

## **Executive Summary**

Design of a chimney structure requires knowledge of specific characteristics and parameters that affect the system performance. The parameter of flow resistance coefficient is especially important since it is a major determinant of the chimney's resistance to flow. In order to ensure that a chimney has proper draft, the flow resistance of the entire system should be less than induced draft. As such, the flow resistance coefficient is an important design parameter. While numerous existing papers and experimental data highlight most portions of a typical chimney assembly, such as elbows and bends, fewer research studies have focused on the flow resistance coefficient of chimney top appurtenances, such as rain caps, exhaust terminations, chimney-top dampers, and decorative shrouds for solid fuel burning appliances. The results of this study show that there exists information and data related to flow resistance and impedance of gas flue in the literature. The data are also primarily available for chimney top appurtenances such as chimney caps, exhaust termination, and venting systems. While there are gaps in information on the topics related to chimney top dampers and decorative shrouds. The sources of such information are standards and codes, as well as reports of research studies and data from manufactures. This report provides a summary of published research results and data related to flow resistance of chimney-top appurtenance and identifies existing gaps. Specifically, a summary of findings related to flue gas through venting system in solid fuel burning appliances is provided. These publications include those reporting testing (including product testing of chimney-top devices) and modeling of the entire venting system of the chimney.