

Glossary

Advance Attack Line — measures the interval from the end of the task “Position engine” to the end of the task “Advance Attack Line (water on fire time).”

Angle iron — an iron or steel bar, brace, or cleat in the form of an angle.

Apparatus — A fire department emergency vehicle used for rescue, fire suppression, or other specialized functions.

Backup line — the water-charged hose line put in place by the second arriving engine crew that protects the fire fighters operating on the inside of the structure and prevents fire from spreading to other part of the structure.

Bleed — opening the nozzle of the hose line and removing any excess air to assure water is following unobstructed.

Calorimeter — an apparatus for measuring the heat generated by a chemical reaction, change of state, or formation of a solution.

Close Stagger — 240 second travel time FIRST engine with 60 second ladder-truck lag and a 90 second lag for each subsequent engine (specific to this report).

CO — Carbon monoxide.

CO₂ — Carbon dioxide

Combustion — the sequence of exothermic chemical reactions between a fuel and an oxidant accompanied by the production of heat and conversion of chemical species. The release of heat can result in the production of light in the form of either glowing or a flame.

Command aide — A fire fighter or fire officer assigned to a supervisory chief officer to assist with the logistical, tactical, and accountability functions of incident, division, or sector command.

Engine company — Fire companies whose primary functions are to pump and deliver water and perform basic fire fighting, including search and rescue, (NFPA Standard 1710, Section 5.2.2.1).

Epidemiological evidence — evidence accumulated from a study of factors affecting the health and illness of populations. The evidence serves as the foundation and logic of interventions made in the interest of public health and preventive medicine.

Excelsior — fine wood shavings, used for stuffing, packing, or as accelerant for ignition of wood pallets.

Exposure — a building or structure adjacent to a burning building to which fire could readily spread.

Far Stagger — 240 second travel time FIRST engine with 120 second ladder-truck lag and a 150 second lag for each subsequent engine (specific to this report).

Fast fire — fire that grows with the square of time to 1 MW in 150 seconds.

Fire proofing — a fire resistive material applied to structural members to improve the resistance to thermal degradation.

Flake — laying out a hose line to remove any twists that could restrict water flow.

Flashover — simultaneous ignition of all combustible materials in a closed space; may also result in *rollover*.

Fractional effective dose (FED) — the ratio of the exposure dose for an asphyxiant toxicant to that expected to produce a given effect on an exposed subject of average susceptibility. A probabilistic estimate of the effects of toxic gases on humans exposed to fire effluent.

Fuel load — the total amount of combustible material in a defined space. Fuel load is quantified in heat units or its equivalent weight in wood.

Full-room involvement — when all combustible surfaces in a room are burning — also, a time when internal access tasks must wait until fire streams can be applied.

Gypsum wallboard — a construction product used to finish interior walls.

Heat flux — flow of energy per unit of area per unit of time, often measure in kW/m².

Heat release rate (HRR) — the rate at which heat is generated by fire. HRR is measured in Joules per second (also called Watts).

High-hazard occupancy — include schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other highlife hazard or large fire potential occupancies.

High-rise fires — a fire in a building beyond the reach of aerial ladders which requires fire fighters to climb stairs for access to upper floors.

Immediately Dangerous to Life and Health (IDLH) atmosphere — defined by the US National Institute for Occupational Safety and Health (NIOSH) as exposure to airborne contaminants that is “likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment.”

Industry standard achieved-time — derived from NFPA 1710, the time between when the first engine arrives at the hydrant and when 15 fire fighters were assembled on scene.

Initial life safety assessment (size up)— an assessment around a burning structure (occupancy) to identify signs of occupants, construction features, and location of the original fire and any extension to other parts of the structure.

Interface height — the vertical location of the steep temperature gradient between the relatively cool lower gas layer and the hot upper gas layer.

Interior utility control — turning off utilities at a burning structure thereby increasing safety by preventing explosions caused by natural gas, electrocution caused by energized electrical equipment, or the danger of water buildup caused by flowing pipes.

Knockdown — to reduce the flame or heat on the more vigorously burning parts of a fire edge.

Low-hazard occupancy — one-, two-, or three-family dwelling and some small businesses without adjoining exposures.

