

Provisional Programme**SUNDAY 29th NOVEMBER**16:00
17:00Early Registration sponsored by: **MONDAY 30th NOVEMBER**08:00
09:00**Morning Registration with refreshments**

09:15

Symposium Chairman Welcome - Prof. Arnold Dix, CEO, ALARP

09:20

Opening Keynote Address**Tim Parker, CEO, High Speed Rail Authority**

ISAVFT is honoured to welcome Tim Parker to deliver the Opening Keynote in Melbourne. As CEO of the High-Speed Rail Authority Tim leads one of the most ambitious transport programs in the region, overseeing a high-speed rail vision designed to boost Australia's productivity and economic development as well as transforming long distance connectivity. With more than 25 years' experience delivering major infrastructure, including senior leadership roles at Sydney Metro and significant underground station developments, Tim brings deep technical insight and strategic clarity. His keynote will share the lessons, challenges and opportunities shaping the next generation of rapid transit.

Presenting; Australia's High-Speed Rail: generations of opportunities**SESSION 1 – SUSTAINABILITY IN UNDERGROUND DESIGN AND CONSTRUCTION****Chairman: TBA**

10:00

Cultural differences in road tunnel fire safety*C. Stacey, M. Beyer, Stacey Agnew Pty Ltd., Australia*

10:20

A strategy for the implementation of portal emissions in Sydney road tunnels*C. Williams, Aurecon, Australia*

10:40

Methodology for the fire safety assessment of existing tunnels*P. Gehrke, A. Purchase, B. Sundaram, Mott MacDonald, Australia*

11:00

Another kind of tunnel – practical applications of Newton's method to ventilation phenomena in sewer networks*M. Woodthorpe, A. Kirby, C. De Barros, T. McKie, F. Goh, GHD, Australia***Exhibitor Presentations**

11:20

Exhibitors Presentation



11:35

Exhibitors Presentation



11:25

Exhibitors Presentation



11:45

Exhibitors Presentation



11:30

Exhibitors Presentation



11:50

Exhibitors Presentation



SESSION 2A: ROAD TUNNEL CASE STUDIES Chairman: TBA		SESSION 2B: RAILWAY CASE STUDIES Chariman: TBA	
Ventilation design and performance analysis of the second bore of the Gotthard roadway tunnel <i>J. Maier, A. Sofia, U. Drost, Lombardi Ltd., Switzerland</i>	13:00	Innovative tunnel ventilation design for Chennai Metro Phase 2: elimination of under-platform exhaust (UPE) system <i>H. Prasad J, M. J. Mahalingaraja, Chennai Metro Rail Limited, India; V. Narendrakumar, S. M. Senthilvel, NKAB Consortium for CMRL Phase-2, Sweden</i>	
Bridging fire safety gaps between road tunnel design and O&M phases <i>J. Cadena Gomez, Transurban; R. Lau, RLau Services, Australia</i>	13:20	Hybrid 1-D and CFD modelling for sizing and validation of compact integrated metro ventilation systems <i>S. Ramasubramanian, D. Curioni, R. Nassi, MM SpA (Branch), UAE/India; H. J. Prasad, Chennai Metro Rail Limited (CMRL), India</i>	
The new Brazilian regulation on tunnel ventilation and its practical implementation <i>R. Miranda, Mirabit Consultoria e Treinamento Ltda., Brazil; M. Bettelini, Independent Consultant, Switzerland</i>	13:40	Indoor environmental quality in India’s first semi high-speed underground transit stations: a case study from the Delhi–Meerut Namo Bharat corridor <i>M. Kumar, L. Kumar, F. U. Faizi, R. Bisht, National Capital Region Transport Corporation Ltd. (NCRTC), India</i>	
Smoke control challenges in short tunnels <i>R. Zupu, J. Fletcher, S. Upadhya, J. Angus, P. Woodburn, Y. Ting, M. Asim, Jacobs UK & Middle East, United Kingdom; Middle East</i>	14:00	Tunnel ventilation design and operational validation for India’s first regional rapid transit underground system of the Delhi–Ghaziabad–Meerut RRTS corridor <i>M. Kumar, L. Kumar, F. U. Faizi, R. Bisht, National Capital Region Transport Corporation (NCRTC), India</i>	
A CFD study of the vehicle-induced pressure in a road tunnel <i>L. Mavin, S. Karami, WSP Australia, Australia</i>	14:20	Ventilation of an existing tunnel with open cross passages – a case study <i>A. Page, Jacobs, Canada; I. Maevski, J. Bott, K. Ficarra, J. Chen, Jacobs, USA</i>	

