

Green sustainability

Can innovation in applications and best practices be instrumental in creating the next generation of sustainable buildings?

According to the US Green Building Council whose Leadership in Energy and Environment Design (LEED) certification program has become the de facto standard for sustainable building, buildings consume 72 percent of electricity, 39 percent of energy, and 14 percent of potable water in the United States alone. Globally, buildings use 40 percent of raw materials and account for a significant portion of the greenhouse gas emissions that affect climate change.

The infrastructure community is rising to the challenge to develop buildings that consume fewer resources, generate less waste, and cost less to operate. In response to this global call for high-performance buildings, Bentley launched a new group in September 2008 to help architects, engineers, construction professionals, and owner-operators design, build, and operate better-performing, more sustainable buildings.

Bentley's new Building Performance Group focusses on solutions that address the immediate global need to create and maintain energy-efficient, environmentally friendly, safer buildings that also set the benchmark for occupant comfort. Among the group's current offerings are Bentley's recently acquired Hevacomp line of building services design software and Tas software for in-depth energy analysis and simulation. Together, these products enable rigorous building analysis and simulation for improved building performance.

"The creation of our new Building Performance Group underscores Bentley's long-term commitment to providing comprehensive software solutions for sustaining infrastructure," says CEO Greg Bentley. "It will make available a growing number of highly integrated, advanced software tools that architects, engineers, and low-carbon consultants can deploy to address the increasing demand for buildings designed with lifecycle performance in mind. These better-performing buildings will be more energy- and water-efficient, will emit less carbon waste, and will be safer to operate and work or live in," adds Bentley.

Headed by vice president Noah Eckhouse, the Building Performance Group is comprised of a team of highly-skilled business developers, industry experts, and sales and support professionals with specialised knowledge and broad experience in building performance issues.

"Sustaining infrastructure is what we focus on at Bentley, and building performance is emblematic of our purpose," notes Eckhouse. "We will bring the best of the world's building-performance tools to current and new Bentley users worldwide," adds Eckhouse.

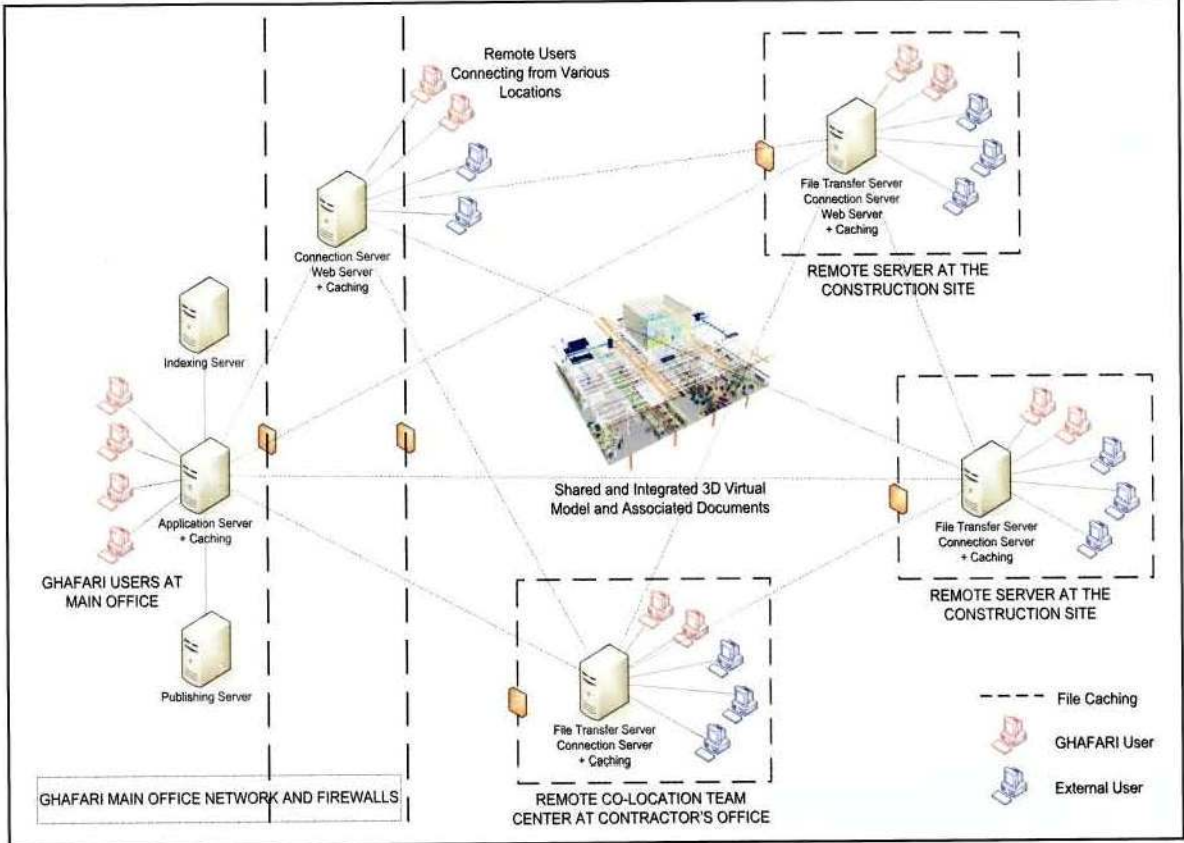
Bentley's building performance products enable those who design, build, and operate buildings, stadiums, plants, and other structures to fulfill three potential requirements:

