

Capability Statement

Computational Fluid Dynamics (CFD)

for

Mine Ventilation

FlowSim provides a specialist CFD consulting service. Over the past 15+ years FlowSim performed several projects for mine ventilation as well as similar applications for road and rail tunnel ventilation. Chris Kriel is the primary CFD consultant with more than 20 years' experience in field of simulating fluid flow and heat transfer.

Previous ventilation-related projects included:

- Raise-bore elbow optimisation – reduce pressure loss, limit low velocity zones causing particle dropout, enhance flow uniformity at fan inlets, investigate effect of raise bore swirl etc.
- Reduce duct pressure losses and estimation of fan operation point. Investigate effect of adding and optimizing bend vanes.
- Coal bunker methane flushing.
- Bulk Air Cooler (BAC) flow uniformity over coils.
- Evase performance/spillage into atmosphere.
- Contaminated atmospheric fresh-air intake study during accident scenario.
- Several tunnel ventilation studies for new Melbourne underground rail stations.

References

Dylan Perera – Refrigeration Project Engineer at Gordon Brothers Industries

Chris has been excellent to work with on our CFD simulations for various industrial mining projects. Understanding of the project requirements, good engineering understanding of dynamics of air flows, temperatures and pressures, with great turnaround times and flexible with timing, and well presented professional reports have all been noticeable positives in working with Chris. Would highly recommend for any CFD works required.

William Briasco – Engineering Manager at AirEng

Chris is a skillful and experienced professional regarding CFD analysis. I worked with him in several Ventilation Mining projects, where the optimization of air flow to minimize pressure losses is essential, and his expertise and quick response were critical. I would highly recommend Chris for any company needing CFD analysis.

Rhys Thompson – Managing Director at AirEng

Chris has completed many CFD jobs for AirEng over the years, these have often been vastly different in nature and application. AirEng has validated the work Chris has done for us on site. From this we have a very high level of confidence in his work and have relied on his experience with many facets relating to gas / airflow. One particular project we had a highly beneficial outcome from optimising designs that have not only reduced losses (saved energy) and reduced product dropout but while also lowering wear rates. He has always been proactive and prompt.

Salman Faiz – Technical Lead – Tunnel Ventilation at John Holland

During my time at Melbourne Metro, CYP contracted Chris to provide support in performing CFD studies.

Chris assisted CYP in developing optimized transition duct design for the main axial fans, Saccardo Nozzles, Guide Nozzles and Guide Vanes. He also performed dispersion modelling for MVAC exhausts.

Chris ability to understand the application and apply best methods/practices of CFD tool enabled us to achieve the results with high level of confidence.

Chris also performed CFDs to assist CYP in developing fan room layouts ensuring natural air exchange can be achieved via train piston effect.

Chris is highly professional in the area he practices and is critical thinker and is always in a hunt to establish best possible solution for his client.

I will highly recommend Chris for any CFD related work!!

Aidan Marsh – QLD Manager DLA Business Unit at Environmental Resource Management

I am pleased to recommend Chris Kriel for his support, ingenuity and professionalism during the past four years we have worked together. During this time Chris has created CFD programs that have helped validate my designs for soil vapour mitigation systems for buildings and landfill sites. Once given the project Chris has been tenacious in finding a working solution for the problem.

Rodney Brown – Engineering Manager at Outerspace Design and Director of Engineering at Vitruvian

We have contracted Chris numerous times to setup and run CFD simulations. His attitude, work and attention to detail is fantastic. I would thoroughly recommend Chris to contract for all forms of CFD.

Rod Hendricks – Engineering Manager at Emissionless

Chris provides exceptionally good quality work and value for money. He is thoughtful, helpful and provides great advice. His software is world leading.

Why use FlowSim?

- 20 years' experience.
- Flexible, easy to work with.
- Efficient, cost effective and willing to walk to extra mile to meet deadlines.

Call/email me if you have any questions. Happy to give honest advice on whether I believe my skills can add value/not for your project.

Please forward this flyer to your colleagues/other people you know who may have a need for this.

Kind Regards

Chris Kriel

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