

Technical Lighting **SUB**



what is it?

lighting for stations and transport hubs

Over the centuries, using lighting solutions during night-time hours and indoors has led to humans developing a range of increasingly efficient technologies, in order to ensure:

- Our impact on the environment is reduced;
- Safety is increased;
- The lifetime of lamps is increased;
- Maintenance costs are decreased.



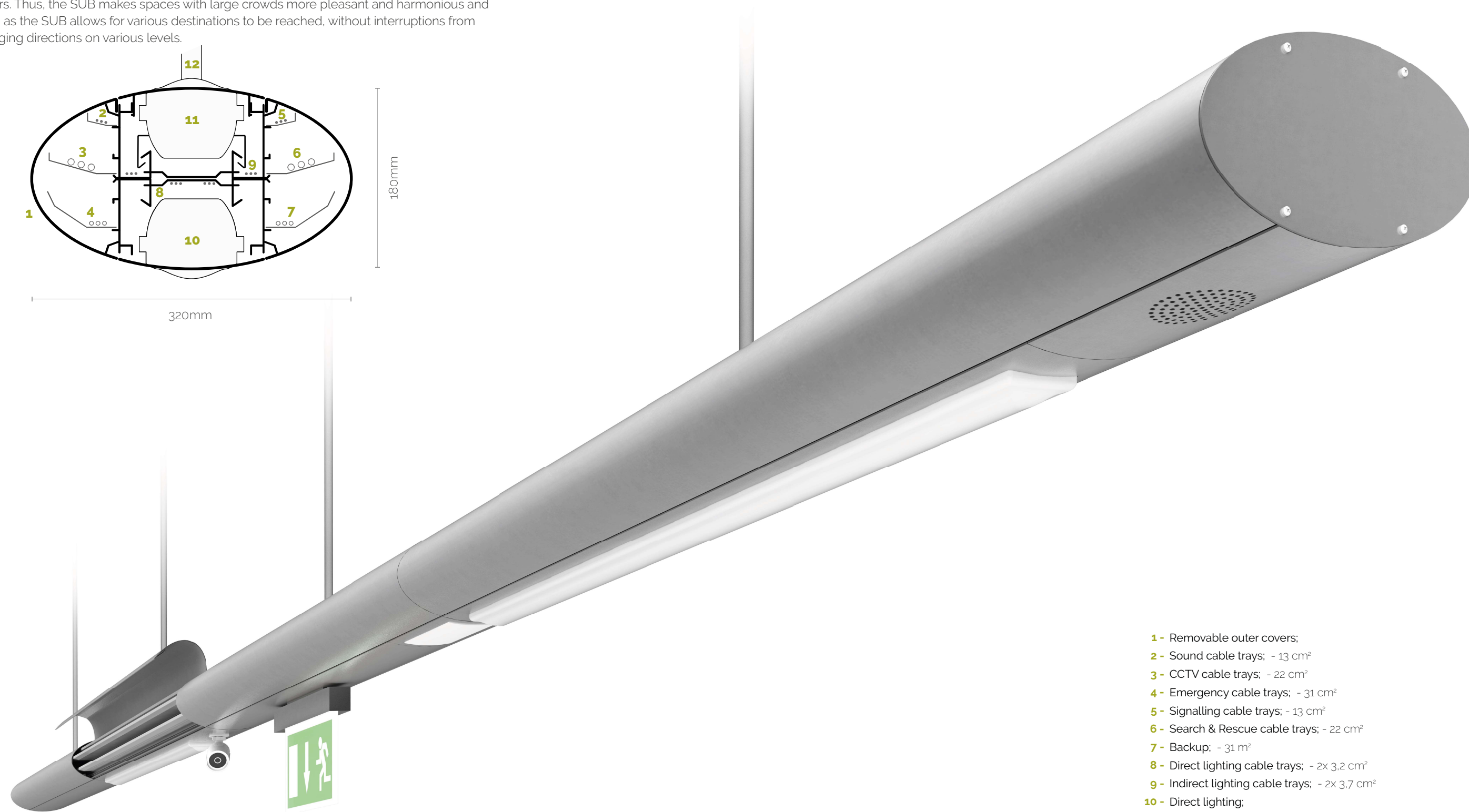
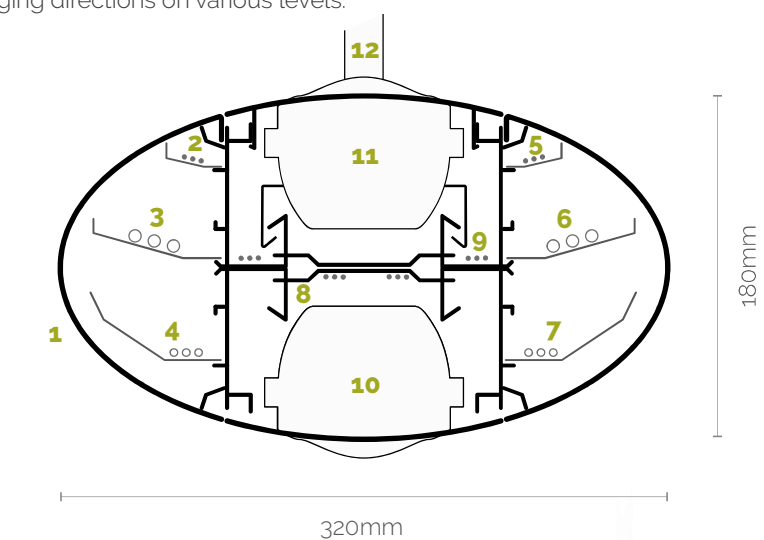
The absence of or decrease in natural light in underground and / or surface stations means there is a need for lighting solutions to be installed in these environments. Thus, in order to ensure the visibility, comfort and safety of the people that use these environments, it is essential that we use efficient and functional lighting.