- Comply with existing and emerging government regulations around the world associated with energy efficiency, carbon emissions, water consumption, earthquake, wind and flood resistance, and other performance-related parameters.
- Consider and compare design alternatives with early-stage conceptual design software.
- Calculate the impact of design and design changes on building performance with engineering precision

Using the Hevacomp toolset puts designers at the forefront of simulation for building energy analyses. The offerings incorporate the EnergyPlus engine, developed by the US Department of Energy, and software certified to perform CO2 emissions calculations required under Part L of the UK building regulations. Market demand for these products is growing exponentially in the United Kingdom due to highly aggressive government regulations designed to reduce the country's carbon consumption.

The Hevacomp product line is an important addition to Bentley's portfolio of solutions that help sustain infrastructure and the environment because Hevacomp's substantive analysis applications leverage the content of building information modeling, incorporating rigorous engineering and enabling infrastructure professionals and owner-operators to improve building performance and reduce lifecycle costs.

Bentley further expanded its building performance toolset through a June 2008 agreement with Environmental Design Solutions Limited (EDSL). The agreement grants Bentley exclusive worldwide rights to distribute EDSL's Tas suite of software products used to simulate the dynamic thermal performance of buildings and their systems. Tas Building Designer performs dynamic building simulation with integrated natural and forced airflow. Tas Ambiens is a robust and easy-to-use computational fluid dynamics package that produces a



cross section of microclimate variations within a space.

Behind Tas software's speed and comprehensive capabilities is a powerful engine that incorporates sophisticated energy simulation techniques, such as computational fluid dynamics. Its thermal analysis capabilities allow building engineers to create more sustainable designs by comparing alternative heating and cooling strategies and building designs for equipment sizing and energy demand. Tas also supports efforts to reduce environmental impact by, for example, helping those designing in the United Kingdom meet Part L2 of the government's building regulations.

Bhupinder Singh, senior vice president, Bentley Software, notes, "Improving the energy efficiency of buildings is a pressing need given the rising cost and depleting supplies of fossil fuels. We are excited to announce that work is currently under way to further integrate Hevacomp HVAC design tools with Tas for a seamless design-with-analysis workflow."

The ultimate goal is to drive innovation in applications and best practices that will be instrumental in creating the next generation of sustainable buildings. The US Green Building Council reports that green buildings benefit the environment and economy by conserving natural resources, optimizing lifecycle performance, and enhancing occupant health. Ultimately, society will benefit from an expanded supply of energy-efficient buildings that conserve precious resources and lead to a cleaner environment. ●

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