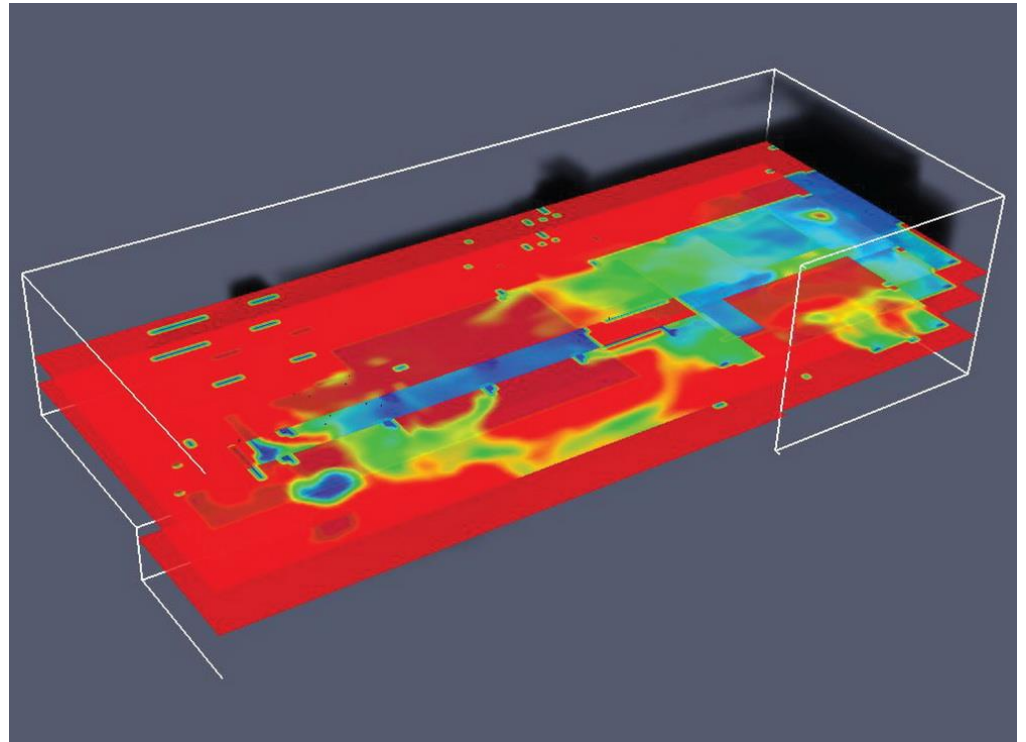


## Fire Engineering and Modeling



- Timed egress and pedestrian flow
- Building airflow and smoke movement
- Compartment fires
- Cantilever and adjacent building fire exposures
- Structural fire resistance
- Passive and active fire and smoke management strategies
- Fire protection system activation times
- Water-based fire suppression system hydraulic design
- Water supply fire flow
- Fire research and testing
- Post-fire analysis
- Litigation support
- Peer review

Modeling analysis provides predictions for complex systems where prescriptive solutions are limited, traditional engineering methods are not well-suited, and fire testing is impractical. WJE's mathematical and advanced simulation tools and techniques provide our clients with critical insight into fire risk. WJE professionals leverage recognized industry techniques and decades of hands-on experience to provide rapid assessment and actionable, cost-effective solutions for challenging new designs, existing infrastructure, and sudden failures.

In conjunction with our structural, materials, and fire testing capabilities, WJE can evaluate structural fire protection approaches under various fire exposures, design for effective smoke management, optimize fire water supply performance, and assess human behavior during evacuations. Using similar tools and techniques, we can support post-fire analysis of fire development, such as fire dynamics, fire spread, occupant exposure, and the effects of fire. The results can then be compared with physical evidence and testimony to test working hypotheses and timelines in a litigation or judicial proceeding.

WJE fire and egress modeling is conducted using commercial software programs that are well-validated. We utilize the latest hardware and draw on years of experience to minimize model run-times and achieve the right level of analysis sophistication for our clients' needs. In addition to quantitative capabilities, WJE emphasizes strong qualitative reasoning and close coordination with our laboratory team to provide holistic solutions.

