

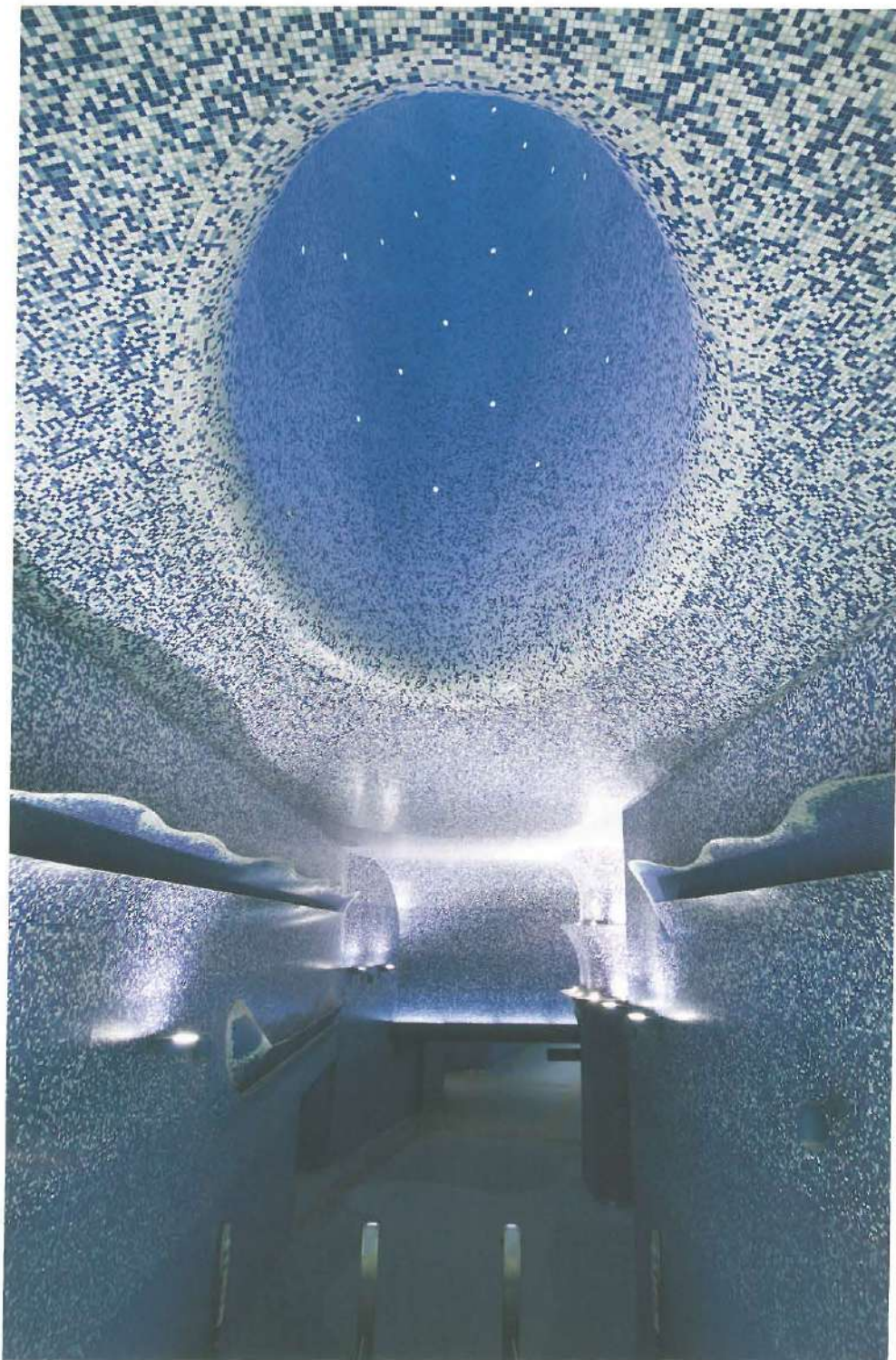
In-depth inspiration

Toledo Metro station and Piazza Diaz in Naples/I

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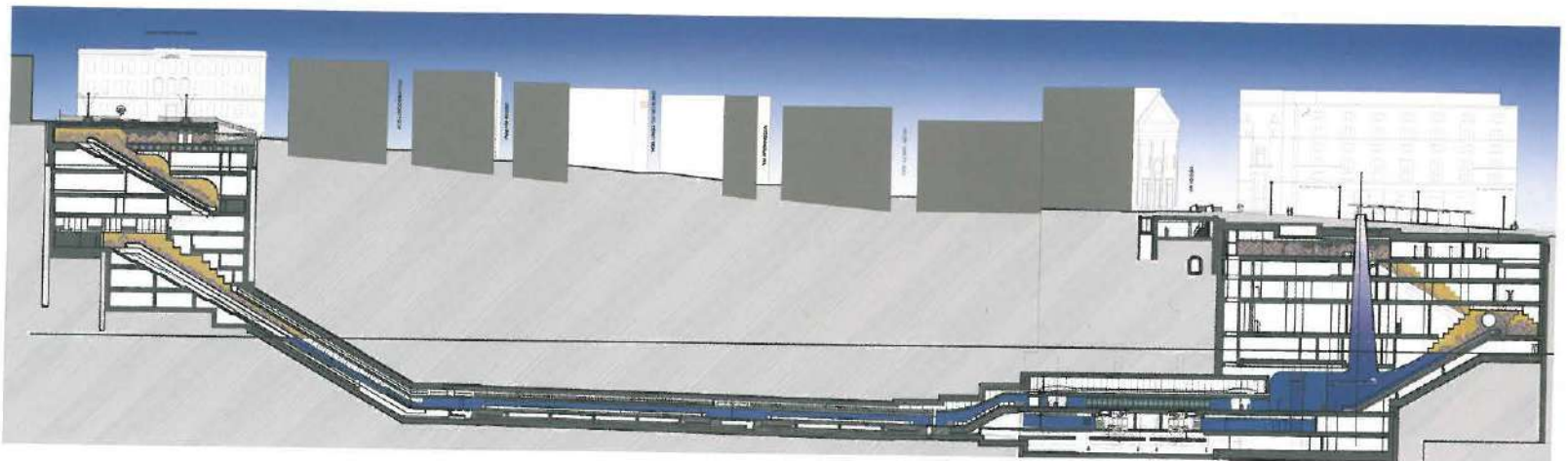
Toledo underground station is an astounding visual experience. In modern-day terms one would talk about an array of pixels. Traditionally speaking, the tiny dots are in fact mosaic tiles.





Toledo underground station in Naples extends over a large area. The station is located 40 metres under the ground and is accessible from two sides.

Inspiration is a strange phenomenon, a miracle, a penny-has-dropped sensation. It can lead to a surge of creativity, a raison d'être or, in the case of Oscar Tusquets Blanca when viewing the beginnings of the engineering work in preparation for the Toledo Metro station, a razón de ser.



From a design point of view the station is built over three levels: street level, under ground, and below sea level, which inspired the colour scheme for the different levels.



The underground station at street level. The openings for natural light to penetrate into the station at mezzanine level are relatively unobtrusive.



The parasols are designed to protect street-market stalls against sun and rain. The undersides of the "petals" incorporate embedded downlights.



On his first visit to the site the architect not only discovered that it was still possible to make substantial structural modifications, he was also impressed by what he described as "the Piranesian grandeur of the huge pit" that had been dug into the ground. It was more than 40 metres deep, with an immense gantry crane over it removing tonnes of volcanic sediments from the Neapolitan subsoil. He was informed that the pit would be covered via a series of floors. This was when the inspiration set in... Although space was required to house machinery and ventilation ducts, he proposed the crater should not be entirely covered. He recalled champagne cellars in Épernay built inside lime pits that dated back to Roman times, white cathedral-like cones lit through a small orifice in their vertex, and described this to the railway engineers, who in turn enthusiastically explained how Naples was full of impressive Roman mines. It all became clear then.

