FloCAD® is an optional module of C&R’s CAD-based Thermal Desktop®, Thermal Desktop® handles conduction and capacitance in surfaces and solids, features arbitrary (nongeometric) nodes, and supports FEM models including innovative automatic network simplification techniques, and mapping to structural FEM codes.

FEATURES

- Generates flow networks and calculates convective heat transfer factors for C&R’s SINDA/FLUINT.
- Postprocesses temperatures, pressures, and flow rates for fast interpretation and impressive presentations.
- Faster model building and faster calculations than CFD means more alternatives investigated, sizing and sensitivities performed, and models calibrated to tests.
- Access to 2D/3D thermal surfaces and solids in addition to sketchpad-style 1D fluid network modeling.
- Automatic connection and apportionment of convection links (FLUINT ties) to thermal surfaces.
- Full access to FLUINT fluid network modeling capabilities, with abbreviated inputs for common components: fans and pumps, flow passages and ducts, filters and loss elements.
- Arbitrary working fluids including dry air, moist air (psychrometrics), water, water glycol, ammonia, and PAO. Accepts user-defined fluids as well.
- Single and two-phase flow, including evaporation and condensation, pure fluids and mixtures.
- Quick and easy generation of “Pipe” component automatically creates associated thermal and fluid networks for piping systems.

- Modeling of constant conductance heat pipes, gas loaded and variable conductance heat pipes, and loop heat pipes.

- User-selectable natural convection routines.

- Enables concurrent engineering by providing full access to CAD-based geometry and CAD model building methods without compromising good modeling practices.

- Imports many file formats including NX, SolidWorks, Creo, ACIS, STEP

- Uses CAD geometry directly, or accepts snap-on thermal surfaces, i.e., cones and spheres, avoiding thousands of tiny facets.

- Offers true curved geometric surfaces.

- User-defined symbols and expressions add spreadsheet-like parametric modeling.

- K-factor resistance utility for common fittings.

- Helper utilities for calculating flow lengths and flow areas.

- Extensive CAD functions make model building fast and effective: • Boolean, revolved, extruded surfaces • layer management.

- Snap-on entity building • drag and drop model editing • user-defined light sources.

- Multiple port views with store/recall.

- Exploits inexpensive PC platforms.

- Also available: RadCAD® for radiation analysis.