Readers' Forum

TO THE EDITOR

I have only recently learned of Dr. Babrauskas' contribution to "Readers' Forum" in the August (1980) issue, in which he criticizes an aspect of the article in the previous issue (May 1980) by myself and Dr. Campbell. We implied that the E-162 test often places an undue emphasis on radiation exposure, and Dr. Babrauskas submits that our view does not take into account present day understanding of room fires. I immediately discussed the issue with Dr. Babrauskas, pointing out that I do not ask a flammability test to investigate the behaviour of a material during the final stage of fire development (flashover) in a room. Radiation plays such a major part in this stage that flashover could well be described as radiation-controlled. It is also, however, very rapid and, as maximizing safety involves maximizing delay, the behaviour of materials during the slower, earlier stages of the fire is of much more interest from the hazard analysis point of view.

In these earlier stages, fire spread up vertical surfaces and under a ceiling involves preheating by flame impingement, and the flame thickness is usually much less than that necessary to give a high emissivity. Such conditions are fairly reasonably represented by the tunnel exposure, and in fact, the tunnel has served North America well in minimizing fire risk associated with flammable wall and ceiling lining materials. I am of the opinion that care in this aspect of

building design continues to be necessary and that the tunnel constitutes a useful tool in the selection of suitable interior lining materials.

At this point in the discussion, Dr. Babrauskas raised an interesting line of argument concerning conditions in the 1980s. If I interpreted him correctly, he submitted that, with current furnishing trends, a completely different analysis of early fire development will prove convenient. It relates to the use of nonflammable wall and ceiling linings but modern furnishings together, probably, with an extensive use of carpets. Delay in fire development (it is submitted) can result, for example, from the time taken for fire to spread horizontally, on upward facing surfaces, from one vertical surface to another near it. Spread on the vertical surfaces is sufficiently rapid that it can even be regarded as an approximation as instantaneous. Adopting this concept, a flammability test should involve radiation exposure with the draft opposing flame spread (i.e., in the opposite direction to that prevailing in the tunnel).

I find this concept fascinating and feel it worth pursuing. Just as a test emphasizing radiation has found an application in evaluating corridor flooring materials (the NBS flooring radiant panel), so a test with a similar emphasis might find an application in this context. Whilst flammable wall and ceiling lining materials exist, however, the tunnel continues to have a function.

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