14:40 – 15:20 Refreshment break

SESSION 3A: SMOKE MANAGEMENT AND EGRESS Chairman: TBA		SESSION 3B: INNOVATIONS IN VENTILATION DESIGN AND CONTROL Chairman: TBA	
Full-scale Runehamar tunnel fire tests under low longitudinal ventilation velocities <i>R. Brandt, HBI Haerter, Switzerland; L. Jermstad, K. R. Haugland, Norwegian Public Roads Administration, Norway</i>	15:20	Tunnel ventilation equipment renewal plan for enhanced safety and energy conservation <i>K. Ueda, Y. Nakamura, Hanshin Expressway Co., Ltd.; K. Onoda, Hanshin Expressway R&D Co., Ltd.; T. Kikumoto, Techno Hanshin Co., Ltd.; A. Mitani, Sohatsu Systems Laboratory Inc., Japan</i>	
Smoke entrainment in inclined tunnel fires with open and closed boundaries <i>R. Mehaddi, C. Leclerc, Z. Acem, P. Boulet, Université de Lorraine, CNRS, LEMTA; B. Masselin, Société des Grand Projets, France</i>	15:40	Integrated multi-system tunnel ventilation design for the West Gate Tunnel <i>C. Biotto, C. Sahayanathan, Aurecon, Australia</i>	

Experimental study of smoke curtain efficiency in a longitudinally ventilated tunnel

A. Narcisse, E. Casalé, O. Vauquelin, Université Aix-Marseille; R. Nottet, Fluidalp, France

Safety considerations and standards for actuator/damper assemblies used in emergency tunnel ventilation systems

D. Geraci, ProMation Engineering, Inc., USA; T. Doebeli, ProMation Engineering, AG, Switzerland

On the physics of backlayering

O. Vauquelin, A. Narcisse, E. Casalé, Aix-Marseille University; R. Nottet, FluidAlp, France

Balancing station safety and service continuity: impairment mode in Melbourne Underground Rail Loop stations

A. Eltouny, L. Henderson, F. Liberty, Metro Trains Melbourne, Australia

Walking speed under reduced visibility in rail tunnels

E. Persson, N. Åhnberg, S. N. Gendra, Brandskyddslaget AB, Sweden

16:00

Combined use of jet fans and circular butterfly dampers in high-speed rail tunnels

J. Suarez, A. Meneses, Soler & Palau Ventilation Group, Spain; J. Teoh, K. Damnoenkiat, T. Tekitchamroon, Kruger Ventilation Industries Asia Co., Ltd., Singapore; R. Bos, FlowPro Asia Pacific Ltd., Australia

16:20

Integration of portal doors within tunnel ventilation systems: design, implementation, system integration and field test and commissioning challenges

A. Golpaygan, Hatch, Canada; S. Joshi, Alberici, Canada; B. Au, Aecon Group Inc., Canada; N. Rhodes, Consulting Engineer, United States

16:40

Towards a data-efficient physics-informed surrogate modelling approach as an alternative to CFD

G. Koc, InferAlly AI Pty Ltd., Australia; E. K. Koc, QBE Insurance, Australia

17:00

e-Mobility devices in rail environments: a conundrum for modern mobile societies

B. Tuckwell, N. Agnew, Stacey Agnew Pty Ltd., Australia

17:20

17:40 – 18:40 Welcome Reception

TUESDAY 1st DECEMBER

08:30

Keynote Address

Professor Arnold Dix, ALARP

Building on Dr Severin Wälchli's ISAVFT2024 presentation, Professor Dix will take delegates deeper into the evolving science, engineering and long-term strategy behind underground nuclear waste solutions. In *Nuclear Waste Underground, What Comes Next*, he brings a rare combination of legal, scientific and technical authority to unpack the regulatory, societal and engineering challenges shaping this critical field. With his globally recognised expertise and trademark clarity, Arnold delivers a keynote that promises depth, leadership and a forward-looking perspective worthy of one of the underground industry's most influential figures.

Presenting: Nuclear Waste Underground — What Comes Next?



Exhibitor Presentations

09:10

Exhibitors Presentation



09:15

Exhibitors Presentation



09:20

Exhibitors Presentation



09:25

Exhibitors Presentation



09:30 – 09:40 Stretch break to parallel sessions

SESSION 4A: EQUIPMENT (PART 1)

Chairman: TBA

On two decades' experience with the tunnel-ventilation simulator

J. Funnemark, S. Frey, R. Brandt, HBI Haerter, Switzerland

09:40

A multiresolution framework for predicting pressure transients and micro-pressure wave emissions in high-speed rail tunnels with applications to project studies

