Validation and Verification:
FDS has been extensively validated against experimental data for various fire scenarios. NIST validation studies show temperature predictions typically within ±15% and heat flux predictions within ±25% of measured values. However, model accuracy depends strongly on grid resolution, fire scenario complexity, and proper input specification.

10.3 Design Implications

The calculated ASET of 5.5 seconds provides a quantitative basis for evaluating design alternatives:

- **Fire protection systems:** Earlier detection and suppression can extend ASET
- **Ventilation design:** Smoke management systems can improve visibility and reduce toxicity
- **Exit geometry:** Relocating exits or adding redundant egress paths
- **Fire resistance:** Compartmentation to limit fire spread
- **Material selection:** Low-smoke, low-toxicity materials can improve ASET