Within these environments, there are a number of areas that need to be illuminated, in particular: entrances, corridors, stairs, waiting areas, pedestrian tunnels, offices, bathrooms and finally, the most complex of all, platform areas.

TECHNICAL LIGHTING SOLUTIONS for RAILWAYS and SUBWAYS

SUB

SUB is a multifunctional structure that brings together the various types of technology necessary to ensure that spaces function correctly, by controlling the lighting, sound, video surveillance system, emergency lighting, search & rescue lighting and signage, along with other factors. Thus, the SUB makes spaces with large crowds more pleasant and harmonious and safer, as the SUB allows for various destinations to be reached, without interruptions from changing directions on various levels.

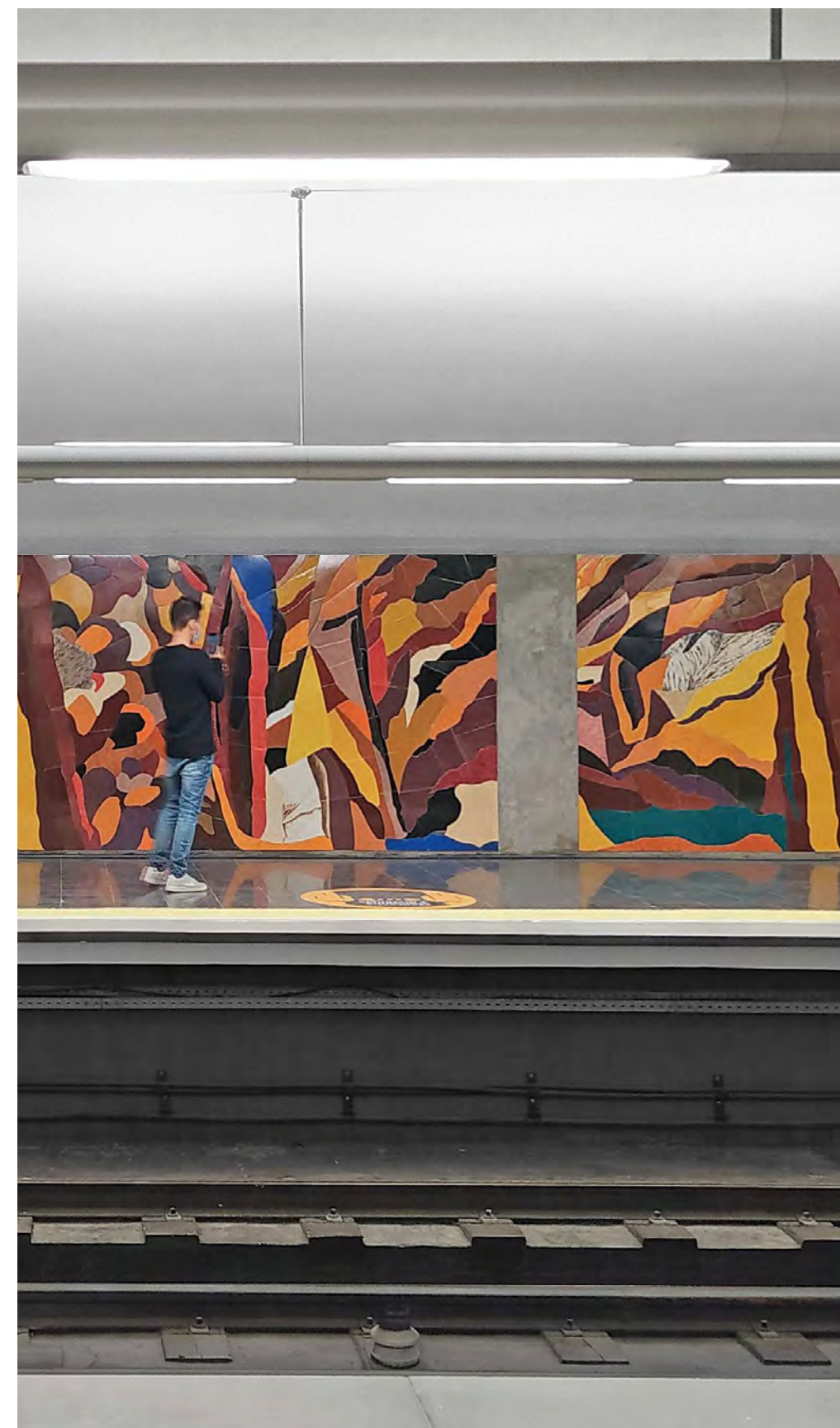
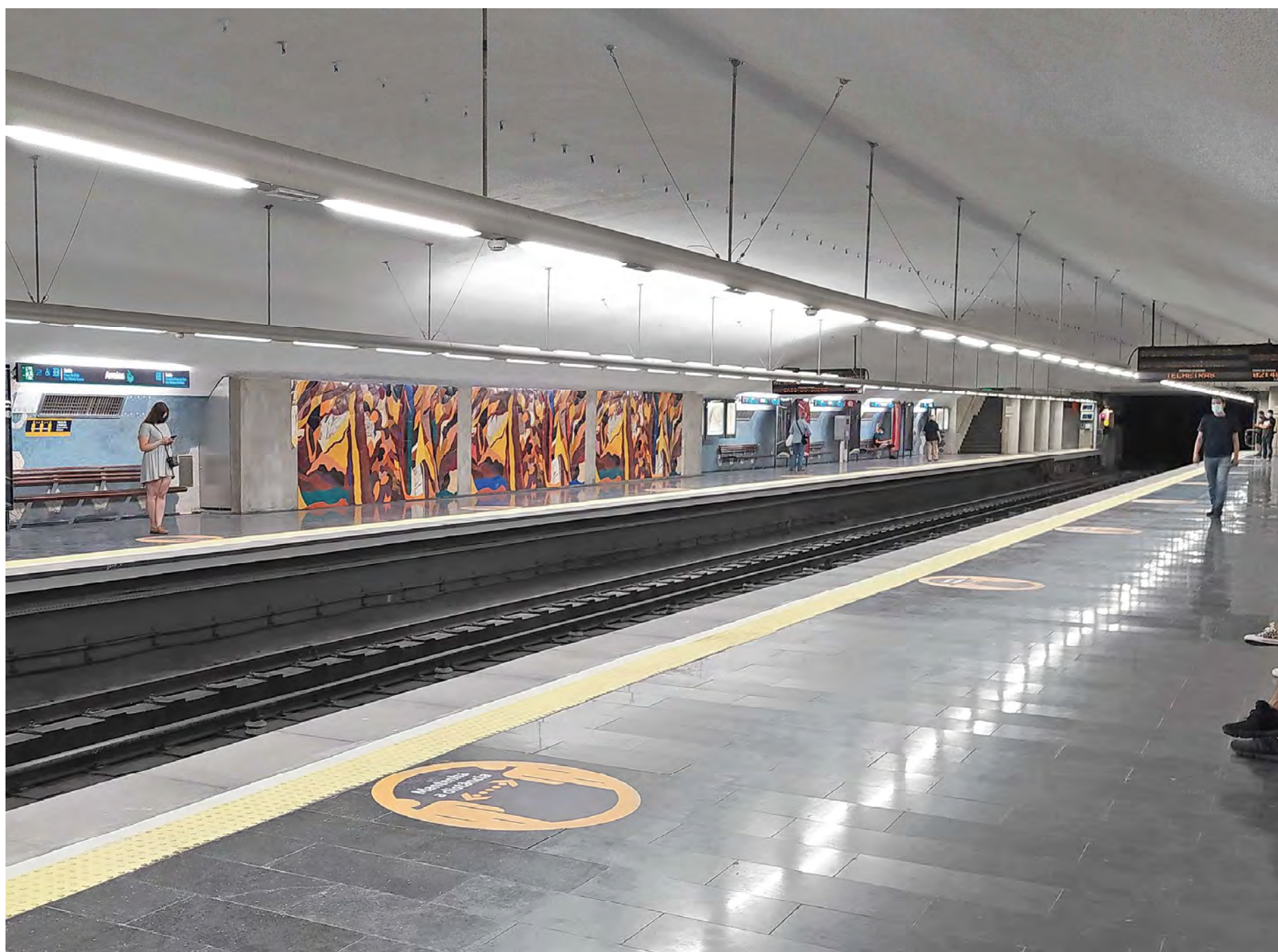


