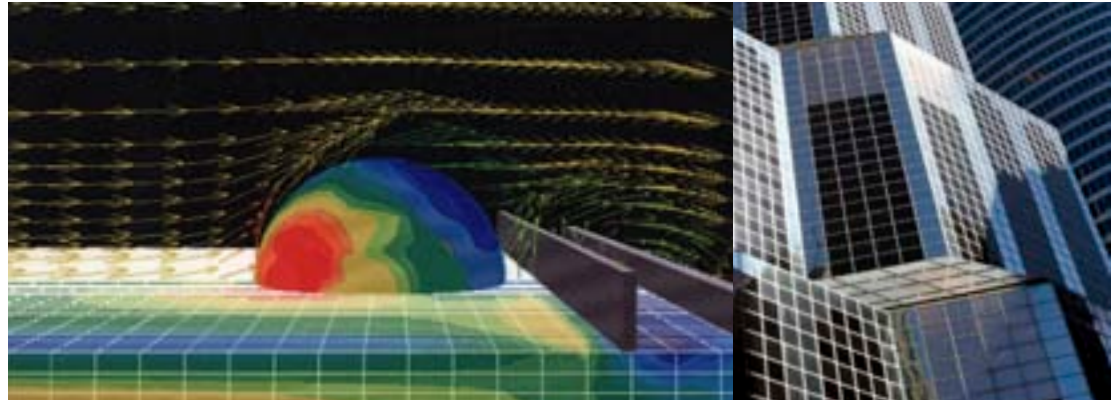
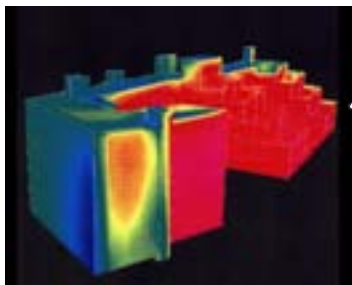


Wind Load Simulation for Buildings

Exova has developed a unique approach to the analysis of wind loading on buildings using computer aided engineering.



Wind Pressure Profile on a dome



Jack Satter House - Boston

The wind model was developed to eliminate the need for costly wind tunnel testing and provides an accurate analysis of the actual wind load forces on specific locations of a building elevation. We can offer our services to align with the Canadian approach (3 second gust) or the American approach (fastest mile). The approach is based on using numerical models of the wind to estimate the pressure load on the building surface. Our sophisticated viscous boundary layer model will calculate the frictional force for any wind speed or surface roughness.

CFD techniques are used to investigate the flow patterns of the wind around the building and evaluate the effectiveness of various designs of new buildings scheduled for construction. We can also predict the effect of prevailing wind speed and direction on the local air velocity and pressure distribution around a large office complex.

From simulation results, modified designs can be developed to optimize the building envelope design and define the structural loads on the building. CFD techniques can also be used to model natural ventilation in buildings.

Supporting Capabilities

- Product development and design improvement
- Optimization of plastic components
- Failure analysis and design validation
- Optimization of design parameters
- Finite element analysis
- Nonlinear analysis
- Heat transfer and thermal stress analysis
- Dynamic analysis of structures
- Response spectrum analysis

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