Engine Company Fireground Operations Publisher Updates

CHAPTER 2

Page 28

Original:

Although many new homes use lightweight construction assembly, they also use double- and triple-paned glass for insulation. These formidable windows often endure the heat of the fire during the ignition and growth stages without failing, which would provide the fire with additional air.

Corrected:

Although many new homes use lightweight construction **assemblies**, they also use double- and triple-paned glass for insulation. These formidable windows often endure the heat of the fire during the **incipient** and growth stages without failing, which would provide the fire with additional **oxygen**.

Page 31

Original:

…all of which are flammable and thus create an extremely dangerous atmosphere where the only ingredient needed to restart the combustion process is air.

Corrected:

…all of which are flammable and thus create an extremely dangerous atmosphere where the only ingredient needed to restart the combustion process is **oxygen**.

Original:

…the fire gains significant headway before running out of air.

Corrected:

…the fire gains significant headway before running out of **oxygen**.

Page 33

Original:

The fire is growing, heat and energy are being created, and flammable vapors are being emitted because there is a steady flow of fresh air reaching the seat of the fire.

Corrected:

The fire is growing, heat and energy are being created, and flammable vapors are being emitted because there is a steady flow of fresh **oxygen** reaching the seat of the fire.

Original:

As the decay stage progresses, a fire that was once air controlled is now a fuel-dependent fire.

Corrected:

As the decay stage progresses, a fire that was once **oxygen** controlled is now a fuel-dependent fire.

Page 60

Original:

Firefighters making entry into a structure can introduce fresh air to create the right mixture to cause these gases to ignite or explode.

Corrected:

Firefighters making entry into a structure can introduce fresh air to create the right mixture **of oxygen** to cause these gases to ignite or explode.

Page 65

Original:

Making entry from the exhaust portal from the flow path is placing you and your hose team in the middle of the chimney. This is a high-low flow path and you have placed yourself and your crew between the fire and the ventilation exhaust portal.

Corrected:

Making entry **through** the exhaust portal **down into** the flow path is placing you and your hose team in the middle of the chimney. This is a high-low flow path**,** and you have placed yourself and your crew between the fire and the ventilation exhaust portal**—where the fire is, and where the fire wants to go.**

Page 66

Original:

FIGURE 2-67 Steady smoke flowing out through the entire doorway is the exhaust portal of a unidirectional flow path.

Corrected:

FIGURE 2-67 Steady smoke flowing out through the entire doorway is the exhaust portal of a unidirectional flow path **indicating a basement fire, or that the fire is below you**.

CHAPTER 3

Page 75

Original:

In extreme fire temperatures, this moisture can convert to steam and expand within the concrete, increasing the interior pressure.

Corrected:

In extreme fire temperatures, this moisture can convert to steam and expand within the concrete, increasing the **internal** pressure.

Page 77

Original:

Although this reduces fire spread, the concern for firefighters is that wall breaches became harder.

Corrected:

Although this reduces fire spread, the concern for firefighters is that wall breaches **just** became harder.

Page 78

Original:

FIGURE 3-12 Tempered glass is stronger than ordinary glass, but it can still be broken with a spring-loaded center punch.

Corrected:

FIGURE 3-12 Tempered glass is stronger than ordinary glass, but it can still be broken with a spring-loaded center punch**, or the pick of an ax**.

Page 79

Original:

An exposure line should be stretched into the house, but the interior garage door should remain closed.

Corrected:

An exposure line should be stretched into the house, but the interior garage door should remain closed **until the fire in the garage is extinguished and ventilated**.

Page 80

Original:

They fail quickly under fire conditions in as little as 2 to 5 minutes, and often without warning.

Corrected:

They fail quickly under fire conditions in as little as 2 to 5 minutes when **exposed to direct flame contact**, and often without warning.

Page 82

Original:

Fire load describes the fuel (building contents) and the number of BTUs that will be generated when that fuel is on fire.