Oscar Tusquets Blanca: "It seemed magical that travellers coming off the trains would be able to sense how deep they were and glimpse the light of the sun up there above; and that in the piazza above strollers would be

able to lean over the parapet and see passengers moving around 37 metres (about 12 storeys) below them, something surprising and dizzying".

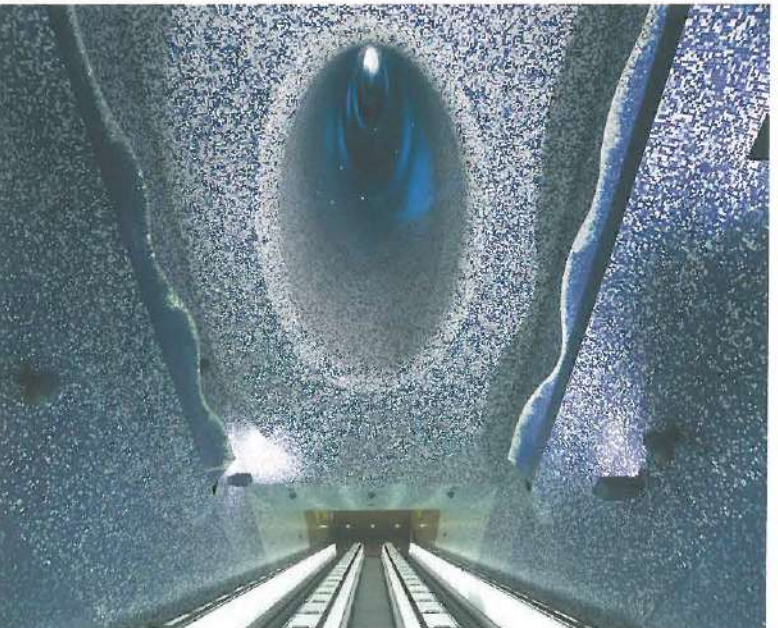
The unusual depth of the station, and the fact that almost half of it was below sea level, inspired the architect to design the part above sea level to look as though it were excavated in the rock. The floor and walls of the upper part are clad in natural stone, while the discovery of the remains of a muro aragonese in the ticket hall enhances the desired image of excavation. The "underwater" areas are clad entirely with blue vitreous mosaic. Above ground, everything is earthy and matt, below ground, blue, shining and vibrant.

This dichotomy is heightened by the works of the two artists: South African artist William Kentridge designed two murals on Neapolitan themes in stony mosaic, with a rough, ancient character in the "excavated" areas; and US artist Bob Wilson installed two long views of the sea-shore in the "aquatic" zone, whereby the waves move subtly as one walks along the gallery.

Bob Wilson also played a fundamental role in the lighting of the crater. Light would penetrate the pit

The skylights at mezzanine level bring daylight into the entrance area. The light is relatively intensive since the daylight only needs to travel a short distance to this level.





through the opening at the top, but electric lighting was required for after daylight hours. Lighting from above would have caused glare for metro users on the platforms, and uplight from below would have had the same negative effect for people entering the pit from the street. The architect had the idea of embedding matrices of LEDs in the surface of the cone that would illuminate the area facing each one. Bob Wilson created a programme that would coordinate the colour and intensity of each LED over time, so that regular commuters would see a different show every time they used the station. The result is magical.

Natural light also penetrates into station at mezzanine level through three skylights. The ceiling of this vestibule area is black, but the white of the skylights spills into random shapes that are reminiscent of figures by Dalí or Hans Arp. These skylights illuminate the interior, and also enable travellers to catch a glimpse of the muro aragonese and Kentridge's mural.

In addition to the underground work the architect and his team also designed the area at the end of Via Diaz, which has now become a broad pedestrian piazza where people enjoy a break along the ever busy Via Toledo. Two of the three light-wells that illuminate the mezzanine in the metro are located in the little streets that lead into the *quartieri spagnoli*. Trees have been planted in the small unexcavated area along the northern perimeter, and on the southern side there are grouped parasols to protect the street-market stalls which were formerly randomly positioned along the pavements. The canopies are designed in the form of superimposed "petals". They provide protection against sun and rain and the underside incorporates embedded light sources.

