

**Ignition and Flammability
Workshop on Fire Growth and Spread on Objects**

Session Summary

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The session covered specific topics from wall fire growth to furniture fires and specific material test methods. However, the themes that emerged in the presentations and discussion were broader than these specific areas. These themes fall under two main categories:

A major theme was the need to deal with real fires on real materials and composites (beyond wall linings which are fairly well understood). The Cone Calorimeter was developed for the express purpose of developing fire model input data for the complex layered materials characteristic of the real objects which show up as problematical in fire incidence statistics. However, there was no consensus (in this session or in others) on the most accurate way to transform Cone data (acquired at one or more constant heat fluxes) into “material property data” needed as inputs to fire growth and/or burning rate models.

Other aspects of real room fires were repeatedly raised but generally not addressed in the work discussed here. Thus there were calls for carefully observed fire tests in fully furnished rooms to get quantitative data on how fires actually spread from object to object. The role of fire radiation in fire spread among objects is clear but quantifying and predicting its level versus distance is in need of further work. The actual mode of second object ignition in this radiant field (in a room fire) is not clear. The sensitivity of the overall fire growth in a room to object placement is also quite unclear. One of the most difficult problems of real object burning, generally ignored by modelers, is the drastic change in geometry which occurs as elements of the fuel melt and flow or collapse, possibly forming a pool fire under the remains of the object. The point was made that such changes can dominate the heat release curve of objects such as chairs. Thus it is necessary to come to some understanding of the role of such changes in real object burning.