Corrected:

Fire load describes the fuel (building contents) and the number of BTUs that will be generated when that fuel is on fire. **Fire load is referred to as fuel load.**

Page 83

Original:

Eventually, gravity takes over and pushes the building to the ground.

Corrected:

Eventually, gravity takes over and **pulls** the building to the ground.

Page 87

Original:

The top chord resists compressive forces, and the bottom chord resists tensile forces.

Corrected:

The top chord resists **compression** forces, and the bottom chord resists **tension** forces.

CHAPTER 4

Page 117

Original:

...when the primary decay stage smoke was carbon monoxide, which has an ignition temperature of 1,128°F (609°C).

Corrected:

...when the primary decay stage smoke was carbon monoxide, which has an ignition temperature of **over 1,000°F (1,128°F [609°C]).**

Page 131

Original:

As NIST and UL researchers measured the movements of the fire, they reportedly determine that, in every experiment and test fire...

Corrected:

As NIST and UL researchers measured the movements of the fire, they **repeatedly** determine that, in every experiment and test fire...

Page 135

Original:

Water application is most effective if a straight stream is aimed through the smoke at the ceiling of the fire room. Water should be flowed for about 10 to 20 seconds. This technique allows heated gases to continue to vent from the fire compartment while the hot fuel cools inside. A wide fog pattern should not be used in this application. Medium and wide fog patterns entrain large volumes of air that can move fire to other flow paths in the building.

Corrected:

Water application is most effective if a straight stream is aimed through the smoke at the ceiling of the fire room. **Water should be applied for approximately 30 seconds, or as long as it takes to knock down the fire. The effects of a transitional attack are significant but temporary. The favorable conditions are short-lived unless additional water can be applied to the seat of the fire for complete extinguishment with an interior attack.**

Page 139

Original:

When you first make entry into a structure, watch to see what the smoke does.

Corrected:

When you first make entry into a structure **without an exterior below-grade access to the basement**, watch to see what the smoke does.

Original:

This means that the fire is below the level of the opening FIGURE 4-36. This type of unidirectional flow path is basically a chimney,...

Corrected:

This means that the fire is below the level of the opening FIGURE 4-36. **The chance of flashover is temporarily reduced due to the lack of oxygen within the exhaust port, but this can quickly change with the failure of a below-grade window by creating a fresh air lower-level intake portal.** This type of unidirectional flow path is basically a chimney,...

Page 145

Original:

...the window of opportunity for a relatively safe operational period (in firefighting terms) is reduced to less than 5 minutes before flashover and structural collapse occur.

Correction:

...the window of opportunity for a relatively safe operational period (in firefighting terms) is reduced to **approximately** 5 minutes before flashover and structural collapse **can** occur.

CHAPTER 5

Page 158

Original:

...first from the outside of the structure with a straight stream into the top of a door or window and deflected off the window header or ceiling for 30 seconds. This is referred to as *softening the target* or *hitting it hard from the yard*.

Correction:

...first from the outside of the structure with a straight stream into the top of a door or window and deflected off the window header or ceiling for **approximately** 30 seconds**, or as long as it takes to knock down the fire**. This is referred to as *softening the target* or *hitting it hard from the yard*. **The effects of a transitional attack are significant but temporary. The favorable conditions are short-lived unless additional water can be applied to the seat of the fire for complete extinguishment with an interior attack.**

Page 183

Original:

Single Engine Hose Lays

This section discusses the initial hose lays of the first two engine companies arriving at a fire.

Correction:

Single Engine Hose Lays

A Type 1 fire engine, often referred to as an engine company, a fire engine, a pumper truck, or a structural firefighting engine, is the most common type of fire engine in use today. Type 1 fire engines are specifically designed to support urban, rural, and suburban fire departments for structural firefighting. Per NFPA 1901, Standard for Automotive Fire Apparatus, every Type 1 engine is required to have a pump with a minimum tank capacity of 300 gallons, although most Type 1 engines in urban and metropolitan cities feature a 500-gallon water tank. In suburban and rural areas without hydrants, it is not unusual to find Type 1 engines that carry between 750 and 1,000 gallons of water, and sometimes even more. This section discusses the initial hose lays of the first two engine companies arriving at a fire.

