CITY OF LOVELAND
FIRE AND RESCUE DEPARTMENT
410 E. Fifth Street • Loveland, Colorado 80537
(970) 962-2471 • FAX (970) 962-2912 • TDD (970) 663-5144

AERIAL APPARATUS PLACEMENT (1.1)

Developed By Matthew Hintzman
September 2013

- NFPA 1002 Standard on Fire Apparatus Driver/Operator Professional Qualifications

TASK SKILL DESCRIPTION AND DETAIL

Placement of the Aerial Apparatus to maximize its use in rescue, ventilation, access to upper floors and defensive operations.

First due apparatus engineers must consider placement of the aerial device for the best tactical advantage when arriving on scene and make sure they do not take that position away!

Once the Aerial is set up there is a high likelihood that it will not be moving until the end of the incident, be prepared for all outcomes that could happen with the initial placement of the aerial apparatus!

Step 1 - Considerations for positioning the aerial apparatus:

- Building collapse
- Room to operate (extend, rotate and elevate)
- Placement for optimal position to maximize reach (scrub zones) or complete multiple tasks
- Surface conditions
- Weather and wind conditions
- Ground and overhead obstructions
- Best work angle for the aerial device.
- Stabilizer placement
- Limited access or set up (short jacking, stabilizers placed between cars or objects)
- Forecast where the fire could progress to and be in position to act upon it in the initial set up.

Step 2 - Deploy stabilizers per manufacturer's recommendations:

- Truck 6 stabilizer deployment
    - Place truck in position for stabilizers to extend out on each side of the apparatus
    - Turn on the aerial master switch and aerial PTO switch inside the cab
    - Chalk the front wheel on each side
    - Go to the rear control box underneath rear compartment and move diverter switch to stabilizer position
    - Visually clear both sides of the apparatus and extend stabilizers
    - Place ground pads under the stabilizers and extend the stabilizers down until stabilizers are touching ground pads
    - Extend stabilizers evenly the rest of the way down until the apparatus is level

- Truck 7 stabilizer deployment
    - Place truck in position for stabilizers to extend out 2 feet on each side of the apparatus
    - Turn on the aerial PTO switch inside the cab
    - Chalk the front wheel on the DO side
    - Place ground pads
    - Lower the ladder rack
    - Extend stabilizers on each side until the stabilizers are touching the ground pads
    - Extend stabilizers evenly the rest of the way down until the apparatus is level

Rescue

- Rescue operations are the first priority on the fire ground
- Aerial Engineers must ALWAYS be aware of the weight limitations of the ladder
    - Aerial Engineer must continuously monitor the load minder and load capacity diagram
    - Overloading the aerial device in a rescue situation could lead to a sudden failure of the aerial, resulting in injury or death to anyone involved

Priority Considerations

- Main objective is to reach as many victims or points of egress as possible

1. **Most Severely Threatened by Conditions of the Hazard**
    - Those in the greatest amount of real or perceived danger should be given the highest priority
    - Occupants located on or immediately above the fire floor are in the greatest danger
        - Visible fire conditions are a strong indicator of which victims are in the worst situation
2. **Largest Number of Groups of People**
    - When two or more groups of victims appear to be in the same amount of danger, the larger of the two groups should have the aerial extended to them first.
        - **Be aware of load capacity!**
3. **Remainder of people in Hazard Area**
    - Remainder of victims should be removed from hazard area and any exposures
    - Fire conditions should always be monitored for changes

Rescue from a single location (Figure 1, Figure 2)

- Position the aerial to work off the strongpoints (corners of the apparatus) if possible
- **Align the turntable with the window of the rescue victim**
- Raise and align the aerial ladder with the window
- Bring the aerial ladder to the top of the window of the victims location and lower it down to the window sill
    - This will prevent the victim from jumping onto the aerial before you are in position

- Have someone at the tip to assist the victim(s) down the aerial

Figure 1- Rescue from a single location

Figure 2- Rescue from a single location

Rescue from different locations (Figure 3, Figure 4)

- Position the aerial to work off the strongpoints (corners of the apparatus) if possible
- Place the turntable midway between locations
- Raise and align the aerial ladder with the window of the victim closest to the fire
- Bring the aerial ladder to the top of the window of the victims location and lower it down to the window sill
    - This will prevent the victim from jumping onto the aerial before you are in position
- Have someone at the tip to assist the victim(s) down the aerial
- Move the aerial to the other victim locations in order of victim risk assessment
- Bring the aerial ladder to the top of the window of the victims location and lower it down to the window sill
- Complete until all victims are rescued or another aerial arrives

Figure 3- Rescue victim closest to the fire and splitting the distance between multiple rescues

Figure 4- Rescue of 2nd victim

Ventilation

Residential Fire Placement Ventilation

- Determine location of the fire
- Position aerial so turntable is upwind of the fire location
- Divide the roof into 4 quadrants (AB, BC, CD, AD)(Figure 5, Figure 6)
- Based on the location of the fire, line your aerial turntable up with the proper quadrant.
- Work off the corners (front or rear) of the aerial as much as possible for the best stability.

