

Chapter 9

Conclusions

The NFRL presents a unique opportunity to explore a broad range of unanswered questions regarding the performance of real structures in the fire condition, and to inform performance based design methods and standards in this field. Although input was sought from a broad range of sources in this study, the following major issues are of broad concern to the community and are recommended for consideration as priority research areas for the NFRL in support of its objective:

1. Because of the unique nature of the facility, there is a priority need for a thorough benchmarking and validation process for the measurement systems used in the facility.
2. Although the primary focus of the NFRL is structural behavior in fire, a priority for the design community is the interaction of real fire exposure and structural response—how one affects the other.
3. A focus on large scale experiments related to the many unanswered questions about composite floor system performance would have great practical import and a major impact on design methods.
4. Material (structural and fire proofing) properties under load at the large scale are a high priority need for enhancing modeling of performance in fire.
5. Understanding the embedded safety factors in our current prescriptive design methods is an important first step in moving toward a performance based design system.
6. There is a strong interest within the structural fire engineering research community in collaborating with NIST in undertaking synergistic research projects that take full advantage of the NFRL capabilities.