

Tunnels & Infrastructures

Winners of the 9th ITA Tunnelling Awards



Since 2015, the international competition seeks and rewards remarkable achievements in the tunnelling and underground industry. Organized by the International Tunnelling and Underground Space Association, the event both showcases the most ambitious underground projects all over the world as well as latest innovations, techniques, and methods in tunnelling. The 9th edition of the ITA Tunnelling and Underground Space Awards [<https://www.tunnels-infrastructures.com/tag/ita-tunnelling-and-underground-space-awards/>] took place in Mumbai, India in conjunction with the Tunnelling Asia 2023 conference of TAI, the Tunnelling Association of India.

This year, through 7 categories, the ITA Tunnelling Awards identifies and rewards major disruptive innovation and groundbreaking projects.

The winners of the 9th ITA Tunnelling Awards:



- Major Project of the Year (over €500M) – EOLE – Paris East-West Rail Express Link, France
- Project of the Year (between €50M and €500M) – Comprehensive Project of Shenzhen Binhai Avenue (Headquarters Base Section) Coastal Wide Underground Space, China
- Project of the Year incl. Renovation (up to €50M) – Mount Royal Tunnel – Double Arch Replacement & Rehabilitation for the REM Project, Canada
- Technical Innovation of the year – Building Blocks in a Foundation Pit – Prefabrication and Assembly Construction Technology for Metro Stations, China
- Product/Equipment Innovation of the year – Hard Rock Shield + earth pressure + slurry three-mode TBM, China
- Beyond Engineering – Permanent Sprayed Concrete Linings on Mumbai Metro Line 3 Sahar Road crossover cavern, India
- Young Tunneller of the year – Cláudio David Cabral Dias, Portugal

Major Project of the Year (over €500M) – EOLE

The winner for the Major Project of the Year in the over-€500M category is EOLE – Paris East-West Rail Express Link, France EOLE, the Paris East-West Express Rail Link, expands the current E line of the RER (Regional Express Network) by 55 km, connecting the existing St. Lazare Station – 2nd busiest station in Europe with more than 450,000 passengers/day, in the heart of Paris – to the western metropolitan region.

Operation is set to begin mid-2024, on time for the Paris Olympic Games.

Project of the Year (between €50M and €500M) –

Comprehensive Project of Shenzhen Binhai Avenue (Headquarters Base Section) Coastal Wide Underground Space, China

The Binhai Avenue Tunnel, with a total length of about 1,560m, is laid flat and shallowly buried on the main and auxiliary tracks, with in-situ sinking and stacking layout. The south and north auxiliary roads of the subsidence-style tunnel



are arranged in staggered layers and the “two-in and two-out” special ramps are set up respectively in combination with the development of the Super Headquarters base to connect the Super Headquarters underground road network system, forming an underground three level road system of “underground express road + underground ring road + plot garage” to ensure the large-scale traffic demand of the Super Headquarters base and create an efficient underground transportation System.

Project of the Year incl. Renovation (up to €50M) – Mount Royal Tunnel – Double Arch Replacement & Rehabilitation for the REM Project, Canada

A section of the REM goes through the 5 km long existing Mount Royal Tunnel which was completed in 1917 and connects the downtown area with the north side of Montreal.

After 100 years of continuous operation since construction, the condition of the TMR was expected to require repair and upgrade for conversion to an LRT facility.

The project addresses the concerns from detailed inspections and strength assessments concluding that the South Section (92 m) was not in an acceptable condition after 100 years of deterioration caused by infiltration of chloride laden groundwater. Another 290 m length of the tunnel, named North Section, felt to be in an adequate condition to be remedied using observational rehabilitation methods.

Technical Innovation of the year – Building Blocks in a Foundation Pit – Prefabrication and Assembly Construction Technology for Metro Stations, China

Prefabrication and Assembly Construction Technology for Metro Stations is a new construction method for underground metro stations, using precast concrete structural components and assembling them like “building blocks” on-site in a foundation pit, to quickly assemble into tunnel structures, minimizing on-site construction activities.

This innovative technology was originally developed to solve the problem of impossibility to construct open-excavated metro stations in severely cold winter of Changchun, by using

experience using this technology has demonstrated that it also has outstanding advantages in various other environmental conditions.

Product/Equipment Innovation of the year – Hard Rock Shield + earth pressure + slurry three-mode TBM, China

The section of Luogang station – Shuixi station of Phase 2, Line 7, Guangzhou Rail Transit is 1086.5m long in total, with 19,73m buried depth, 600m minimum radius of curve, and 28‰ maximum gradient, with tunnel's outer diameter of 6m, and inner diameter of 5.4m. The engineering geology in the section is complex and variable. The TBM mainly tunnels through granite residual soil, boulder, upper-soft and lower-hard rocks, and full-section hard rocks, with high strength of rock stratum (up to 140Mpa), and relatively developed boulder (66.7%). During the construction, the shield continuously tunnels through important buildings and structures such as the airport high-pressure oil pipeline, tram line 1, and existing operating subway tunnels. The use of dual-mode TBM or mining methods can easily cause settlement of earth's surface, building and structure, incapable of effectively controlling the overall risk during construction. The researched and developed Hard Rock Shield + slurry + earth pressure three-mode TBM can effectively reduce risk, and control settlement of earth's surface and surrounding structure during tunnelling.

