1st Generation (Handbook and early computer models)	Empirical Analytical Simplified Piecemeal	Indicative only Application Limited Difficuly to use
2nd Generation (Whole-building and systems simulation models)	Dynamic Analytical Piecemeal Linear Time invariant	
3rd Generation (Advanced building systems simulation, circa 1982-90)	Field problem Numerical methods Semi-integrated Time varying Heat and mass flow Graphics	Increasing integrity relative to the real world
Next Generation (Integrated, multi-variate simulation)	Fully integrated Object-oriented CAD-integrated Advanced numerics Expewrt systems	Predictive Generalised Easy to use

Table 1: The evolution of building energy simulation software.

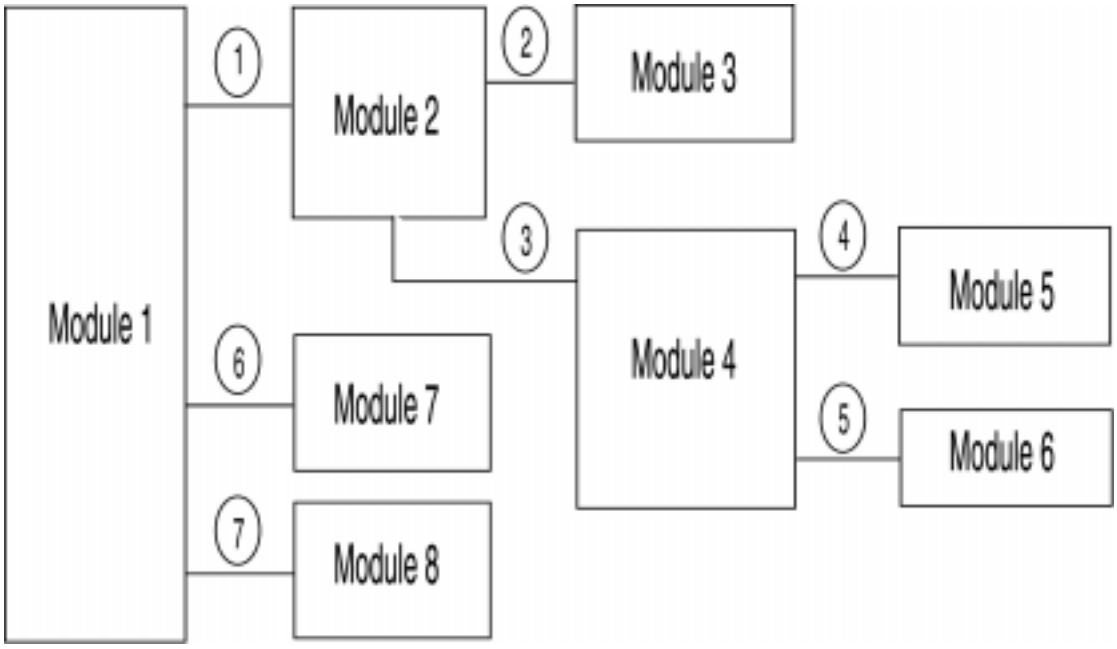

Figure 1: An algorithm represented as a flow-graph.

