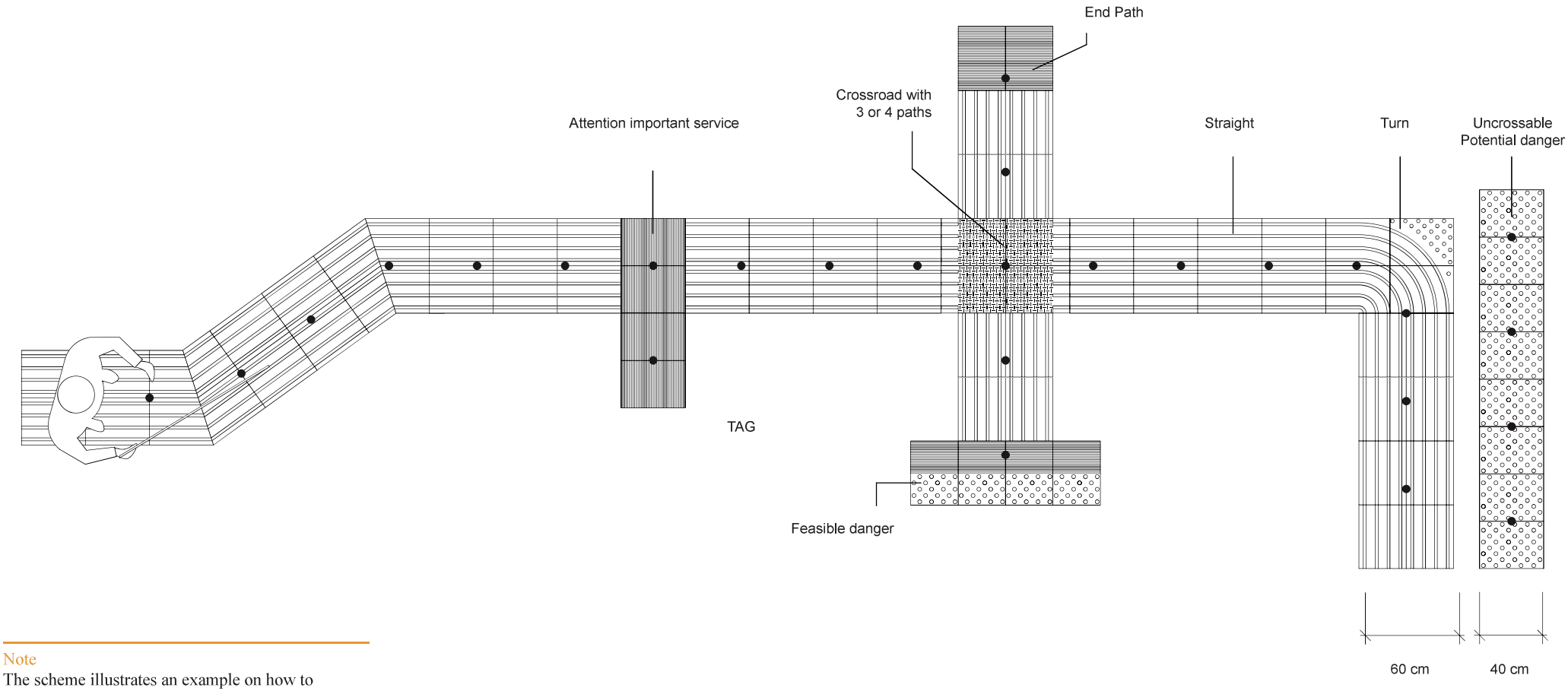
Note
For tiles dimensions please refer to pag. *50*

Pictures
From left:
Image 1 - *Credits: Shutterstock*
Image 2 - *Credits: caesar.it*
Image 3 - *Credits: visulsystems.com*
Image 4 - *Credits: tacpro.com.au*

Universal Design

B3.8

Typical Tactile Path



Note
The scheme illustrates an example on how to combine the different tactile tiles.
Source: dascenzi.it

Universal Design

B3.8

New Technologies

Each LVE tactile path, in order to work in the best way as a multisensional guide for blind people, must be mapped.

