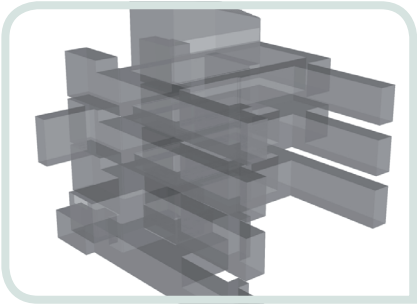
KARALIT
Simplicity without compromise

KARALIT CFD FOR BUILD ENVIRONMENT INTERNAL VENTILATION AND HVAC

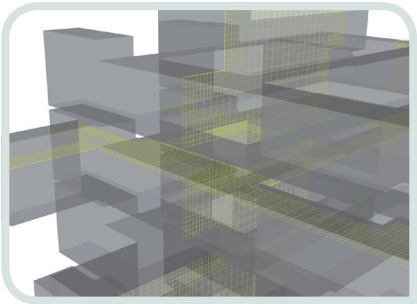


CAD of the Stanford Civil and Environmental Engineering Department.

INTERNAL VENTILATION APPLICATION.

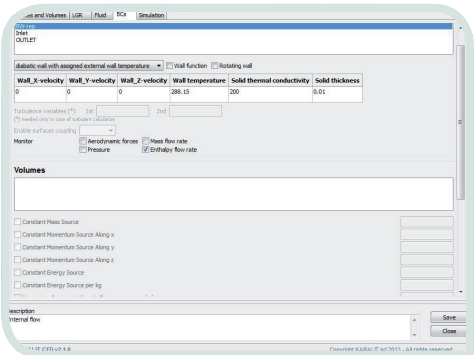
KARALIT CFD is not just an efficient tool to allow architects or civil engineers to easily understand the 3D flow around buildings for predicting comfort indices or pressure distribution on building facades, but it can also be efficiently used to predict 3D airflow and all Heating, Ventilating and Air Conditioning (HVAC) systems in indoor environments.

Some examples will be described applied to office buildings and car parks. Same approach could be extended to analyse and optimize the internal ventilation in theaters, data centers, atriums, shopping malls etc...
Thanks to the Immersed Boundary approach and KARALIT DIRECT CFD workflow the designer will have in hands an easy and efficient tool to help him in reducing operating costs in a practical and efficient approach.



FAST SETUP WITH NO PRE-MESHING.

Whatever complex internal scenario you will face, KARALIT CFD will allow you to setup your HVAC problem in a matter of few seconds. Using the power of the Immersed Boundary (IB) method in KARALIT, the project can be immersed into an anisotropic refined cartesian background grid. Preprocessing takes just seconds, as the user does not have to deal with time-consuming mesh generation.



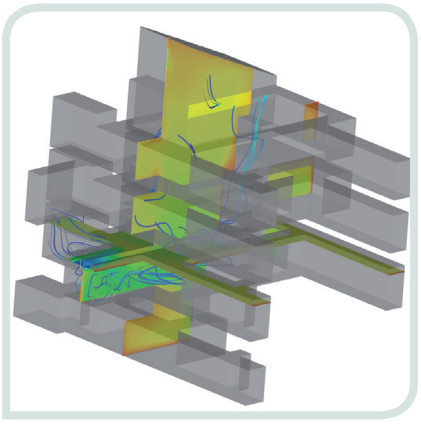
EASY SETUP THROUGH THE USE OF APPS.

For HVAC type of analyses, KARALIT CFD allows you to immerse directly the STL format of your building internal layout CAD project (office building, car parks etc...). This will represent the domain of your interest. The graphical user interface will prompt you to specify all necessary boundary conditions, activating the buoyancy model to be able to predict also pure convective natural flows without any forced external ventilation.

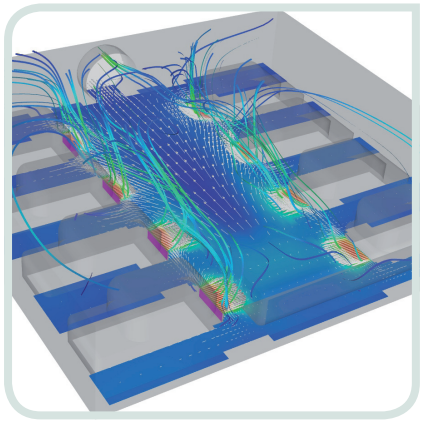
SARDEGNA RICERCHE
La Sardegna cresce con l'Europa
Progetto cofinanziato dall'Unione Europea
FESR Fondo Europeo di Sviluppo Regionale

RESULTS VISUALIZATION.

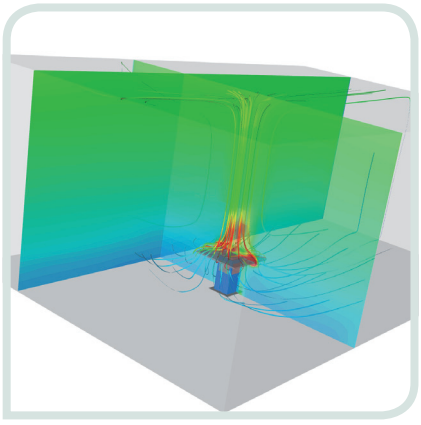
The results of simulations can be quickly visualized with the integrated KARALIT CFD visualizer but also with popular software such as Tecplot, Ensight and Paraview, activated directly from within KARALIT CFD at the touch of a button.



Internal Temperature Distribution and 3D flow field within the University Building.



Internal Temperature Distribution and 3D flow field in a car park with cars.



Example of a room heating from a bioethanol fireplace. Clearly shown the nice thermal plume derived by the use of the buoyancy model in KARALIT CFD (Courtesy of Brantabee).

Immersed Boundary (IB) method for:

- Saves up to 99% in user time by eliminating the need for pre-meshing
- Faster turnaround time to reach a solution
- Reduces manual preprocessing work
- Increases accuracy by solving on rectangular grids
- Focuses engineering resources on analysis, not preprocessing

Customized apps:

- Fast case setup
- Minimum effort to set up complex CFD simulations
- Easy setup for parametric analyses
- Ideal simulation tool for moving objects
- Ultimate engineering "what-if" design tool

Value-based pricing:

- Pay nothing extra to add hardware
- Unlimited parallel processing
- All inclusive
- Easy budgeting

BEI131014D

Contact your sales office or **sales@karalit.com**
Headquarter: Pula (CA), Italy - Tel: +39 070 278202 - info@karalit.com - **www.karalit.com**

Italy Office: Milan
Tel: +39 02 87188454

UK Office: London
Tel: +44 (0) 8006126912

Germany Office: Frankfurt
Tel: +49 (69) 20163578

USA
Tel: +1 855 KARALIT (527 2548)