FIRE FIGHTERS GUIDANCE NOTE # 6-26

ISSUE: STRUCTURAL FIREFIGHTING – FIRE STREAMS AND VENTILATION

Structural firefighting is very dangerous work. Extinguishing the fire quickly is the most effective way of reducing the dangers encountered on the fireground. Proper use of fire streams and coordinated ventilation are key components to improving safety and effectiveness on the fireground.

Firefighters and officers should understand Critical Flow Rates (the minimum flow in litres or gallons per minute required to extinguish a given size fire) and the effects of nozzle stream patterns when determining the type, size and number of lines required to control the fire as quickly as possible.

Fire departments should establish minimum flow rates for residential fires and for commercial building fires. Commonly accepted critical flow rates for residential fires are 570 lpm (150 usgpm) and 950 lpm (250 usgpm) for commercial building fires. Nozzles with lower reaction forces at higher flow rates improve the safety of firefighters by reducing the workload and stress during the high demands of interior firefighting.

When interior firefighting takes place, a direct attack should be emphasized in place of indirect or combination attack, when possible. Improper use of fog patterns during an interior attack can place firefighters in great danger as the result of large volumes of air forced into the fire area, creation of excessive amounts of steam and upset of the thermal balance that can reduce visibility, cause steam burns or result in flashover.

Ventilation coordinated with fire attack is also a vital component of safe fire fighting and must be considered as an essential part of a safe interior fire attack.

Fire department training programs on structural firefighting should include components on critical flow rates, nozzle pressures, and reaction forces, the possible dangers of using fog streams during interior attack and the importance of coordinated ventilation practices.

Prior to participating in live fire training and fire suppression, fire personnel should receive training on the use and application of fire streams and the need for coordinating ventilation of fires with the fire attack.