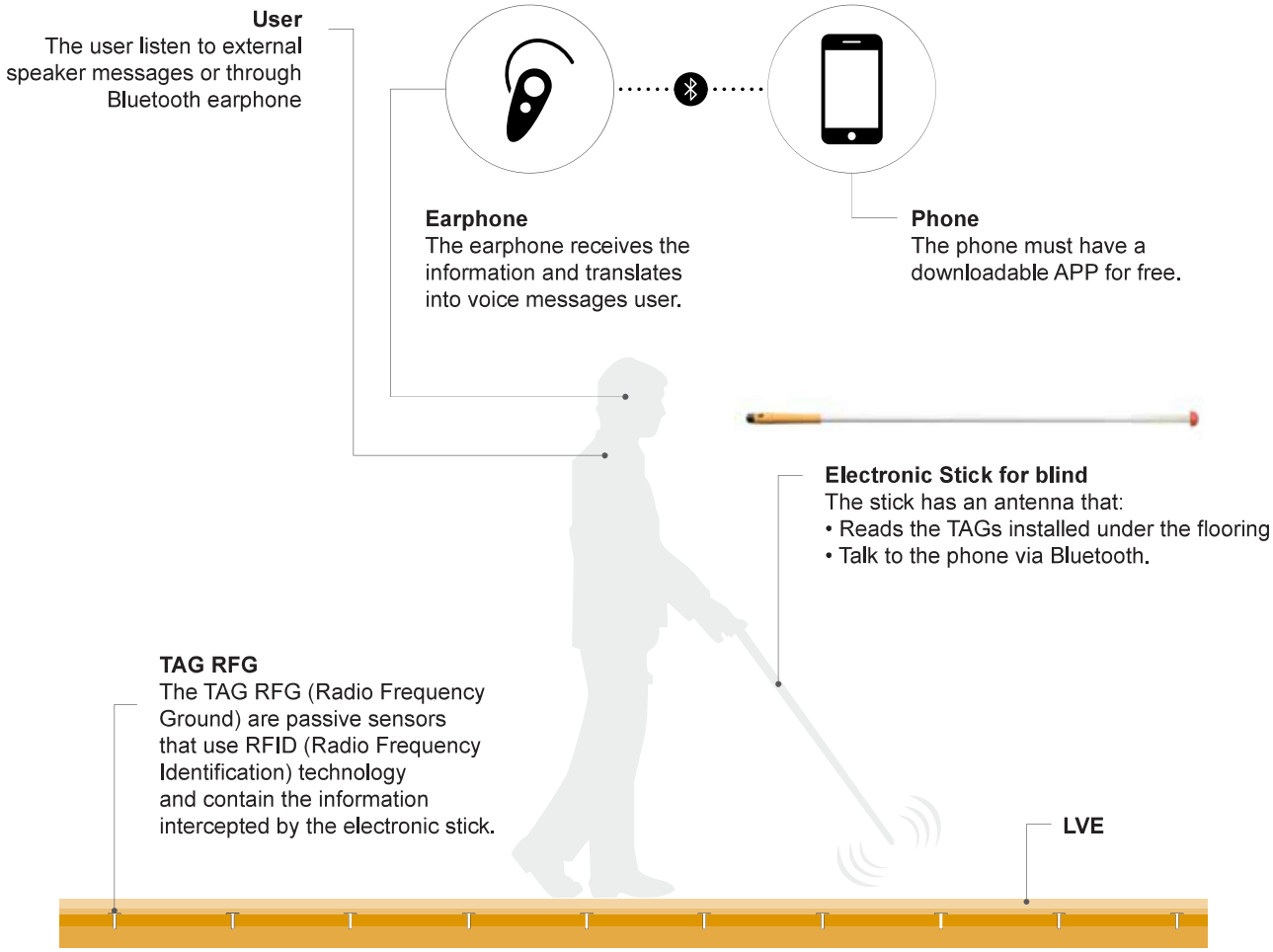
The mapping consists in assigning to each TAG RFG, placed under the pavement, several useful information for the user as the signalling of a danger, a service and any other specific information to every design requirement.
The mapping can also be done later than the installation of the tactile path.

LVE technology provides rapid vocal information on the surrounding environment. In this way, the user, through the connection system with the smartphone / tablet and the bluetooth earphone, is correctly and analytically informed of the entire environmental context.

It is also possible to transmit voice messages that provide simple information, such as:
- presence of crossings;
- pedestrian crossings;
- travel guidelines;
- any points of interest.

Furthermore, the voice messages, allow the transmission of even more elaborate information, such as:
- news on means of transport;
- presence and information on museums, archaeological excavations, historic centers etc;
- information on public facilities (universities, schools, hospitals, etc.).