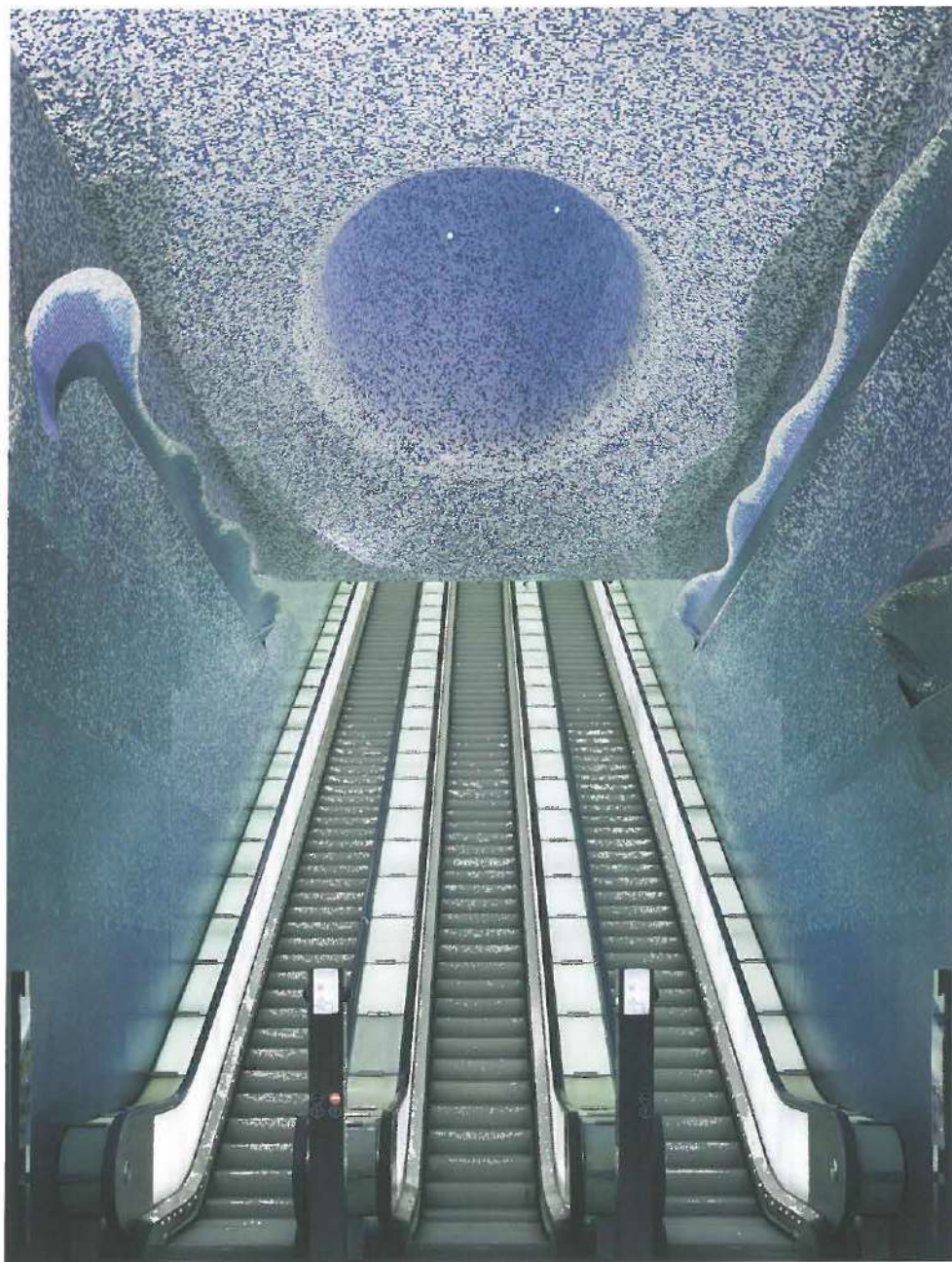
William Kentridge's Corten steel equestrian statue is mounted on a stone podium in the upper part of the piazza, where Via Toledo connects to the square. Volcanic stone paving is used in the circulation areas and ceramic cobblestones, warmer in colour and texture, in the rest areas.

