

FIRE FIGHTERS GUIDANCE NOTE # 6-6

ISSUE: RAPID FIRE PROGRESSION

“Fire dynamics can provide a fire officer or a firefighter with means to understand how a fire will grow and spread within a structure and how best to control that growth.”¹

Under clause 25(2)(a) of the *Occupational Health and Safety Act*, the employer must provide information, instruction and supervision to a worker to protect the health or safety of the worker.

Fire departments should develop training in fire dynamics for suppression personnel. Fire suppression personnel should be aware of the combustibility of modern contents and how they can impact compartment fire behavior and rapid fire progression events.

This training should include information on identifying ventilation flow paths and understanding how fire suppression activities can influence a flow path that could result in rapid fire progression.

There are critical differences between fuel-limited and ventilation-limited fires, and correspondingly, different hazards. Generally, the opportunity for injury and the greatest hazard to fire suppression personnel is present during ventilation-limited compartment fires, which could lead to roll-over, flash over, back draft, or any rapid fire progression event.

References:

GN # 7-6 – Hazardous Fire Conditions – Rollover, Flashover and Backdraft

Fire Dynamics: The Science of Fire Fighting;

by **Daniel Madrzykowski**, Fire Protection Engineer, National Institute of Standards and Technology, 2012

¹ Fifth Annual Dr. John Granito Award for Excellence in Fire Leadership and Management Keynote Address presented at Research Symposium 2012 (RS12) by **Daniel Madrzykowski**, Fire Protection Engineer, National Institute of Standards and Technology