Note
Source: dascenzi.it



Overpass

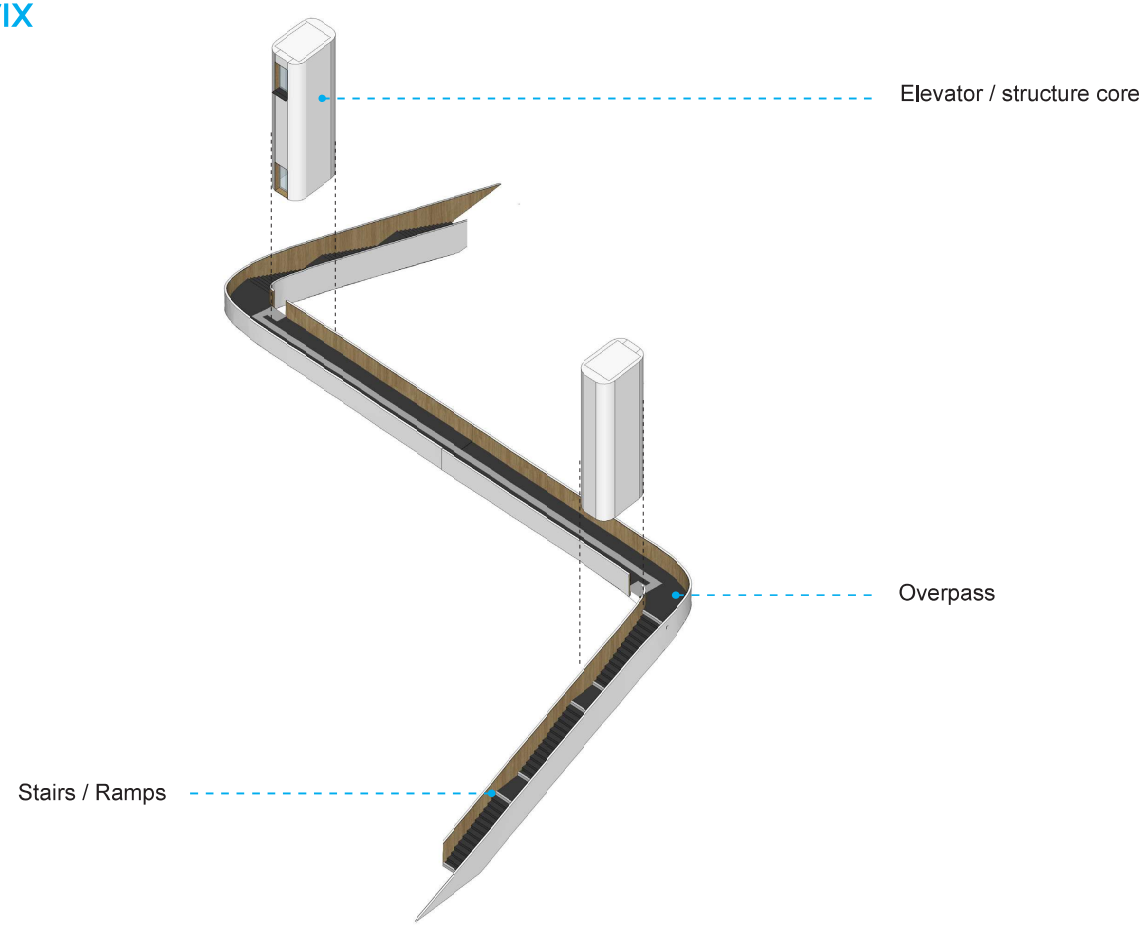
B4

B4.1 Matrix
B4.2 Concept Design
B4.3 Layout
B4.4 Materials
B4.5 Structure

Matrix

B4.1

Identity Matrix



Material

Geometry

Modularity

Color

Vegetation

	N	C	R
Overpass			

Concept Design

B4.2

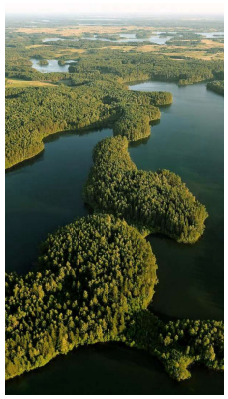
Overpass as all other Station elements refers to the traditional materials form Baltic countries, underlining the connection between the three countries but also emphasizes the idea of using sustainable materials. Its dynamic shape take inspiration from Baltic sea, simulating the flow of waves and people