- 1 - Removable outer covers;
- 2 - Sound cable trays; - 13 cm²
- 3 - CCTV cable trays; - 22 cm²
- 4 - Emergency cable trays; - 31 cm²
- 5 - Signalling cable trays; - 13 cm²
- 6 - Search & Rescue cable trays; - 22 cm²
- 7 - Backup; - 31 m²
- 8 - Direct lighting cable trays; - 2x 3,2 cm²
- 9 - Indirect lighting cable trays; - 2x 3,7 cm²
- 10 - Direct lighting;
- 11 - Indirect lighting;
- 12 - Rigid tube suspension

Arroios Station _ Lisbon Metro, Portugal

The Arroios station underwent a major expansion and refurbishment, both extending to the respective platform. The process included the installation of a multifunctional suspended structure, an **oval-shaped SUB**, which allows the integration of lighting, sound, emergency, CCTV, signage and cable routing. In addition to the elegance, robustness and efficiency of the set, it stands out the easy installation and subsequent maintenance of the entire system, which includes LED technology lighting.

Rail length in meters	210
Number of Luminaires	122
Average power /luminaire	30 W
Average System Efficacy	120 lm/W
Hours of Operation/day	24 h
Energy Consumption/luminaire	263 kWh/year



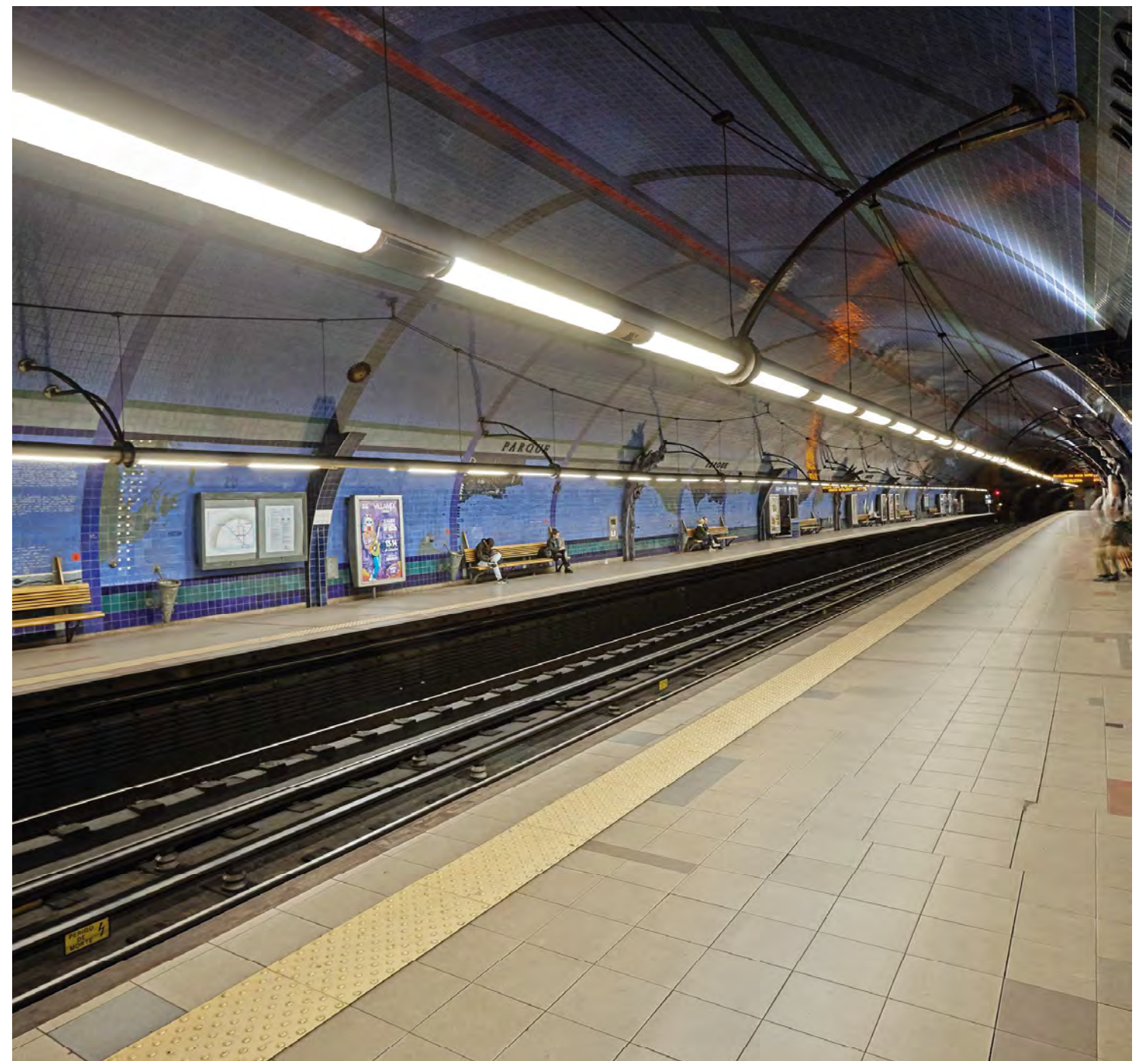
SUB







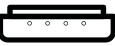


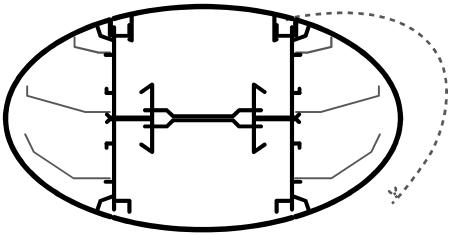


Avenida Station _ Lisbon Metro, Portugal



Parque Station _ Lisbon Metro, Portugal



features



suspension

indirect lighting

Main Body

direct lighting

search & rescue lighting

emergency lighting

Security cameras

speakers

signage

closed cable runner


from the ceiling and walls

CE


230V AC
50 Hz

IP66

IK08



850°C




EN 60998

DC 48V/110V, centralised batteries

CE

IP42

IK04



1-2h

850°C

LED
4000K


Ni-Cd

EN 60998

CE

IP42

IK04



1-3h

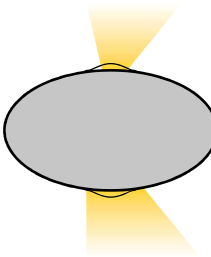
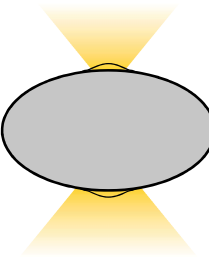
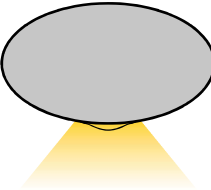
850°C

LED
4000K

Ni-Mh

EN 60998

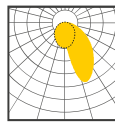
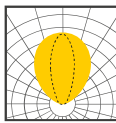
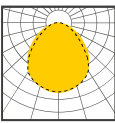
LIGHTING



direct

direct and indirect

asymmetrical

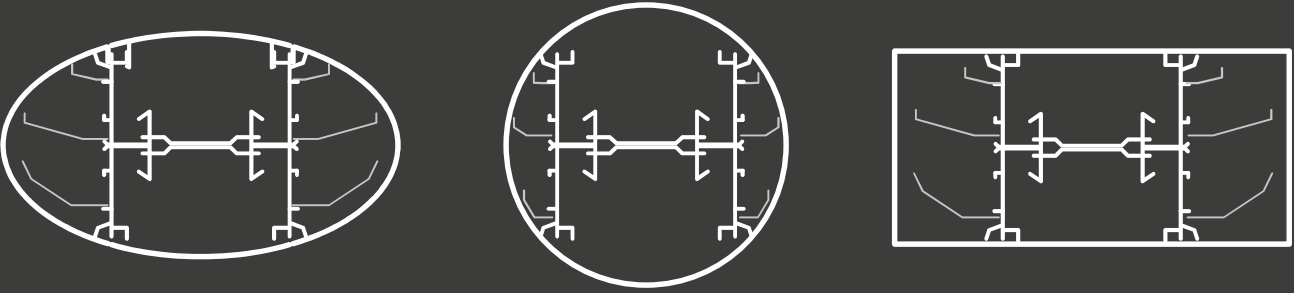


direct

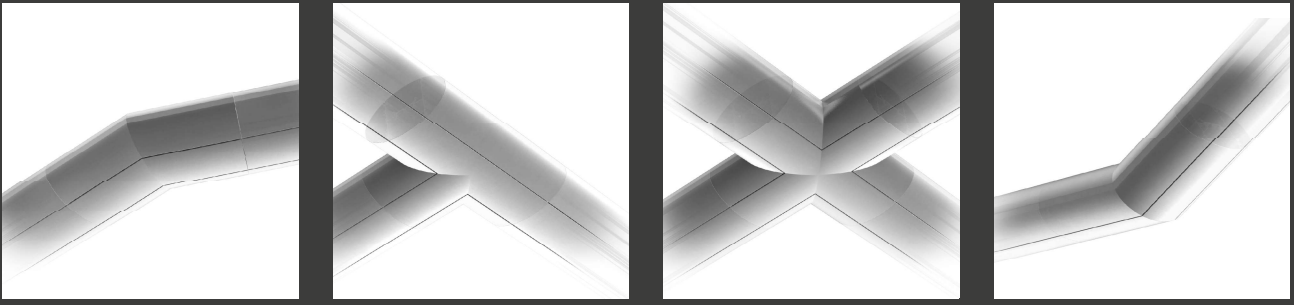
indirect

asymmetrical

Options of several EXTERNAL SHAPES



Options of CHANGES OF DIRECTION



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