Mayday — an emergency code word used internationally as a distress signal in voice procedure radio communications.

Medium Fire — fire that grows with the square of time to 1 MW in 300 seconds.

Medium-hazard occupancy — include apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or fire fighting forces.

National Fire Protection Association (NFPA) — a nonprofit organization, established in 1896, with the mission to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training and education.

NIST Fire Dynamics Simulator (FDS) — a numerical model of fire-driven fluid flow implementing the principles of computational fluid dynamics.

NFPA 1710 — Standard for the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by career fire fighters.

NFPA 1403 — Standard for Live fire Training Evolutions — national standard which prescribes specific requirements for the safe conduct of firefighter training involving both live fires and fire fighters in a structure.

Nonambulatory occupant — someone asleep, under the influence of alcohol or drugs, or otherwise mobility impaired; these occupants typically require rescue by the fire department during a structure fire.

Noncombustible furniture — furniture that is not flammable.

Non-dispersive infrared (NDIR) analyzer — spectroscopic device often used for gas analysis.

O₂ — Oxygen.

On scene — (See also Scene Arrival time) the time when emergency response resources reach the address or incident location to which they were dispatched (Apparatus wheels stop rolling).

Oxygen consumption calorimeter principle — the principle that a known amount of heat is released for each gram of oxygen consumed by a fire.

Physiological impact — the impact on any of the functions of a person.

Pike pole — a long pole with a metal point and a fixed hook.

Pitch black — extremely dark so that one cannot see beyond even short distance in front of him. In a fire, a smoke-filled room with little visibility might be considered pitch black.

Primary search and rescue — the initial search for and provision of aid to people who are in distress or imminent danger.

Rapid intervention team — A dedicated crew of fire fighters assigned for rapid deployment to rescue lost or trapped fire fighters engaged in the fire attack or search / rescue.

Scene Arrival time — the time when emergency response resources reach the address or incident location to which they were dispatched (Apparatus wheels stop rolling.)

Slow fire — fire that grows with the square of time to 1 MW in 600 seconds.

Stretch a line — the sequence of actions which includes pulling a hose line off the attack engine, assuring water is flowing, stretching the line to an attack position in the vicinity of a fire, and engaging in fire suppression (Water on fire).

Tenability — a measure of the degree to which an unprotected person can survive in a given environment (temperature, smoke and gas concentrations).

The consolidated fire and smoke transport model (CFAST) — computer program which efficiently simulates the movement of heat and smoke through buildings using the two-layer assumption.

Thermal environment — aspects of an environment that include local temperature, humidity, and air velocity as well as the presence of radiating surfaces.

Non-fire glossary

Thermocouple — a thermoelectric device used to measure temperatures, especially one consisting of two dissimilar metals joined so that an electric potential difference generated between the points of contact is a measure of the temperature difference between the points.

Total response time — the overall time from dispatch to scene arrival.

Toxic environment — environment with poisonous and toxic elements dangerous to one's health.

Truck (ladder) company — Fire companies whose primary functions are to perform the variety of services, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul, and salvage work. (NFPA Standard 1710, Section 5.2.2.2).

Turnout time — the period of time from receipt of dispatch to departure of the apparatus from its parked location.

Two-in / Two-out — a firefighter life safety life safety requirement from OSHA which requires that prior to entry into a burning structure by fire fighters, two personnel should be positioned outside the structure who are tasked with rescue of fire fighters who make entry into the building.

Law of propagation of uncertainty (the “root sum of square”) — standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities, equal to the positive square root of a sum of terms, the terms being the variances or covariances of these other quantities weighed according to how the measurement result varies with changes in these quantities.

Measurement uncertainty — parameter, associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measure.

Ordinary Least Squares (OLS) — In statistics and econometrics, OLS or linear least squares is a method for estimating the unknown parameters in a linear regression model.

Regression analysis — includes any techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps us understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held.

Standard t-test — measures whether there is any statistical difference in the mean of two groups.

Statistical significance — a number that expresses the probability that the result of a given experiment or study could have occurred purely by chance. This number can be a margin of error or it can be a confidence level.