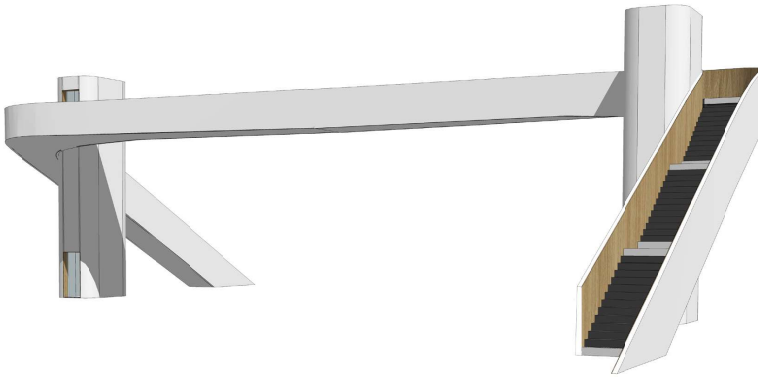
Traditional houses

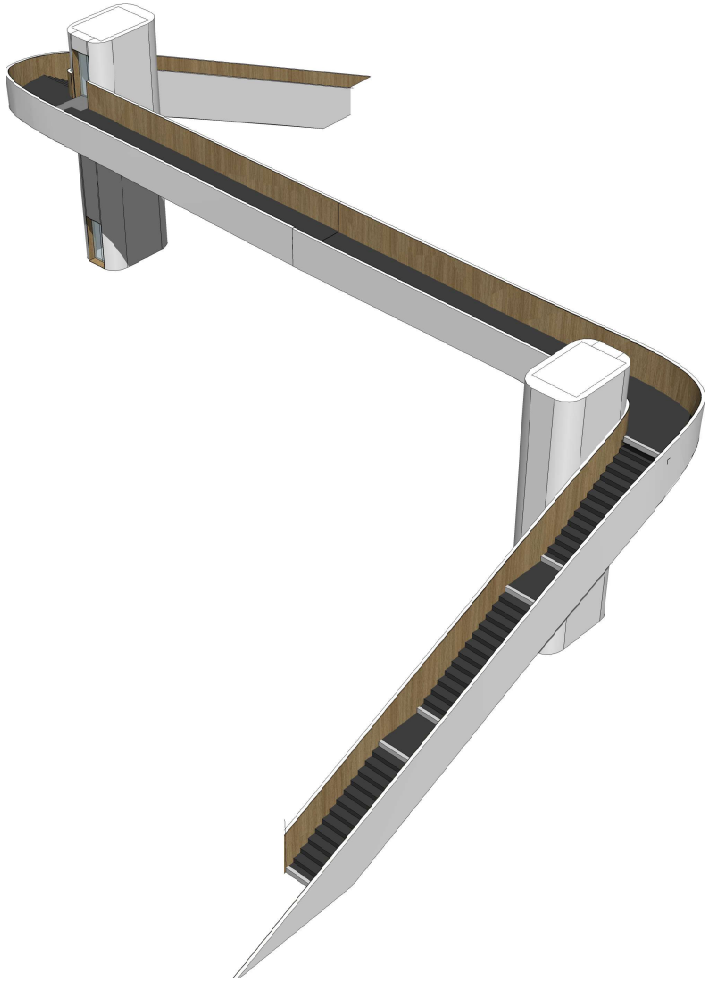


Baltic Sea



Natural landscape



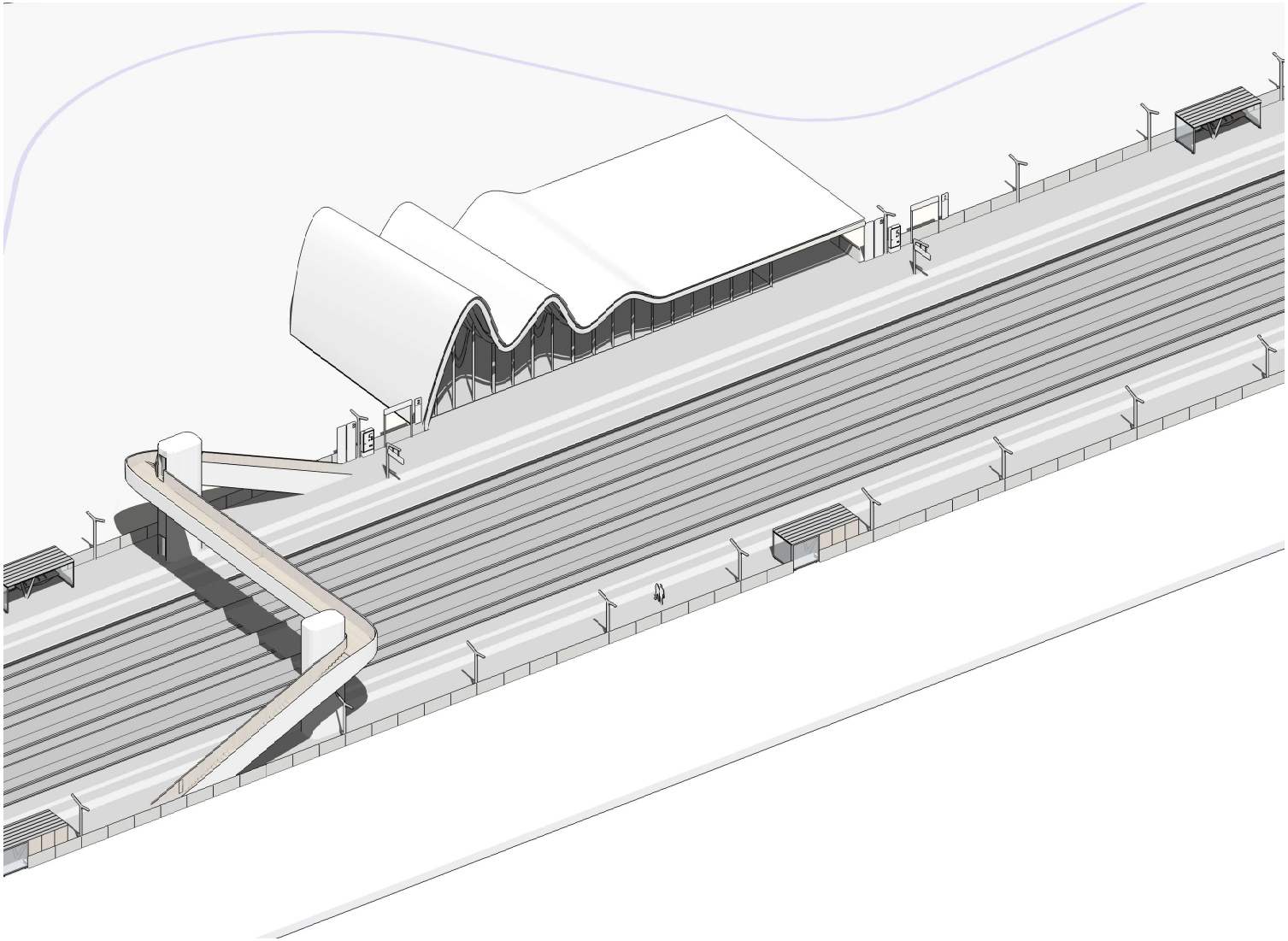


Pictures
From left:
Image 1 - *Credits: SBS Engineering*
Image 2 - *Credits: pixabay.com*
Image 3 - *Credits: lithuania.blogas.lt*