CHAPTER 9

Page 273

Original:

Fast-water duration can be as short as 5 seconds of straight-stream water.

Correction:

Fast-water duration is **approximately 30** seconds of straight-stream water **application, or as long as it takes to knock down the fire**.

Page 279

Original:

The point of no return is estimated at 5 to 6 feet to the door, basically, your body length falling forward.

Correction:

The point of no return is estimated at **6 to 10** feet to the door, basically, **the height of an average firefighter** falling forward **with enough momentum to crawl past the threshold of a door to safety. Beyond 10 feet into the burning compartment, it is doubtful a firefighter caught in a flashover will survive, or escape, without suffering critical thermal injuries**.

CHAPTER 10

Page 310

Original:

...the firefighter should spray water into the burning compartment, either through the window or the door for 15 to 20 seconds.

Correction:

...the firefighter should spray water into the burning compartment, either through the window or the door for **approximately 30 seconds or as long as it takes to knock down the fire**.

Page 321

Original:

FIGURE 10-13 Prior to making entry, the nozzle firefighter sprays water into the burning compartment through the window or the door for 15 to 20 seconds.

Correction:

FIGURE 10-13 Prior to making entry, the nozzle firefighter sprays water into the burning compartment through the window or the door for **approximately 30 seconds or as long as it takes to knock down the fire**.

Original:

Working from the outside of the structure, the nozzle firefighter sprays water into the burning compartment through the window or the door for 15 to 20 seconds.

Correction:

Working from the outside of the structure, the nozzle firefighter sprays water into the burning compartment through the window or the door for **approximately 30 seconds or as long as it takes to knock down the fire**.

Page 325

Original:

If a fire cannot be knocked down, controlled, or extinguished within 30 seconds with the hose lines that are being operated, then additional, larger hose lines are needed. The Royer/Nelson formula is based on the premise that the best flow rate of water application is one that results in controlling the fire within 30 seconds.

Correction:

If a fire cannot be knocked down, controlled, or extinguished within **60** seconds with the hose lines that are being operated, then additional, larger hose lines are needed. The Royer/Nelson formula is based on the premise that the best flow rate of water application is one that results in controlling the fire within **60** seconds.

Page 330

Original:

- If the fire isn't knocked down or controlled within 30 to 60 seconds, the current line may be too small.

Correction:

- If the fire isn't knocked down or controlled within 60 seconds, the current line may be too small.

CHAPTER 11

Page 378

Original:

…it can collapse under its own weight within 5 to 10 minutes of being subjected to this high-temperature thermal assault.

Correction:

…it can collapse under its own weight within **10 or more** minutes of being subjected to this high-temperature thermal assault.

CHAPTER 12

Page 410

Original:

Collapse may occur in little as 10 minutes with steel bar joist roofs.

Corrections:

Collapse may occur **within 10 or more** minutes with steel bar joist roofs.

CHAPTER 15

Page 493

Original:

As in all firefighting operations, if the 1¾-inch hand line isn't knocking down and controlling the fire in less than a minute, the 2½-inch backup hose should be used immediately.

Correction:

As in all firefighting operations, if the 1¾-inch hand line isn't knocking down and controlling the fire **within 60 seconds**, the 2½-inch backup hose should be used immediately.

Page 500

Original:

At a minimum, the first five floors or the attack stairwell must be checked for occupants by an engine crew member before the hallway door is opened to the fire floor.

Correction:

At a minimum, the first five **floor landings in** the attack stairwell **above the fire floor** must be checked for occupants by **a** crew member before the hallway door is opened **by the engine company to attack the fire**.