Anyone using the underground station is clearly in for a perceptual treat. Perhaps not everyone is aware of the history of the site or understands what drove the architect to use the materials and the lighting he did, but our collective memory of "Roman baths" is not far from what we witness here. The Romans have an outstanding reputation when it comes to engineering and construction. They certainly gave the architect food for thought with their champagne cellars in France and the resulting metro station is sure to inspire all who pass through it.

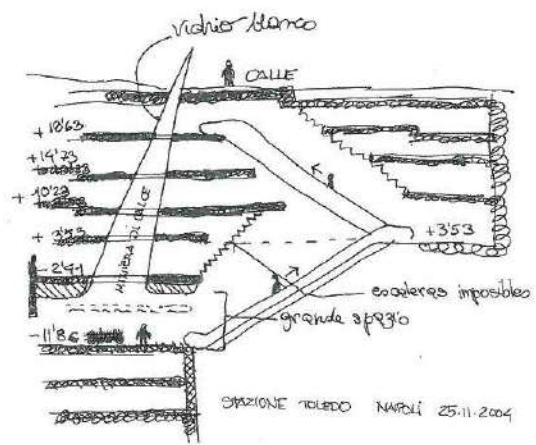
What this has to do with lighting design? Well, it at least has to do with perception, which, as we all know, is a substantial part of lighting design.

This underground station is a magnificent example of how human perception works. The sections of mosaic walls in particular do not necessarily point to an overwhelmingly convincing lighting concept, but the space itself is definitely overwhelmingly convincing. There may be some who are reminded of migraine effects when viewing the walls and are torn between admiring the aesthetic quality of their surroundings and suffering under the visual challenge of taking it all in. Just imagine how a fly feels with its compound eyes...

The underground station offers far more than just a



Two aspects determine the atmosphere in the entrance to the underground station 30 metres under the ground: firstly, the fine mosaic clad walls, and secondly the enormous cone-shaped funnel that links the station level with the world at street level. Large amounts of daylight cannot be transported over this distance into the underground spaces, as the models may indicate. Electric light is added after dark. The openings in the cone give rise to dots of light. The overall impression is comparable to that of an air bubble making its way up to the water surface, especially since part of the station is actually below sea level. This is not the only parallel to water.



Concept sketch, model and pre-assembled cone.



The route connecting the station to Largo Montecalvario features plain but high-quality design. The colour blue was chosen for psychological reasons. People generally feel comfortable and focussed under the colour blue, which is helpful when they are moving in a space deep under the ground.





complex conglomeration of images, however. It is a unique experience in itself. In spite of the fact that the station is built deep under the ground the architect stuck to his plan to work with daylight. Of course, there is not sufficient daylight to be able to efficiently illuminate the entire station, but psychologically it is good for users to know that even at this depth they still have access to natural light. What we see here is daylight design that is not driven by energy efficiency requirements and – just as important – no light pipes and no attempt to balance energy savings against investment. Just the thought of going down that route would have most likely have led to the idea being rejected. In that sense this project is not only special, but also unique and of artistic value.

Daylight is of immense importance – even if only available in small amounts. In this case the sheer depth of the space suddenly became a wonderful opportunity. Nobody would have ever thought of inserting a funnel of this size into an underground shaft and illuminating it

over several levels using electric light. Without the inspiration gained through daylight and the unusual effect created by the funnel-shaped pit, the station would probably have been designed – like any other station – as a composition of horizontal elements, perhaps with a colourful dynamic lighting scheme to make it just that little bit different ...

As it is, we can now start spreading the word that any space can be enhanced by daylight and that structural engineering need not be an insurmountable hurdle, even if the space where the construction is going on is more than 40 metres underground.

Project team:

Client: Municipality of Naples, Italy

Architect: Oscar Tusquets Blanca

Project management: Giovanni Fassanaro

Lighting design: AIA

Artists: William Kentridge, Bob Wilson, Achille Cevoli