Layout

B4.3

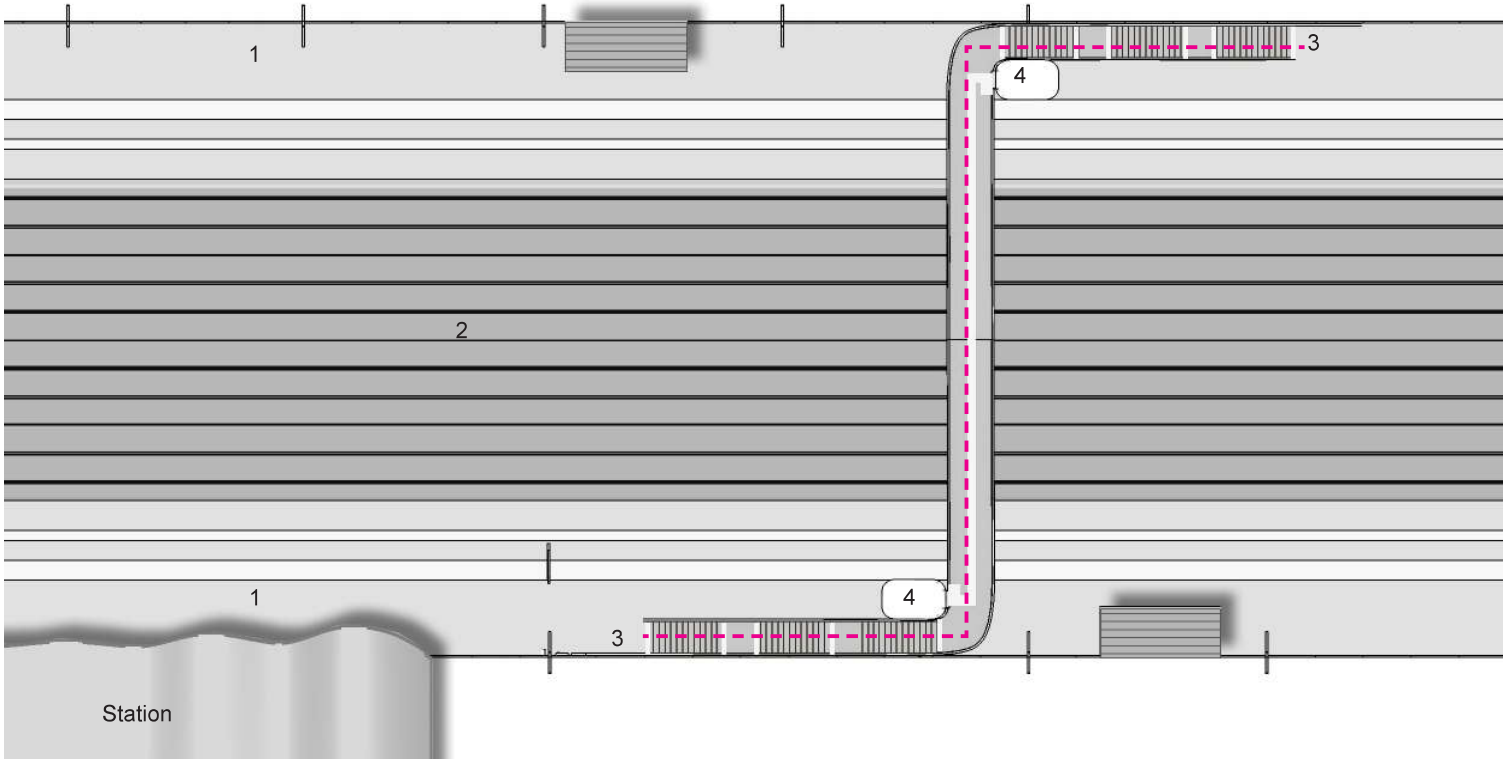
Overview



Layout

B4.3

Route



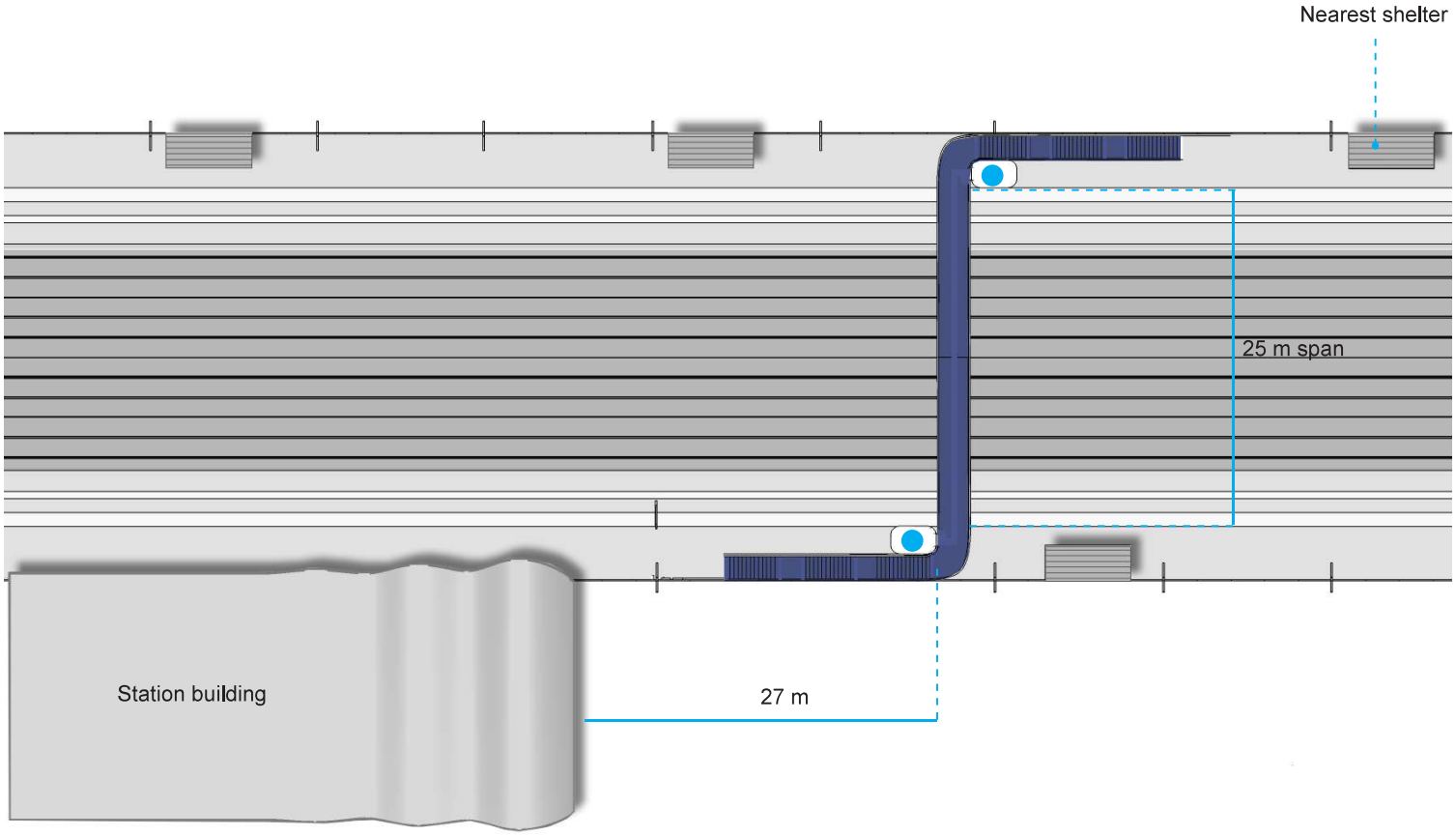
Picture
1. Platform Walkway
2. Tracks
3. Overpass access
4. Elevator
5. Platform