R. Yousaf, M. Bernecker, A. Rudolf, AFRY Schweiz AG, Switzerland

Evolution of water spray systems in road tunnels, future challenges and improvements
K. Sakata, U. Sueki, Central Nippon Highway Engineering Tokyo Co., Ltd., Japan; Y. Ito, Nohmi Bosai Ltd., Japan; A. Mitani, Sohatsu Systems Laboratory Inc., Japan

In-situ full-scale evaluation of pressure-boost characteristics for small-diameter jet fans in expressway tunnels
H. Ueda, M. Hiro, Nippon Expressway Research Institute Ltd., Japan; W. Takahashi, Central Highway Engineering Nagoya, Japan; A. Ichikawa, East Nippon Expressway Co. Ltd., Japan

New measurement method for jet fan performance in a full-scale tunnel
T. Nakayama, M. Hiro, H. Ueda, NEXCO RI, Japan; A. Mizuno, Kogakuin University, Japan; T. Chihara, FITUT Laboratory, Japan

10:00 Integrating ventilation, safety, and risk assessment in the design of Luzern’s future underground rail hub
R. Yousaf, A. Rudolf, M. Bernecker, AFRY Schweiz AG, Switzerland

10:20 Two-dimensional numerical modelling of a turbine driven by piston wind generated by subway trains
D. D. Gunde, Mälardalen University, Sweden; O. Abouali, EQUA Simulation AB, Sweden; S. Sadrizadeh, KTH Royal Institute of Technology, Sweden

10:40 Multicriteria assessment of pressure relief shafts: application to a case study
T. Sun, A. Ben Belkacem, S. Vassoudevane, SYSTRA, France

11:00 – 11:40 Refreshment break

Debate Sponsored by AFRY

11:40

The debate (sponsored by AFRY) will feature a provocative, high-energy discussion on the future role of CFD in tunnel ventilation design, led by internationally recognised experts. Full details and the formal motion will be announced shortly.

Chairman: *To be announced* **Speakers:** *For × 2 | Against × 2*

Session Timing:

- Debate Chairman Intro:** 5 mins
- Initial “For” and “Against”:** 25 mins
- Contributions from the floor:** 10 mins
- Vote by show of hands:** 2 mins



Exhibitor Presentations

12:20	Exhibitors Presentation		12:30	Exhibitors Presentation	
12:25	Exhibitors Presentation		12:35	Exhibitors Presentation	

12:40 – 13:40 Lunch break

SESSION 5A: SMOKE CONTROL AND CRITICAL VELOCITY Chairman: TBA	SESSION 5B: TESTING & COMMISSIONING Chairman: TBA
Wind-driven smoke dynamics and tenability in above-ground rail stations: a sustainable approach <i>N. Noroozi, HDR, Canada; R. Khodadadi, HDR, United Kingdom; M. Mason, HDR, United States</i> Construction fire risk mitigation at Snowy 2.0 <i>F. Tarada, Mosen Ltd., UK; A. Magrabi, Lote Consulting Pty Ltd., Australia; L. Fratello, Systra Italy, Italy</i>	13:40 Experimental assessment of jet-fan configurations in a reduced-scale ventilation tunnel <i>J. G. Nornella, J. M. Cárdenas, R. Arias, L. J. Díaz, Zitón, Spain; R. Brandt, HBI Haerter, Switzerland</i> 14:00 Coupled thermo-mechanical analysis of SFRC tunnel linings under fire: influence of lining thickness and surrounding ground stiffness using SAFIR <i>P. P. H. Tsoi, Sener Australia, Australia; L. Miguel Tortola, Sener Mobility S.A., Spain; J. Wolffersdorf, Sener Mobility S.A., Spain</i>

CFD investigation of unconventional induction fans design for architecturally complex road tunnels
I. K. Mbaye, P. Bourdin, Parsons, Qatar

Performance-based design in cable tunnels
J. Angus, P. Woodburn, J. Fletcher, S. Upadhy, Jacobs UK, United Kingdom

A model for control of radiation in a fire plume with validation & verification against tunnel fire testing
M. Á. Fuentes Llanos, S. Alizadeh, Mott MacDonald Ltd., United Kingdom

14:20 **Development and validation of tunnel friction factors for road tunnel ventilation systems in variable geometry tunnels**
E. Wright, M. Macdonald, A. Bruce, Sener Australia, Australia

14:40 **From terminus to through-station: ventilation integration for the Auckland City Rail Link at Britomart Station**
C. Sahayanathan, A. Paradiso, C. Biotto, Aurecon, Australia

15:00 **Analysis and full-scale testing of passive fire protection for steel segments in rail tunnels**
G. Quigg, CPB Contractors, Australia; L. Noordijk, Arcadis, Netherlands

