Expanded Stream Coverage for Large Space Fires

WHEN THE FIRE AREA expands, stream coverage requirements also expand. Stream efficiency is based on effective coverage. The BLADE™ stream nozzle provides expansive stream coverage and can be applied horizontally or vertically. The wide BLADE™ stream nozzle is an advantage for large space fires because it increases the fire stream's footprint, which translates to a more rapid suppression of the fire. Large spaces need water applied in a systematic way. Employing the BLADE™ stream nozzle allows for consistent, defined, and encompassing coverage of the fire area.

It's all about the BLADE™ stream's shape. The BLADE™ stream is a linear stream that has a wide striking surface. This line of large droplets can be applied vertically or horizontally, depending on the attack plan. The BLADE™ stream expands as it leaves the nozzle, providing a wider coverage stamp. For large space fires, the BLADE™ configured in a vertical orientation allows for a side-to-side sweep of the fire area. This orientation can be used at the entry door and applied as 180º coverage of the space. This type of first pass allows the nozzle team to apply coverage over a broad area with sustained stream height. With the nozzle several feet from the floor, the BLADE™ stream's vertical sweep will capture much more of the fire area than any straight or solid stream alone could. This vertical line of water will capture everything it passes due to its height and shape. This results in stream consistency, which allows firefighters to progress forward.

A nozzle team using a horizontal attack pattern with the BLADE™ nozzle applies the stream in an up-and-down motion, like they would with a solid stream attack. This helps the nozzle team define coverage in a stepped fashion. Using the previous example of applying the stream as 180º coverage would have the nozzle team using the stream's width to cover the space in steps, moving from one side to the other in a series of up-and-down motions. Either way, you gain expanded coverage and can easily change it by simply turning the bail of the nozzle.

Fire attack is different in large spaces than in smaller residential spaces and puts more of our focus on fire attack. Rapid fire control is the goal for large space fires. Considerations like search are often moot due to space size, time of entry, and fire progression. Emphasis is on the attack hoseline and making sure the nozzle team is ready to attack the fire. Just as large space fires differ from residential fires, so does nozzle technique.

Nozzle teams need to realize several large space considerations that differ from residential space

1. The BLADE™ stream nozzle in use at a commercial structure. *(Photos courtesy of HEN.)*

2. The BLADE™ stream nozzle provides wide-area coverage.

fires—specifically, the lack of compartmentation, ceiling height, and a lack of consistent water mapping. Each of these factors, if treated like a residential space, will negatively impact fire suppression.

Lack of compartmentation means that straight or solid streams pass through the fire without striking nearby surfaces and breaking up for expanded coverage. The BLADE™ nozzle is already a solid stream that has been broken up into a line of water, hits the fire's leading edge, and resists pass-through to an uninvolved area. This allows for hoseline progression. You must knock down what's in front of you to advance. Solid streams need to smash against compartmentation to allow droplets to be formed. The BLADE™ stream has that already and it's in a known formation, which allows for consistent mapping coverage.

Ceiling heights in large space fires may be double those of residential rooms or much higher. Often with higher ceiling heights, the roof support system is also exposed. We need to acknowledge that there will often be tremendous fire power above or position inside the space. Unseen and sometimes unfelt black fire initially can suddenly accelerate and overcome the nozzle team. This is why early water application is so important. The wide BLADE™ stream allows for a large cooling and gas contracting stream to be placed in the overhead. You need to cool the overhead, as the heated gases may be the first fire you encounter. The actual fire area may be distant from your entry.

Consistent water mapping in the residential sense is often negated in large space fires due to a lack of finished surface ceilings or from the use of drop ceiling tiles. Depending on the stream type, angle of application and proximity to the ceiling mapping, if it even exists, is mostly fleeting and unreliable. Drop ceilings are often found in large space occupancies and will be lost quickly, depending on the factors mentioned. Distance to the ceiling, the angle of application can be changed, but stream type—especially solid stream—cannot be changed except when using the BLADE™ solid stream. Because we know drop ceilings don't last long under solid and straight stream application, the use of the BLADE™ stream will elongate mapping duration. If the strategy is to attempt to keep the ceiling intact, you can move the BLADE™ stream vertically or up and down slowly to minimize its disruptive impact. Solid stream or straight steam with a matching application style will not allow for the same amount of leeway and will result in early ceiling collapse. If the idea is to drop the tile ceiling, you can accomplish that by turning the outer barrel of the BLADE™ to solid stream or keeping the BLADE™ and increasing its angle of attack.

Large space fires are hard fought with tight streams passing through fire and requiring surfaces to smash their streams against to create droplets for coverage. The BLADE™ pattern of large, preformed droplets in a linear delivery format enables the nozzle team to hit the fire's forward edge, cool and contract gases in large volume, and provide consistent stream coverage that's definable. The BLADE™ stream's exit shape is triangular, cooling as it projects outward. This is in contrast to a solid or straight stream, which can only cool along its narrow perimeter as it projects forward. The BLADE™ stream encounters and interacts with gases in a multitude of ways that tight streams cannot. Think of a broom handle as the tight stream going toward the overhead and the broom portion as the BLADE™ going into the overhead, expanding as it travels. The coverage is distinct.

The BLADE™ nozzle offers both a solid smooth bore stream and a prebroken solid stream that proves expanded coverage over a defined area. By providing both, the BLADE™ allows for stream capability and choice, depending on the situation. For hard-hitting, deep-stream contact, use the solid stream; for overall fire attack, use the BLADE™ stream. The use of just solid or straight streams for large area fires leaves a large hole in coverage and timely suppression. There is no longer a need to exhaust firefighters in attempting to gain coverage when a nozzle exists that already provides it and is easy to apply, reducing firefighter fatigue and increasing overall operational safety through enhanced targeted suppression. ■