Beyond Engineering – Permanent Sprayed Concrete Linings on Mumbai Metro Line 3 Sahar Road crossover cavern, India

The Sahar Road Crossover Cavern is a stepped profile cavern on the Mumbai Metro Line 3 project, and comprises 6 different cross sections, symmetrical about the middle of the cavern.

The original design called for a conventionally reinforced, cast-in-situ secondary lining, though given the number of geometrical sections and complexity of staging the works, Mumbai Metro Rail Corporation opted to explore the use of sprayed waterproofing membranes and permanent fibre reinforced sprayed concrete linings (PSCL) as well as development of a 'drained regulating layer' concept which

allowed the application of sprayed waterproofing membranes in wet conditions; this was a first for any metro project in India, with the latter considered an international first.

To deliver this solution, it required the Client (MMRC), their Engineer (AECOM/Maple JV), the main contractor (J Kumar), the specialist sub-consultants (BEDI Consulting) and material supplier and expert (Normet) to work together to assure that this innovative technology could be delivered to international standards. This was especially the case given that no experience, codes, or standards existed for PSCL and sprayed waterproofing membranes in India.

Young Tunneller of the year – Cláudio David Cabral Dias, Portugal

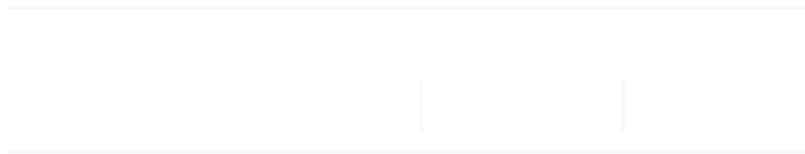
Cláudio Cabral Dias is a Portuguese tunnel engineer currently based in Madrid and working at Ayesa, as a Principal Tunnel Engineer. He is 34 years old and has over 10 years of international tunnelling experience, having lived and worked in Portugal, Brazil, United Kingdom, and Spain.

In September 2014, he joined CH2M (now Jacobs) as a Tunnel Design Engineer in London and started working on the Ipswich Cable Diversion Works, the National Grid Tunnels, and the Tottenham Court Road London Underground Station Upgrade. In May 2015, he was seconded to Crossrail as a Field Tunnel Engineer for Fisher Street crossover tunnels and caverns site. Then he worked as CAT 3 reviewer for the Purple Line of Los Angeles Metro. Lastly, he worked on the detailed design of Hinkley Point C Marine Works, as Lead 3D Modeller and as Package Manager for cast in-situ lining. In May 2018, he was hired by TYP SA, as a Senior Tunnel Engineer for the High Speed 2 project, London contracts, to work for a Design JV of TYP SA, ARUP and STRABAG. Then he joined as SCL Design Manager, responsible for the design team of 4 ventilations shafts and led a team of 10 people. In December 2020, he changed to Ayesa and was recently promoted to Head of Ground Engineering and Tunnelling, with the responsibility to lead and grow the tunnelling team of the company based in Madrid, Spain.

ITA Awards 2024 celebrates 10 successful years in Genoa, Italy

The whole tunnelling family may have a huge party celebrating the 10-year anniversary of the successful ITA Awards nearby the cozy harbour of the mediterranean Genoa, Italy, on Thursday, 28 November 2024. The anniversary award comes with a few surprises and new prize categories.

After the award event, the participants will have the chance to stay and attend the 50-year anniversary of ITA and Societa Italiana Gallerie, the Italian Tunnelling Association on Friday and Saturday, 29 and 30 November 2024. The theme “Tunnels and Underground Works: over the last 5 decades and onwards” promises some more than interesting presentations with job site visits on the second day, and enough time for networking and meeting old and new friends. Block the dates of these exceptional events directly in your calendar and follow the information coming soon on ((ITA Awards webpage)).



Awards 2016: The list of finalists disclosed

2016: The list of finalists disclosed

edition of the ITA Tunnelling Awards

the ITA Tunnelling Awards

Asia on the cutting edge of technology in underground space construction

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Civil engineers in the tunnelling industry: The booming interest of Generation Y

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International Tunnelling and Underground Space Association launches the 3rd edition of ITA Tunnelling Awards

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Shortlisted projects announced for ITA Tunnelling Awards in Paris

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