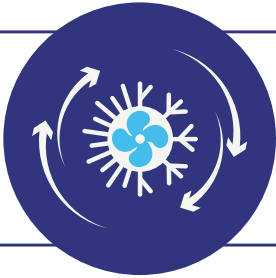# HVAC

Bringing nuclear quality and standards to system simulation.

# FLOWNEX®
## SIMULATION ENVIRONMENT

*Whether it be integrated ducting design, refrigeration cycles with complicated refrigerations or costing calculations Flownex® simulation environment is the perfect tool to effortlessly execute all the above tasks and a lot more.*

# TYPICAL USES

## DESIGN AND OPTIMSE ADVANCED HVAC SYSTEMS

- Complete solution to calculate temperature, humidity, and pressure requirements
- Achieve optimum flow distribution with maximum energy efficiency
- Investigate varying environmental conditions on HVAC system and improve design
- Sizing of flow control components, fans, and refrigeration cycles

## IMPROVE OVERALL EFFICIENCY

- Balance and optimise plant (air streams, chilled water streams, cooling towers, heat exchangers, refrigeration cycles)
- Evaluate different control strategies by comparing total power consumption
- Investigate different heat recovery systems to quantify cost saving potential

## PERFORM DESIGN SAFETY ANALYSES

- Analyse the capabilities of a system to maintain negative pressure environments in accident scenarios
- Simulate the operating of critical systems when failures occur in the primary control system to ensure that the redundant control systems function correctly in maintaining safe conditions after a failure
- Investigate the spread contaminants though the system during accident scenarios using the mixed fluid models in Flownex to investigate and provide insights into the effectiveness of key safety systems

*Flownex® is developed within an ISO 9001:2015 quality management system that is ASME NQA-1 compliant.*
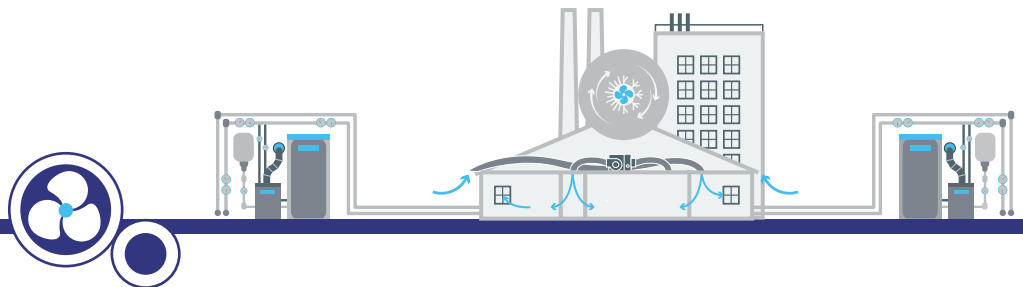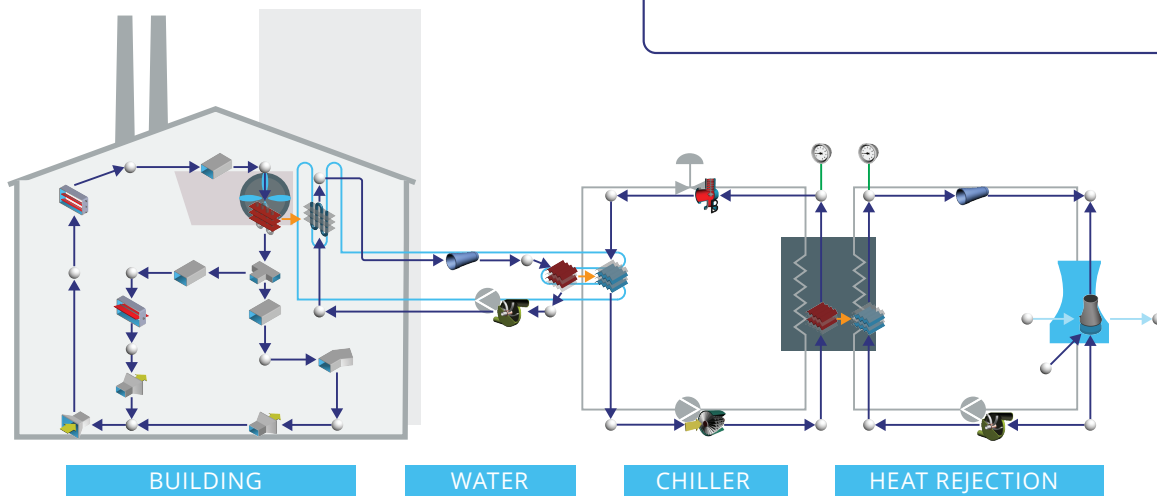
# FEATURES

- Modern and intuitive user interface
- Accurate fluid models
  - Humid air model
  - Two Phase Refrigerant models
  - Secondary refrigerants (Ethelene Glycol, Propylene Glycol, etc.)
- Full transient capabilities, including:
  - Adaptive time-step functionality
  - Thermal and Rotational Inertia
  - Distributed control system library
- Comprehensive component library for modelling of both chilled water systems and air handling units as well as a comprehensive library of ASHRAE ducting components

- Customizable components allowing multiple levels of detail where limited performance data is available
- Capability to import complex chilled water piping from Revit BIM files
- Built-in design and analysis features allowing automated parametric studies
- ISO9001 certification and NQA-1 compliance
- Transient co-simulation capabilities with Ansys products and 6Sigma

## LINKS TO EXTERNAL SOFTWARE

6Sigma**Room**     **Ansys**     MATLAB &SIMULINK



| BUILDING | WATER | CHILLER | HEAT REJECTION |

CERN     VERTIV     YAZAKI     iter china eu india japan korea russia usa     AECOM     HITACHI Inspire the Next     HUAWEI

## TESTIMONIAL

### AECOM

*Jochie van der Merwe (Pr.Eng, M-ASHRAE)*
*Practice Area Lead – Mechanical*

*I have found Flownex® to be a powerful design tool which can simulate complex systems while producing results which can be practically applied. The interface is user friendly and can be learned quickly. The support team are responsive and quick to assist with technical queries.*