Sairam Jinnawar

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PROFILE SUMMARY

Mechanical Engineer specialising in ventilation, Computational Fluid Dynamics (CFD) modelling and Indoor Air Quality (IAQ) performance improvement. Experienced in HVAC load calculations, sensor based monitoring and data driven optimisation strategies that enhance building ventilation efficiency and operational reliability.

EXPERIENCE

Indian Institute of Technology Bombay Mumbai, India
Project Research Assistant *October 2025 - Present*

- Led Computational Fluid Dynamics (CFD) based ventilation system optimisation focused on airflow distribution, contaminant transport and indoor air quality performance.
- Integrated real time indoor air quality sensor data with simulation models to support analytical HVAC performance evaluation.
- Analysed ventilation performance indicators including Air Changes per Hour (ACH), Air Residence Time (ART), airflow uniformity and stagnation zones to inform design improvements.
- Developed data driven ventilation control strategies balancing Indoor Air Quality targets and energy efficiency.
- Performed simulation to experiment validation, achieving agreement within 10% to ensure model reliability.
- Prepared 3D CAD models and assemblies using SolidWorks, AutoCAD and Revit for ventilation and Indoor Air Quality system design.
- Reviewed simulation results and technical data, supported documentation and reporting for design decisions.
- Acted as a coordination point for engineers and researchers involved in an international collaboration with Japan under a signed MoU.

Indian Institute of Technology Bombay Mumbai, India
Senior Project Technical Assistant *June 2023 - September 2025*

- Delivered Computational Fluid Dynamics driven analysis and optimisation of ventilation and airflow systems for indoor environments.
- Conducted steady state and transient Computational Fluid Dynamics simulations using ANSYS Fluent for HVAC and airflow performance assessment.
- Developed Computational Fluid Dynamics models by defining geometry, mesh strategy, boundary conditions and solver settings for realistic indoor airflow simulations.
- Evaluated system performance using ACH, ART, velocity fields, pressure drop and stagnation zone analysis.
- Analysed Carbon dioxide (CO2) decay and tracer gas data to validate simulation outputs and support design optimisation.
- Processed and visualised Computational Fluid Dynamics and experimental datasets using Tecplot, MATLAB, MS Excel and Origin.
- Developed digital workflows for Indoor Air Quality monitoring, data integration and ventilation performance analysis.
- Created 2D and 3D CAD designs using AutoCAD, SolidWorks, SpaceClaim and Revit to support engineering documentation.
- Supported engineering design teams by translating Computational Fluid Dynamics results into actionable performance insights.
- Ensured sensor data quality through calibration analysis and comparative evaluation of Indoor Air Quality monitoring devices.

Maxcool Technologies (India) Private Limited Navi Mumbai, India
Senior HVAC Design Engineer *September 2022 - May 2023*

- Managed a team of junior engineers to deliver HVAC design documentation, including Bill of Quantities (BOQ) and compliance reports.

- Monitored project timelines, budgets and quality standards.
- Prepared HVAC documentation, compliance reports, data sheets and drawing registers.
- Performed thermal load calculations and equipment sizing using Carrier HAP and TRACE 700 in accordance with ASHRAE/ISHRAE standards.
- Reviewed energy consumption to identify efficiency improvements.
- Prepared executive reports and facilitated internal and client meetings.

Maxcool Technologies (India) Private Limited Navi Mumbai, India
Junior HVAC Design Engineer *August 2021 - September 2022*

- Designed HVAC systems using Carrier HAP, AutoCAD, SolidWorks and Revit, followed ASHRAE standards.
- Conducted heating and cooling load calculations for accurate equipment sizing.
- Calculated External Static Pressure (ESP) and pump head for fan and pump selection in chilled water systems.
- Developed HVAC layouts, schematics and duct routing plans, ensured clash free coordination.
- Calculated ventilation airflows and Air Handling Unit selection to meet Indoor Air Quality and pressurisation targets.

EDUCATION

Mahakaushal University, Jabalpur, India *2023*
Master of Technology in Thermal Engineering,

University of Mumbai, Mumbai, India *2021*
Bachelor of Engineering in Mechanical Engineering,

PUBLICATIONS

- Computational Fluid Dynamics based Assessment of Exhaust Fan Placement for Improved Indoor Air Quality, IASTA Conference, Dehradun, India, 2024
- Optimizing Classroom Ventilation and Spatio Temporal Distribution of Carbon dioxide, International Journal of Ventilation (Under Review), 2025
- Investigating Carbon dioxide based Indoor Air Quality using Real Time Measurements and Computational Fluid Dynamics Approach, Healthy Buildings 2025, Hyderabad, India, 2025
- Investigating Indoor Airflow, Real Scale Flow Field Measurement Using Streak Velocimetry, Healthy Buildings 2025, Hyderabad, India, 2025
- Indoor Air Quality Prediction and Interventions, Indoor Air Quality Management, IIT Bombay, 2025

TECHNICAL SKILLS

- **CAD and Simulation** – AutoCAD, SolidWorks, Revit, SpaceClaim, Computational Fluid Dynamics (ANSYS Fluent), TRACE 700, HAP
- **Data Analysis** – MATLAB, Tecplot 360, OriginPlot, MS Excel
- **Tools and Systems** – MS Office, LaTeX, Windows, Linux, macOS

LANGUAGE PROFICIENCY

English, Hindi, Marathi, Telugu

ACCOLADES

- *Executive Diploma in Business Management* *Jan, 2024*
- *Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE) Certified Engineering Professional* Aug, 2024