



# MATTHEWS FIRE TRAINING

WWW.MATTHEWSFIRETRAINING.COM

## THERMAL IMAGING & POSITIVE PRESSURE VENTILATION LIVE BURN PRACTICAL DRILL FOR FIREFIGHTERS

Woodrow Matthews

### Objective

*To offer the confidence in each firefighter so that they understand what it is they should be looking at properly, while interpreting the display on the thermal imager and safely navigating throughout the building and utilizing all skills that were taught in the classroom session prior to the practical.*

*In coordination with proper use of positive pressure ventilation a thermal imager is capital to understanding how to safely ventilate a building and using a thermal imager during that operation and instill the same confidence in the firefighter.*

### Goal

*To successfully create an unprecedented confidence of how to create a proactive safety mechanism within operating the thermal imager with all principles and navigate safely throughout a building with proper risk to benefits decisions by a firefighter. The risk in utilization of positive pressure ventilation and benefits are measured by the use of thermal imaging and in the goal of understanding thermal imaging, positive pressure ventilation will be understood with a solid foundation.*

- 
- ✦ Safety Officer and all training instructors should appropriately size up the training building and identify room for burning (preferably this drill burn room should be A/B or A/D corner)
  - ✦ Within NFPA regulations, utilize a small steel barrel or wet hay to maximize 2<sup>nd</sup> floor smoke cover
  - ✦ With those considerations, make sure there is a safety hose line 1¼ " that has enough hose to reach through the entire building.
  - ✦ Attack line should be able to appropriately reach the seat of the fire in the burn room

### Establishing Teams

Create Teams consisting of 5 members at largest per team. At least 3 members as a minimum per team. Operating teams during each evolution will consist of 3 teams.

#### Team 1 - Attack Team

#### Team 2 – Search and Rescue

#### Team 3 – RIT or FAST Assignment

(Team 3 will operate the fans on assignment from command)



# MATTHEWS FIRE TRAINING

[WWW.MATTHEWSFIRETRAINING.COM](http://WWW.MATTHEWSFIRETRAINING.COM)

## Establishing Command

In addition to the 3 teams another part of the tiered system will be a command based unit which will also be staged in an area where rehab will take place for firefighters that are not part of the operating teams. To facilitate an opportunity for those persons resting to listen in and watch the evolutions which will be a tremendous learning tool as well. In addition these persons that are rehabbing or resting can also serve as back-up safety opportunities.

All necessary instructors will be in place including a safety officer which will monitor all operations on the inside. Command will operate safety mechanisms from the outside in conjunction with team 3 RIT.

If supplementary personnel are available, an additional safety officer can be utilized which would offer a safety officer for each floor.

## Instructor Undertaking

**Instructor #1** – Assigned to the attack team who will guide the attack team in the proper methods of using thermal imagers during the attack teams process, including all safety features taught in the class. The instructor will assign the teams needs to pencil the ceiling area in an effort to cool the environment, being very careful not to put the fire out unless absolutely necessary on direction of Instructor #1

**Instructor #2** – Will guide the search and rescue team for an effective victim search as well as confirming structural integrity and safety transmitted to command throughout the building. Upon successfully searching throughout the building and finding no victims, the search and rescue team will ascend to the area where the attack team is in operation. Upon collaboration between the attack team and the search and rescue team, having checked all safety features both teams will notify command of the appropriate time to begin positive pressure ventilation where two openings influent and effluent air flow to exhaust the heat and smoke from the building.

**Instructor #3** – will act as officer of this team in the event of live need for any emergencies as per NFPA 1403 standards.

At the conclusion of this evolution, Team 3 (RIT) will go through the building to be sure no one has been left behind and report to command upon their completion.

---

## Team Undertaking

**TEAM #1 – The Attack Team** will do an appropriate exterior size up – utilizing the thermal imager with a full understanding of what the classroom portion explained for the exterior portion size up utilizing conduction, convection and radiation principles.

In addition, use of the thermal imager, while ascending through the building should report to command ceiling temperatures, extension of fire out of burn room, success of suppression during ascension as well as reporting to command all conditions within, including location of the seat of the fire as well as their status and reporting PAR with use of thermal imager.

This team also needs to carefully observe the 7 points of view as described in the classroom session.



# MATTHEWS FIRE TRAINING

[WWW.MATTHEWSFIRETRAINING.COM](http://WWW.MATTHEWSFIRETRAINING.COM)

**TEAM #2 – The Search and Rescue Team** will do a quick size up of the exterior to observe the hottest or highest temperature within the building from the outside. As they ascend into the building they will need to utilize the 7 points of view consistently as they enter each area of the building. As they enter each new room, a thermal imager should be used to locate each victim as well as locate the wall that will be used for the route of travel during their search

(DO NOT CONDUCT STRAIGHT LINE SEARCHES WHILE OPERATING THERMAL IMAGERS. ALWAYS USE A WALL AS A GUIDE POINT)

When the notification from command is received to operate the ventilator by **Team #3 RIT**, then **Team #2 Search & Rescue** will create the effluent opening while monitoring with their thermal imagers the positive properties of ventilation and report to command its success based on what they see in the thermal imager as convection moving out of the effluent opening only.

**TEAM #3 – RIT or FAST.** A consistent monitoring of the exterior of the building with a thermal imager is to be conducted by **Team #3 RIT**. In addition they are responsible to listen to each teams report of their location at any point within the building to determine their route of travel in the event a MAYDAY is called. This team will also utilize the thermal imager to scan the building interior at the end of the evolution as well as use thermal imaging to be sure positive pressure ventilation operation is being carried out successfully without any lack of safety issue.

**Team #3 RIT** will listen closely to team transmissions and locations of all personnel within the building as well as pay attention to the call to command by **Team #1 Attack** and **Team #2 Search & Rescue** for the need of ventilation at which point command will notify the **Team #3 RIT** to activate the ventilators and operate the influent door.

## Rotate Evolutions

At this point each team will rotate teams to the next level.

After each evolution the Instructors will bring all firefighters together for a skull session.

At the conclusion of all teams having operated at each team level, all necessary clean up as well as gear and equipment inspection and all apparatus be put into conditions of going back into service.

## Thermal Imager & Positive Pressure Ventilation Department Training

Naturally for any type of advanced training and input of uses on thermal imaging it's always best to have an in service classroom and practical training application. You can arrange this for you and your department by contacting Woody Matthews at [www.MatthewsFireTraining.com](http://www.MatthewsFireTraining.com)

Training with Thermal Imaging using PPV techniques are also available.

[www.MatthewsFireTraining.com](http://www.MatthewsFireTraining.com)