

Role Definition

Job Title:	Graduate Environmental Design Analyst – CFD (Environmental Engineering)
Reporting to:	Partner on a day-to-day basis and ultimately to the Senior Partner
Objective:	To contribute to the Practice's environmental design, simulation and analysis output

Responsibilities

- Support in running CFD (computational fluid dynamics) simulations.
- Support in the preparation of 3D computational models, to allow for CFD simulations.
- Support in post-processing CFD results.
- Support the design process and engineering activities relating to the project.
- Demonstrable understanding of fluid dynamics theory that underlies CFD modelling.
- Understanding of thermodynamic principles, and the ability to apply these principles to the built environment and local microclimate.
- Manage the design process and co-ordinate engineering activities relating to the project.
- Conduct research and CFD simulations on internal and external aspects of built environment, covering different building physics related problems: Indoor thermal comfort, HVAC system performance, Outdoor thermal comfort, Outdoor pedestrian wind comfort and safety, Outdoor pollution dispersion, Passive scalar transport, Porous media, Wind driven rain, etc.
- Support in research and development of in-house CFD tools.
- Advise and support design teams in the integration of environmental design concepts and the assessment of building performance.
- Liaise with other members of the team towards the integration of energy efficient/low carbon solutions in shaping architectural form guiding the environmental system design.
- Support design teams in the use of environmental simulation tools.
- Devise methodologies for analysis and visualisation of specific environmental design problems.
- Present analysis results in the form of reports and presentations to clients and design teams internally.
- Contribute, or otherwise assist, as required.
- Thorough knowledge of and compliance with Foster + Partners procedures and standards.

Qualities and Skills required

- Able to demonstrate ability to undertake the above responsibilities.
- Bachelor or master's degree in Engineering and/or Science related field (aeronautical/aerospace engineering, mechanical engineering, fluid dynamics, thermodynamics, computational analysis or similar).
- Proficient in coding using Python or equivalent.
- Proficient in Computer Aided Design (preferably Rhino 3D).
- General knowledge of Computational Fluid Dynamics (CFD) modelling (preferably OpenFOAM, Helyx).
- Understanding of fluid dynamics theory that underlies CFD modelling.
- Understanding of aerodynamics and thermodynamics principles.
- Demonstratable experience of running CFD simulations.

- Willingness to learn the current CFD workflow process to run CFD simulations to support the team when requested.
- Ability to disseminate research knowledge to the Practice.
- Enthusiasm to pursue Environmental Design and Analysis as the central part of the individual's career development.
- Good communication and presentation skills.
- Able to demonstrate initiative and a proactive approach to daily tasks.
- Able to work under pressure and to tight deadlines.
- Excellent organisational skills.
- Able to manage sensitive and confidential information.
- Self-motivated and able to take responsibility.
- Able to manage and prioritise tasks and time efficiently.
- Good interpersonal skills and able to work independently and as part of a team.
- Flexible attitude.

Desirable

- Some experience using specific CFD tools/software packages (e.g. OpenFoam, Ansys, Paraview, SimScale etc).
- Knowledge of rendering/visualization tools (e.g. Blender, Enscape).
- General understanding of buildings physics and environmental design.
- General understanding of building services and mechanical systems.
- General knowledge of the following: HPC systems, Linux/Unix, Helyx, Excel.
- Experience in using InDesign.

This description reflects the core activities of the role but is not intended to be all-inclusive and other duties within the group/department may be required in addition to changes in the emphasis of duties as required from time to time. There is a requirement for the post-holder to recognise this and adopt a flexible approach to work. Job descriptions will be reviewed regularly and where necessary revised in accordance with organisational needs. Any major changes will be discussed with the post-holder.

Applicants should forward a CV and portfolio of no more than 10 pages.

April 2023