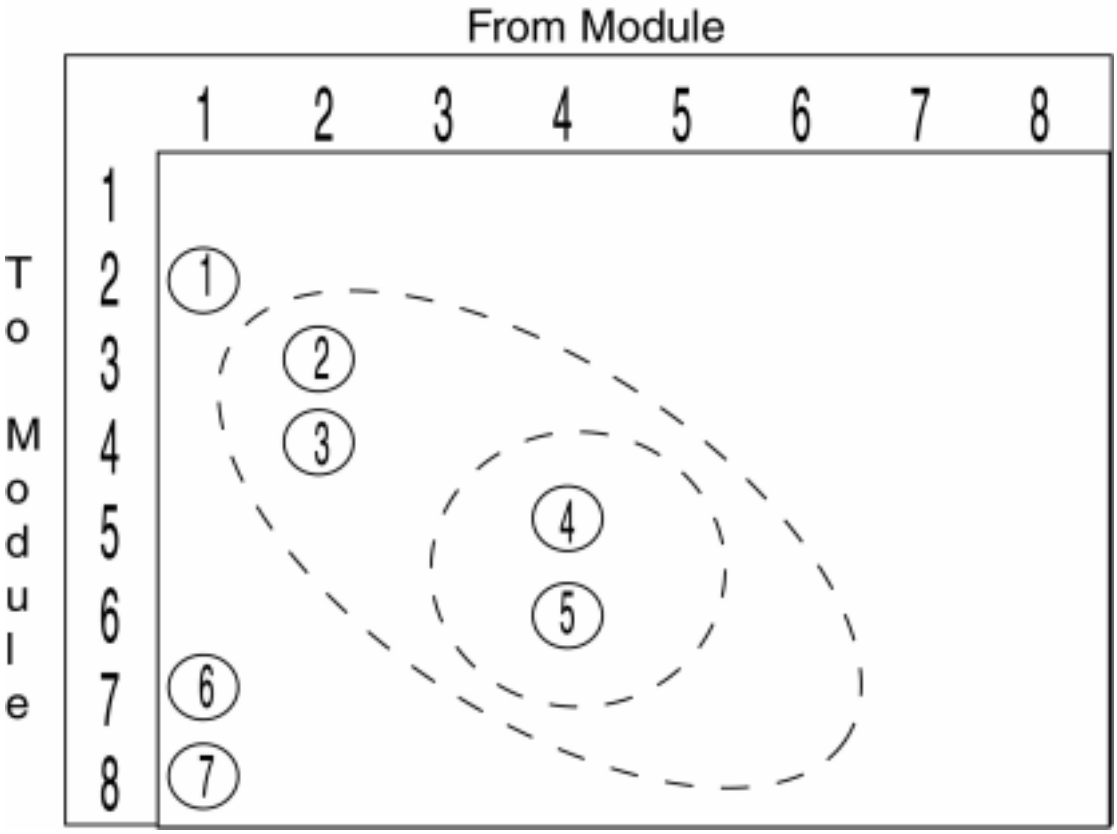

Figure 2: The algorithm of Figure 1 can be represented as a template.

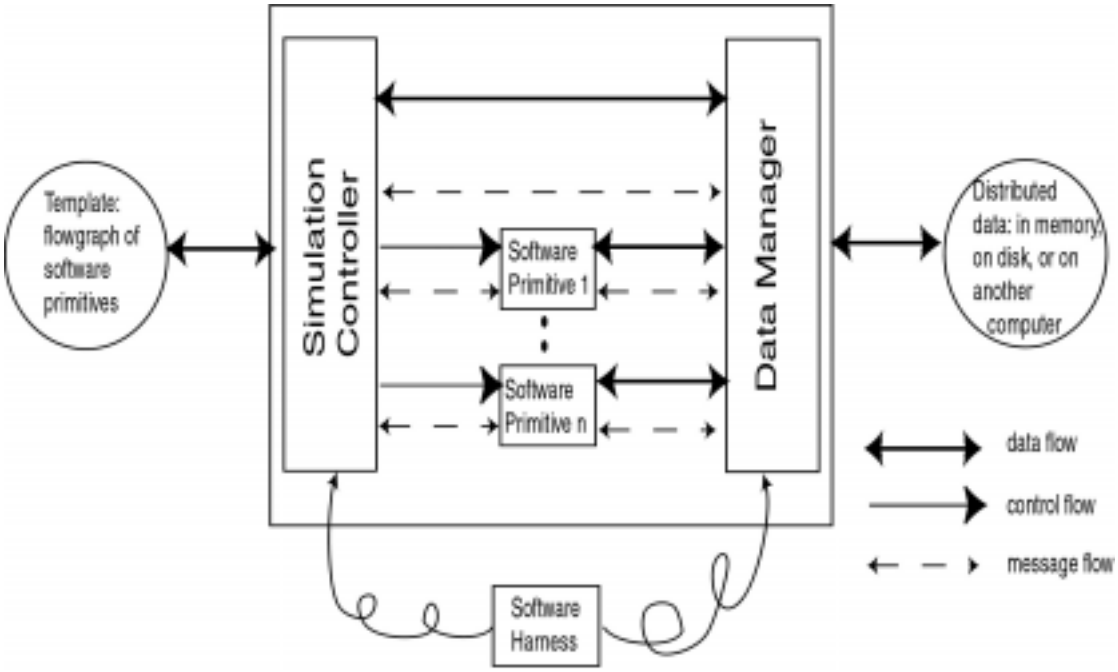

Figure 3: Elements of the Energy Kernel System.