Flow of passengers

Layout

B4.3

Functional Layout



Note
Dimensions are only for reference. If local regulation provides different dimensions, designers have to follow that instruction.

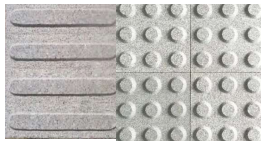
Materials

B4.4

Overview

Stairs should be easy to find, obstacle-free, non-slip and comfortable to walk on. Contrast markings, guide rails, width, tactile markings and signage should comply with Systra regulation. The guttering should be seen as an integral part of the stairs and the selected materials should harmonise with other materials on the stairs.

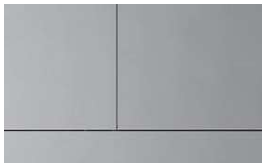
Panoramic Glass enclosure



Light Grey Concrete



Laminated wood



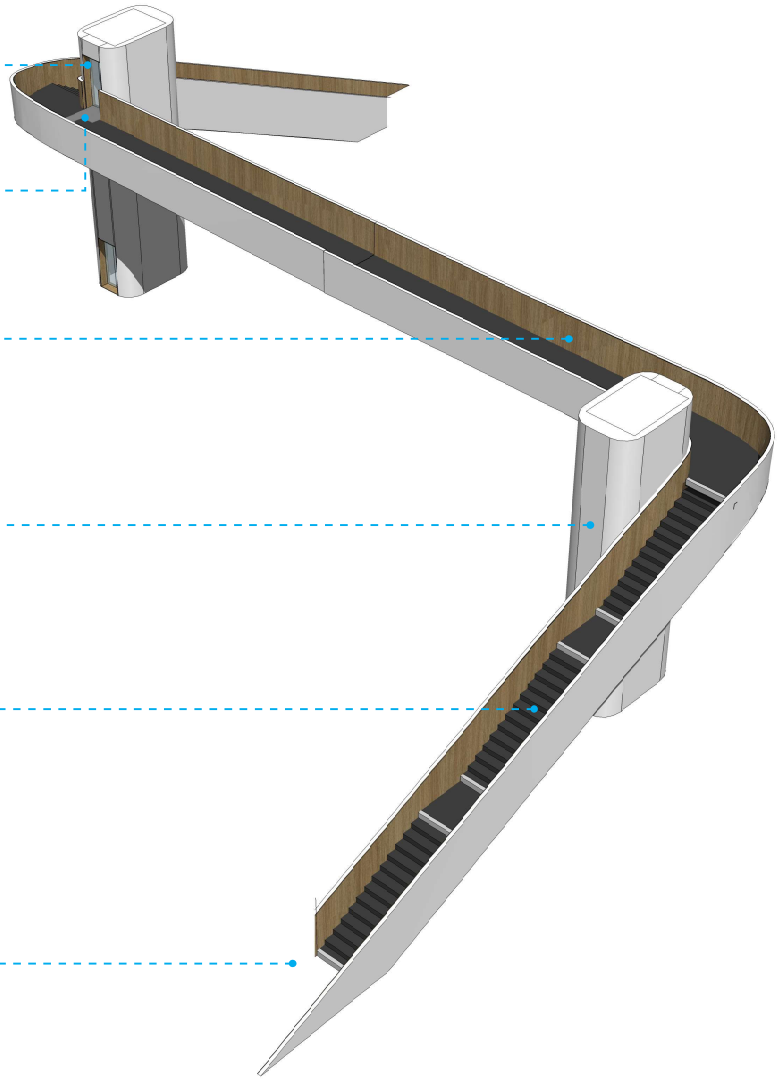
Metal Cladding



Walkway Dark Grey Concrete



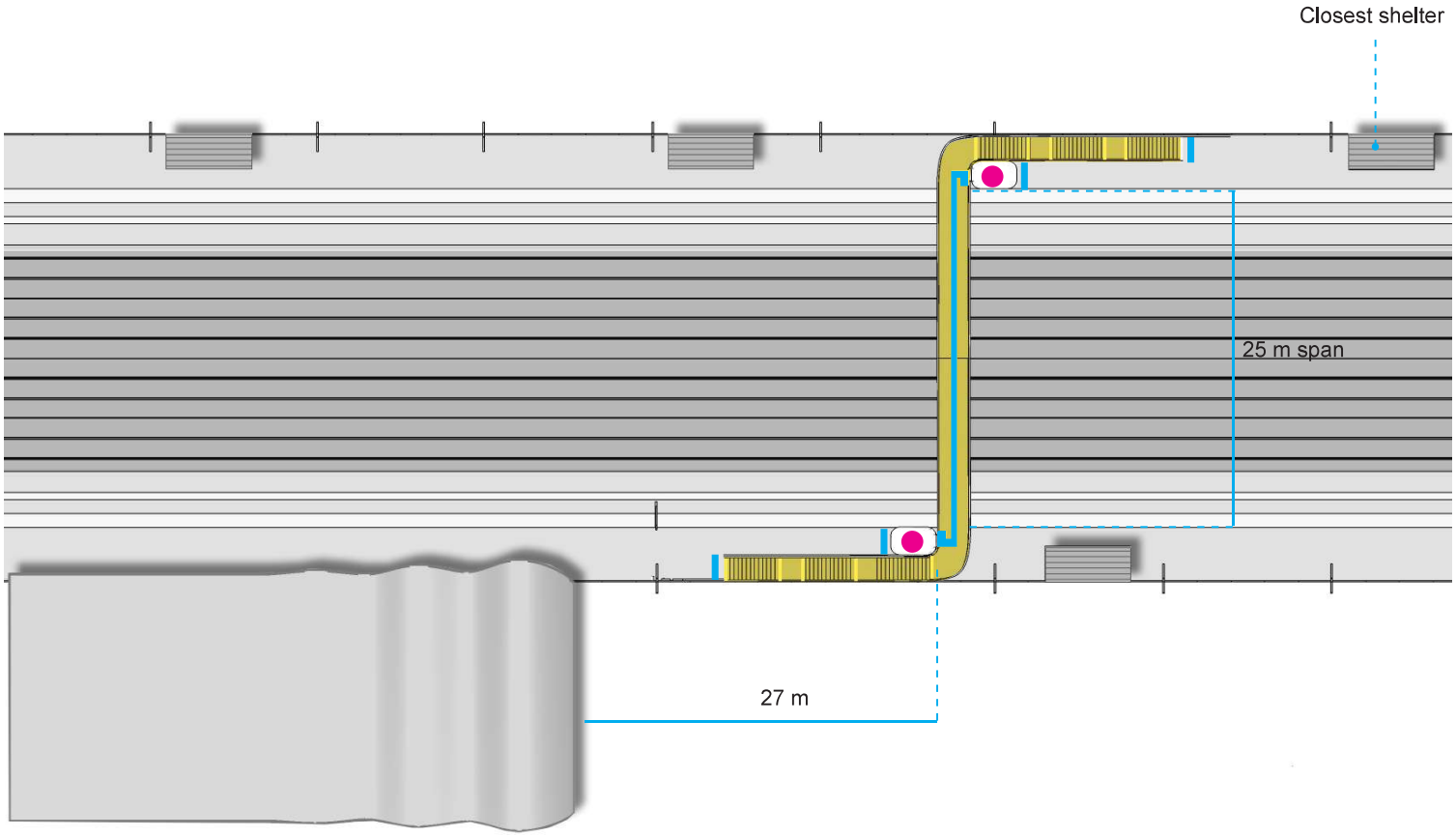
Walkway Light Grey Concrete



Materials

B4.4

General Layout

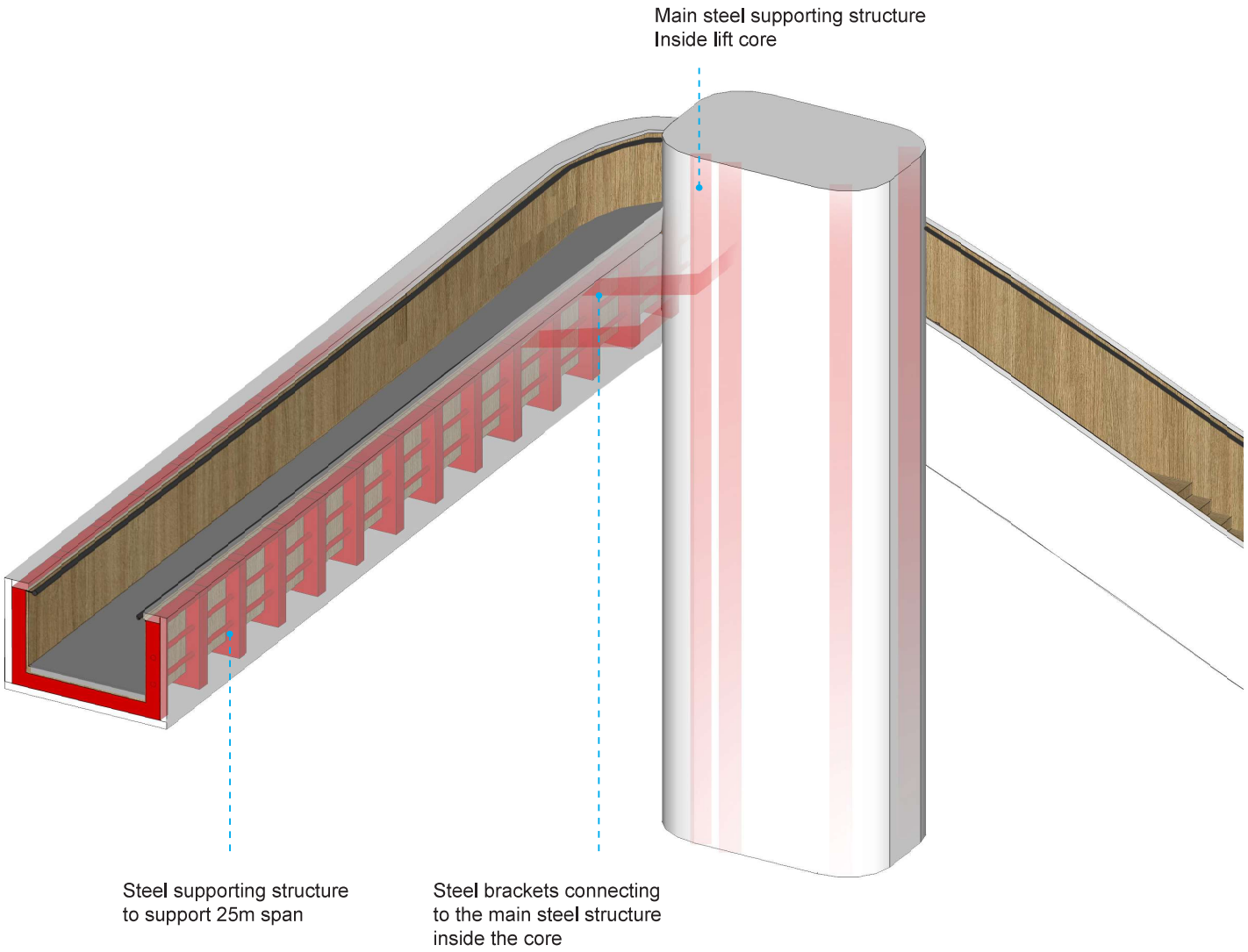


Legend

- Elevator