15:20 – 16:00 Refreshment break

SESSION 6A: EQUIPMENT (PART 2)
Chairman: TBA

Analysis of energy saving principle of variable-speed controlled jet fans for road tunnels using three-dimensional CFD
A. Mitani, T. Sakaguchi, Sohatsu Systems Laboratory Inc., Japan; A. Vardy, University of Dundee, United Kingdom

Thermodynamic open system methodology for quantification of jet fan in-situ thrust & efficiencies, and rigorous verification of detailed 3D CFD analyses
S. Alizadeh, Mott MacDonald Ltd., United Kingdom

Digital performance assessment of tunnel jet fans during a real fire incident: lessons from the Conwy Tunnel
G. Russell, Howden, United Kingdom

SESSION 6B: PLATFORM SCREEN DOORS
Chairman: TBA

16:00 **Critical airflow prediction for smoke confinement systems: a semi-empirical model based on fire power and geometric parameters**
P. Dorado, P. Carlotti, ARTELIA, France; O. Vauquelin, Aix-Marseille Université, IUSTI, France

16:20 **Design considerations for underground stations with platform screen doors and impacts on commissioning**
A. Coles, P. Senez, J. Brown, A. Gill, Senez Consulting Ltd., Canada; A. Hitter, Pomerleau, Canada

16:40

19:00 – 23:00 Symposium Dinner. Sponsored by VID FIREKILL

This year’s symposium dinner will be held at Aerial, one of Melbourne’s most striking waterfront venues, located at 17 Dukes Walk, South Wharf.



With its sweeping Yarra River views, dramatic architectural lines and elegant event space, Aerial offers a stunning setting for delegates to unwind and connect after a full day of sessions.

Aerial is just a short 4-minute walk from the Melbourne Convention and Exhibition Centre.



Best Paper Award - Sponsored by



Dress Code/Smart Casual

09:00

Sir Alan Muir Wood Prestige Lecture – Sponsored by **MOSEN**



This year's long-running Sir Alan Muir Wood Prestige Lecture, proudly sponsored by Mosen and Lote Consulting, will showcase a distinguished expert offering a high-level perspective for ISAVFT delegates. The formal speaker announcement will follow soon.

SESSION 7: HIGH SPEED RAIL TUNNELS

Chairman: TBA

09:40

Study on the distortion of the compression wave and sonic booms in a high-speed railway tunnel

J. Han, Z. Li, J. Tian, W. Ma, X. Guo, China Academy of Railway Sciences Corporation Ltd.; State Key Laboratory of High-Speed Railway Track System, China

10:00

Vehicle induced aerodynamic pressures on tunnel structures

D. A. Paradiso, A. Chang, C. Biotto, Aurecon, Australia; A. Vardy, University of Dundee, United Kingdom

10:20

Exhibitors Presentation



10:30

Exhibitors Presentation



10:25

Exhibitors Presentation



10:35

Exhibitors Presentation



10:40 – 11:20 Refreshment break

SESSION 8: DIGITALISATION

Chairman: TBA

11:20

TVS / SCADA integration and response – Metro project

A. Abdelmajed, Qatar Rail, Qatar

11:40

Conception, design, implementation, and lessons learned from the integration of an intelligent ventilation management system in underground railway networks

A. M. Ruiz Jimenez, NFPA, TD&T Inc. , United States

12:00 – 13:00 Lunch

SESSION 9: TUNNEL REFURBISHMENTS

Chairman: TBA

13:00

Replacing semi-transverse ventilation in Rokko Mountain Tunnel by a longitudinal system

M. Adachi, T. Ohara, Kobe City Road Public Corporation, Japan; A. Mitani, Sohatsu Systems Laboratory Inc., Japan; A. Vardy, University of Dundee, United Kingdom

13:20

Smoke exhaust system modifications in an operational underground concourse: design basis, constructability and operational resilience

A. Yusko, A. Pournasr, P. Iovino, M. Tabarra, Arup, United States

13:40

Implementation of FFFS for a tunnel extension project

J. Tang, M. Tomar, S. Upadhya, Jacobs UK, United Kingdom; P. Yelkar, Jacobs India, India

14:00

Evaluating passive fire protection for concrete tunnel structures under extreme fire scenarios

A. El Hamoui, Promat, Australia

14:20 Chairmans' Closing Remarks

Chairman Professor Arnold Dix will close the symposium with reflections on ISAVFT26. He will formally hand the baton to Deputy Chairman Conrad Stacey of Stacey Agnew, who will assume the role of Chairman for ISAVFT29. Conrad will announce the location of the 2029 Symposium, marking the beginning of the next chapter in the long-running ISAVFT series.



Stacey Agnew

14:50 – 15:30 Farewell Refreshments