

3D Fire Fighting

by Paul Grimwood, Ed Hartin,
John McDonough, and Shan Raffel



Having served as a firefighter—both in the USA and Europe across a thirty-year period from the early 1970s – Paul Grimwood studied structural fire fighting tactics from an international perspective and became aware at a very early

stage there are several tactical approaches common to specific countries that are used to control and suppress compartment (room) or structural fires. He stood alongside New York City firefighters for many months through the bleak mid 70s during the busiest period in the history of the fire department and watched in awe as they opened up (ventilated) structures, allowing the fire to show itself before unleashing a “deluge” of water power through their high-flow nozzles in a direct tactical attack. This method of ventilation was in conflict with his own instincts that had evolved through much experience and training while serving in the London Fire Brigade some years previous, where firefighters would cautiously take actions to confine the fire before hunting it out and delivering high-pressure low-flow fog patterns to complete control and suppression.

However, he learned that there was much to be said for opening structures, and subsequent experiences confirmed this aspect of tactical fireground operations. It was also appreciated that fire confinement, as a strategy, still offered major advantages in some respects and could be used most effectively in specific situations. Although Grimwood was impressed by the concept of high-flow attack hoselines, he was also appreciative of the “new-wave” uses of rapid bursting (nozzle pulsing) tactics being introduced during the early 1980s by Swedish firefighters. To make their approach routes safe, Swedish firefighters directed small amounts of their fog patterns into the dangerous gases forming in the overhead. This tactical approach also provided a means of dealing with the “gaseous phase” of combustion, as opposed to the “fuel phase” that 95% of fire attacks were aimed at. It further educated the minds of firefighters in various aspects associated with fire behavior that had received little coverage from a training perspective.

The wide range of tactical approaches suggested to Grimwood that there should be some “middle ground” where he could combine fireground tactics into a unified strategy that would accommodate all situations. A fireground strategy that favored venting tactics over confinement strategy or high-flow direct hits over low-flow “pulsing” fog patterns, (or vice versa) was not optimal for all situations. The term *3D Fire Fighting* refers to techniques and tactics used by firefighters to assert an element of control over deteriorating fire conditions inside fire-involved structures, or compartments. This objective of taking control of interior conditions at the outset of fire operations is based upon the safe-person concept, where an immediate risk-based approach – evaluating risk versus gain – is applied at the earliest opportunity, i.e., on fire department arrival.

In the past it has been common for firefighters to direct their initial attack strategy towards the visible fuel phase fire while neglecting the hidden dangers of the gaseous-phase fire or exposure. This fundamental error has cost many firefighters their lives. This book describes in detail the techniques and tactics used to safely gain access to a fire compartment or structure and how to advance safely and mount an effective attack on the fire. This training manual and accompanying CD show firefighters that fire development in the gaseous phase is potentially more lethal than that in the fuel phase. There are references to traditional forms of mounting an attack on the fuel-phase fire, as well as the relatively “new-wave” approaches developed by firefighters in Sweden and England during the 1980s for dealing with the hazards of flashover, backdraft, smoke explosion, and other

forms of fire gas ignition (FGI). These techniques include zone control (buffer and safe zoning); 3D water-fog applications into the gaseous phase to suppress flaming combustion and inert unignited fire-gas accumulations; tactical venting options that address both opening up and closing down (confining) a fire; as well as direct (straight-stream) and indirect (fog) methods of fire suppression.

A detailed review of fire fighting flow-rate research demonstrates some surprising misunderstandings that have caused several misapplications of fire fighting flow-rate formula over the years. There are distinct differences between fighting a fire using just the critical flow rate as opposed to the more effective tactical flow rate and the reasons for this are explained.

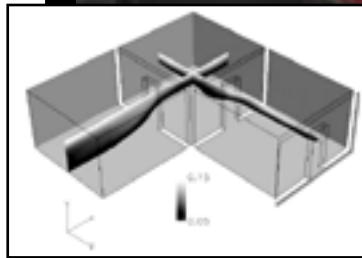
3D Fire Fighting brings together four tactical fire fighting specialists from the USA, Australia, and the UK. Each author brings his own area of expertise to the publication in a way never seen before, truly from an international perspective. The authors are Paul Grimwood, Ed Hartin, John McDonough, and Shan Raffel.

The book and CD explore new approaches to tactical venting options; fire confinement strategies; and offer primary teaching aids relative to various forms of rapid fire progress; CFBT (Compartment Fire Behavior Training); and tacti-

cal fire attack (smoothbore versus water-fog versus CAFS – the debate ends here!). Read the first-hand views of fire chiefs in New York City and London who debate the “venting” versus “confinement” tactics head on. Learn how to implement CFBT training in your fire department using tried and tested methods based on the original Swedish model with safe-operating practices developed in the UK.

This book is for the fire chief, the fire administrator, the engineer, or the firefighter. It demonstrates how a safer and more effective approach to tackling structure fires can result in reducing the life losses dramatically, as has been shown in the countries where 3D Fire Fighting has evolved.

If you are interested in ordering 3D Fire Fighting, please call 800-654-4055.



Pictured from left: Mike Wieder (Asst. Director – FPP), Kathy Rousseau (FPP employee), David Thompson (Assoc. Dean, College of Engineering, Architecture and Technology – OSU), Clint Parker (Graphic Designer – FPP), Dennis Compton (Past Chair – IFSTA Board), Janet Maker (Business Manager – FPP), Wes Kitchell (IFSTA Board member), Cindy Brakhage (Senior Editor – FPP), and Jeff Morrisette (IFSTA Board member).

CFSI Dinner

IFSTA and its publishing partner Fire Protection Publications (FPP) at Oklahoma State University (OSU) were selected by the Congressional Fire Services Institute (CFSI) as the 2005 Fire Service Organization of the Year. The award was formally presented at the Seventeenth Annual National Fire and Emergency Services Dinner on April 7, 2005, in Washington, D.C.