

SYMPOSIUM ON FIRE TEST METHODS— RESTRAINT AND SMOKE 1966

Introduction

The content of Standard Methods of Fire Tests of Building Construction and Materials, ASTM E 119 – 61, is one of the responsibilities of ASTM Committee E-5. This document sets forth the testing procedures and end point criteria for standard fire tests of all types of building construction. The results of fire tests performed in accordance with this standard are useful, if not essential, to the work of building code officials, fire insurance underwriters, and other authorities responsible for fire safety in buildings. This standard, like most other ASTM standards, has been under continuous evolution since it was first adopted in 1933. As applicable new knowledge is brought forward it is thoroughly examined and debated in committee sessions. ASTM Committee E-5 symposia have served as effective vehicles for bringing forward new information and research experience bearing on the problems arising in fire testing.

The proper simulation in the laboratory of the restraint of thermal expansion that occurs in building fires has long been a vexing problem for ASTM Committee E-5. Important to any improvement in the test method in this regard is a better understanding of the mechanisms involved and the influence on structural behavior when restraint is applied to various structural building types. The series of papers in this compilation on restraint are, therefore, directed to an improvement in this understanding.

The measurement and control of smoke in building fires are becoming increasingly cogent considerations which ASTM Committee E-5 is endeavoring to resolve. Smoke measurements on building materials by current ASTM standards are by-products of flamability test methods and as such do not appear to have been accorded the concern and attention which seems desirable. Knowledge of the propagation, control and measurement of smoke density from fire in public and large apartment buildings is important to the proper design of exits, exit signs, ventilation systems, and other facilities directed to the safety of human occupants. The papers contained herein on this general topic reflect recent research findings and experience.

These papers were presented in the symposium meeting held on June 27, 1966, in Atlantic City, N. J. As is often the case, one effort

such as is represented here is not sufficient to resolve all pertinent questions and problems. However, it is the hope of the symposium committee that the information contained will stimulate further thought and study which eventually will result in practical, satisfactory solutions.

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