Figure 5-Roof Quadrants

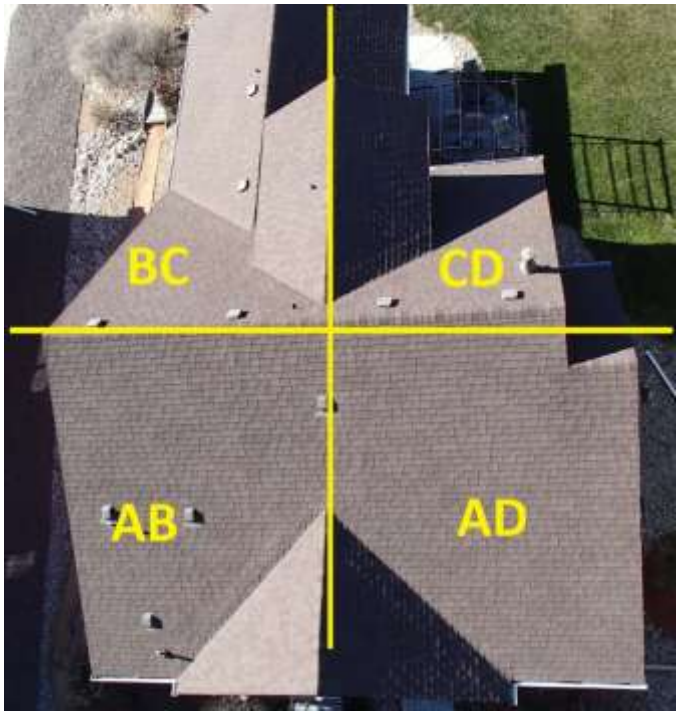

Figure 6-Roof Quadrants

Step 1

- After a general fire location has been determined place the aerial in the proper quadrant for vertical ventilation.

  Example #1: Fire is located in the front right corner of the house (AD). Place the aerial tip halfway up the front of the roof. This gives the CO a chance for placement for the roof ladder and also easy egress for after the cut is made. (Figure 7)

Figure 7- Aerial Tip placement halfway up the front AD corner for ventilation

Example #2: Fire is located in the BC corner of the house. Place the aerial tip at the ridgeline. This allows the CO to place the roof ladder and easy egress once the vent opening has been made. (Figure 8)

Figure 8- Aerial tip to ridge line for BC corner ventilation

Horizontal Ventilation

- Determine location of the fire
- Position aerial so turntable is upwind of the fire location
- Based on the location of the fire, line your aerial turntable up with the proper quadrant.
- Place aerial tip at the top of the upwind side of the window. (Figure 9, Figure 10)
- Work off the corners (front or rear) of the aerial as much as possible for the best stability.

Figure 9- Aerial Placement for horizontal ventilation

Figure 10-Aerial tip placement for horizontal ventilation

Big Box Commercial Fire Placement Ventilation

- Find out the general location of the fire per the first arriving company.
- If assigned to vertical ventilation place the aerial to the area being ventilated on the unburned side of the structure (Figure 11)
    - Engineer should stay at the turntable and follow the crews progression across the roof for quick access to the ladder
    - This allows for quick access to the ventilation area and also access to the main body of fire if the strategy should become defensive. (Figure 12, Figure 13)

Figure 11-Aerial placement for roof operations for known fire location

Figure 12- Aerial placement Bravo side for defensive operations for known fire location

Figure 13- Aerial placement on Charlie side for defensive operations with known fire location

Strip mall Commercial Structure Placement for Ventilation

- Determine location of the fire (Figure 14)
- Look for building characteristics that could slow the spread of fire.
- Place the aerial apparatus between the fire location and the greatest exposure hazard (Figure 15)
- Be prepared for vertical ventilation or trench cut operations (Figure 16)

Figure 14-Fire location and placement

Figure 15- Place the aerial apparatus between the fire location and the greatest exposure hazard

Figure 16- Be prepared for vertical ventilation or trench cut operations

Multifamily Apartments

- Determine location of the fire (Figure 17, Figure 18, Figure 19
- Place the aerial apparatus between the fire location and the greatest exposure hazard
- Engineer should stay at the turntable and follow the crews progression across the roof for quick access to the ladder
- Be prepared for a trench cut
- Be prepared for defensive operations

Figure 17-Fire Located AD corner, positioned for heat hole

Figure 18- Fire located AD corner, positioned for heat hole, able to reposition aerial for trench cut

Figure 19- Fire located AD corner, positioned for heat hole, able to reposition aerial for trench cut

Figure 20-Positioned for trench cut

Defensive Operations

- Be aware of building collapse
- Place for the best tactical position
- Place in defense of the greatest value for the structure
- Reference LFRA training manual *Deploying an Aerial Master Stream 1.1* (Figure 21, Figure 22, Figure 23)

Figure 21- Defensive operations at an apartment complex

Figure 22- Defensive operations at a strip mall, placed in protection of the greatest exposure value

Figure 23- Defensive operations at a Big Box with known fire location

MVA with Extrication

- Position for safety of personnel exiting the apparatus
- Use apparatus to create a safe working zone for personnel
- If possible leave room for support vehicles to be close to the scene for extrication tools
- Direct ambulance where to park for ease of access to the patient

TASK SKILL INSTRUCTIONAL REQUIREMENTS AND IMPLEMENTATION

- V:\Fire\Training Division\LFR Training Materials\Driver Operator Training\Aerial Training\LFR TK.ppt
- Minimum of gloves and helmets when instructing and participating
- A spotter can be utilized when positioning the tip near a structure that is being utilized for training purposes

REFERENCE INFORMATION

- Aerial Apparatus Driver/Operator Handbook, Second Edition, IFSTA
- Ladder Company Operations: Use of Aerial Ladders, FDNY, Firefighting Procedures Volume 3, Book 2
- V:\Fire\Training Battalion\LFR Training Materials\LFR Training Manual\Training Manual Finalized Documents\Apparatus Operations
- V:\Fire\Training Battalion\LFR Training Materials\LFR Training Manual\Training Manual Finalized Documents\Apparatus Operations
- V:\Fire\Training Battalion\LFR Training Materials\LFR Training Manual\Training Manual Finalized Documents\Support Company Operations
- http://www.fireengineering.com/articles/print/volume-148/issue-5/departments/volunteers-corner/vehicle-extrication-basics.html