- Light Grey Concrete (tactile)
- Dark Grey Concrete

Structure

B4.5

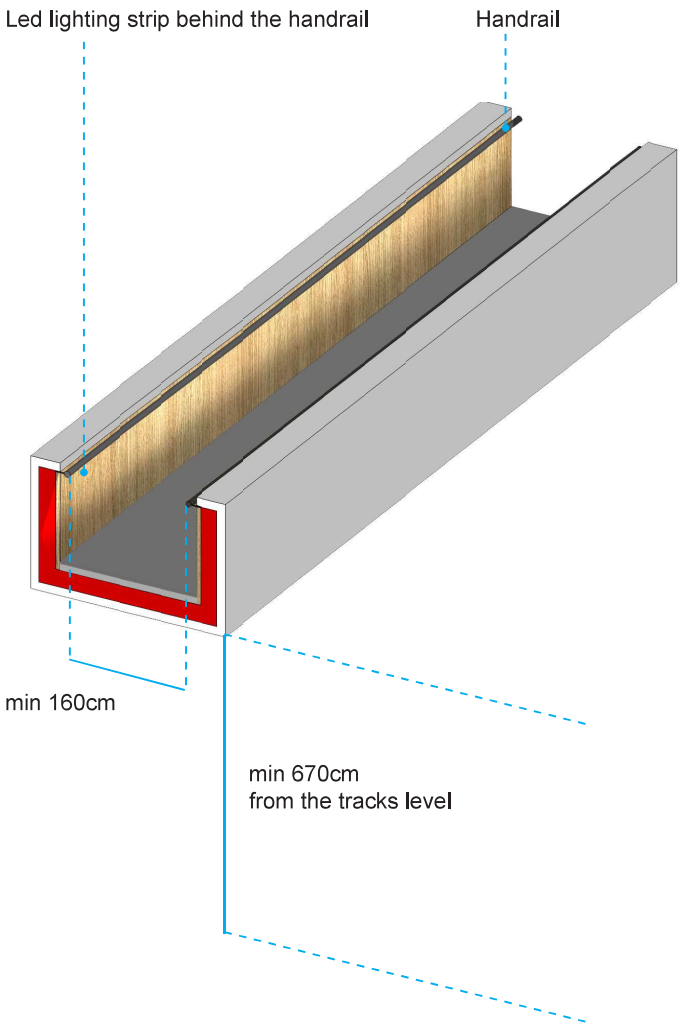


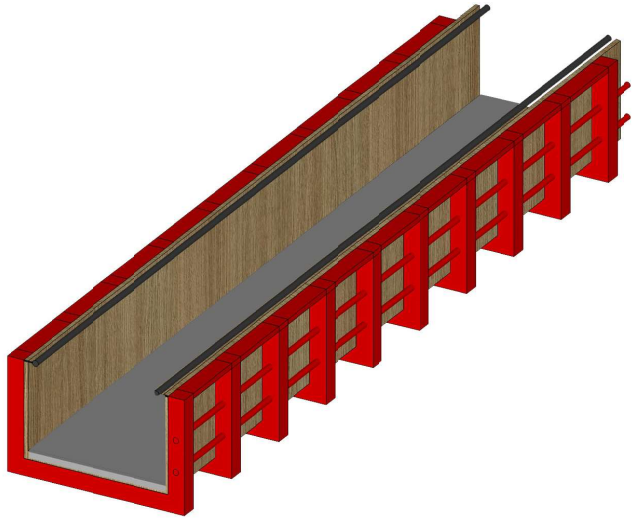
Note
Image illustrates a preliminary structural proposal.

Dimensions are only for reference.

Structure

B4.5





Note
Image illustrates a preliminary structural proposal.

Dimensions are only for reference.

B

Rail Baltica Station Elements

ARCHITECTURAL, LANDSCAPING AND VISUAL IDENTITY DESIGN GUIDELINES FOR RAIL BALTICA

RB Rail AS