



Ulster County Department of Emergency Services

Live Burn Policy

Purpose:

The policy is to establish operating guidelines to assure the safe operations of “live fire” training at the Ulster County Public Safety Training Center. This policy shall apply to all UCDES sponsored or sanctioned training of firefighters under live fire conditions including coordinated interior and exterior live fire suppression. This policy also applies to all UCDES sponsored or sanctioned public fire safety education demonstrations, hands-on fire extinguishers training for the general public as well as the use of live fire in training for fire investigation purposes. This policy shall provide a process for conducting live fire evolutions to ensure that training objectives are achieved and that exposure to health and safety hazards for the firefighters receiving the training is minimized.

Basis:

These guidelines are promulgated based on the current guidelines of the National Fire Protection Association (NFPA) 1403, and the New York State Office of Fire Prevention and Control (NYS-OFPC) live fire guidelines.

These guidelines shall be adhered to by all staff, instructors and students when conducting live fire evolutions at the Ulster County Public Safety Training Center. All evolutions must follow the latest editions of; NFPA 1403 *Live Fire Training*, NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program*, NFPA 1851 *Standard on Selection, Care, Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, NFPA 1852 *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*, NFPA 1001 *Standard for Firefighter Professional Qualifications*, NFPA 1142 *Standard on Water Supplies for Suburban and Rural Fire Fighting*, and NFPA 1041 *Standard for Fire Service Instructor Professional*.

These guidelines shall supersede any individual agency/department live burn policies when that agency/department utilizes the Ulster County Public Safety Training Center. Any deviation from this live burn policy shall require written approval from the Ulster County Fire Coordinator.

Definitions:

Fire Control Team: Shall have the responsibility of assisting with the ignition of the training fire and shall be supervised by the Ignition Officer. The team shall consist of a minimum of 2 instructors who are not students.

Flow Path: A path composed of at least one intake opening, one exhaust opening, and the connecting volume between the openings with the direction of the flow within the path determined by the difference in pressure where heat and smoke in a higher-pressure area will flow through openings towards areas of lower pressure, and cool, dense ambient air at atmospheric pressure will flow through openings into areas of lower pressure.

Ignition Officer: Shall have the responsibility of igniting the training fire with the assistance of the Fire Control Team in coordination with the Lead Instructor and Safety Officer.

Instructor: An individual qualified by the authority having jurisdiction to deliver firefighter training, who has the training and experience to supervise students during live fire training evolutions, and who has met the requirements of an Instructor I in accordance with the latest edition of NFPA 1041.

Lead Instructor: An individual qualified as an instructor designated by the authority having jurisdiction to be in charge of the live fire evolution, and who has met the requirements of an Instructor II in accordance with NFPA 1041.

Live Fire: Any unconfined open flame or device that can propagate fire to the building, structure, or other combustible materials. For the UCDES Training Center, this includes the following training props; class “A” pod in burn building, class “A” pod fire behavior lab, exterior propane props (i.e. car prop, LP tank prop), fire extinguisher prop and class “B” fire behavior prop.

Personnel Accountability Report (PAR): A report requested by and communicated to the incident commander from fire groups operating at a scene as to their location and situation.

Personal Protective Clothing: The full complement of garments firefighters are normally required to wear while on emergency scene, including turnout coat, protective trousers, firefighting boots, firefighting gloves, a protective hood, and a helmet with eye protection.

Personal Protective Equipment (PPE): Consists of full personal protective clothing, plus a self-contained breathing apparatus (SCBA) and a personal alert safety system (PASS) device.

Safety Officer: An individual appointed by the authority having jurisdiction as qualified to maintain a safe working environment at all live fire training evolutions.

Single Water System: A water supply system that gets fed from a single water main.

List of Appendices:

Appendix A: Live Fire Evolution Checklist (Pre-burn checklist)

Appendix B: UCDES Environmental Impact Policy

Appendix C: UCDES Hydration Policy

Appendix D: Live Fire Training Waiver Form

Appendix E: UCDES Grooming Policy

Appendix F: Class “A” Pod Burn Matrix for Ulster County Public Safety Training Center burn building

Appendix G: Minimum Staff Requirement for Live Fire Evolutions

Appendix H: Lesson Plans for Live Fire Evolutions for Interior and Structural Firefighting

Appendix I: Lesson Plan for Live Fire Evolutions for Outdoor Training Props.

1.0 General Rules and Regulations

1.1 All requests for the use of the Training Center must be submitted in advance by an officer of the department. All requests must be made at a minimum seven days in advance to ensure that a facilitator can be scheduled for the event.

1.2 Departments shall use only the areas and facilities that were requested and pre-approved.

1.3 The Training Center staff member on duty has complete authority over the facility and facility equipment.

1.4 It is the responsibility of the using department to assure that all personnel are physically fit and medically certified to carry out the planned evolutions, are sober and not under the influence of any substance.

- 1.5 Anyone participating in training who engages in disruptive or dangerous behavior will be required to vacate the training area.
- 1.6 Anyone found deliberately damaging the facility, or facility equipment, will be required to leave the Training Center property.
- 1.7 All training will be conducted using proper PPE, consistent with the type of training evolution being performed.
- 1.8 POV's are not permitted in the training area. Reserved spaces are for the use of the assigned individual. Only vehicles displaying a valid handicap permit, and being used by the handicapped individual, are permitted in the handicap spaces.
- 1.9 Training Coordinator Office, basement storage room, instructor locker room, maintenance room and garages are restricted areas.
- 1.10 No department will be allowed to bring accelerants onto the grounds of the Training Center.
- 1.11 All department training will be conducted under the supervision of an OIC approved by the department's AHJ to conduct such training.
- 1.12 Training fires shall only be started under the supervision of a State or County instructor or the Training Center staff member on duty.
- 1.13 Evolution areas are for active firefighters. Any department wishing to bring in guests and non-participants takes full responsibility for their safety and conduct, and must get permission from the UCPSTC staff member on duty.
- 1.14 It is the responsibility of the using department to return their area to the condition it was found in. Any damage or defects creating a safety hazard must be reported to the UCPSTC staff member on duty.
- 1.15 In the event that County property should become damaged or is found to be defective, the piece should be put out of service and the UCPSTC staff member on duty should be notified as soon as possible before leaving the Center.
- 1.16 The UCPSTC staff is not responsible for conducting any department training programs or evolutions except when an instructor has been requested and provided.
- 1.17 Prior to commencing the live burn, the UCPSTC staff member on duty will contact the Emergency Communications Center (UC911) at 845-338-1440 to notify them of such. At the end of the live burn, the UCPSTC staff member on duty will contact the Emergency Communications Center (UC911) of such.

2.0 Live Burn Evolutions Safety Requirements:

- 2.1 The safety of staff, instructors, students and visitors shall be the primary concern during any activities conducted at the UCPSTC.
- 2.2 County Fire Instructors or a State Fire Instructors that have received the UCPSTC Certification will be assigned for all sponsored or sanctioned training of firefighters under live fire conditions including coordinated interior and exterior live fire suppression. This policy also applies to all UCDES sponsored or sanctioned public fire safety education demonstrations, hands-on fire extinguishers training for the general public as well as the use of live fire in training for fire investigation purposes.
- 2.3 A designated "live fire evolution" checklist (Appendix A) shall be completed by the Lead Instructor prior to starting any training evolution involving live fire.
- 2.4 Evolutions shall not be conducted if winds or gusts are expected to exceed 40 mph. Any other weather conditions that may affect the safe operations of live fire must be taken into consideration prior to initiating an evolution. See policy UCDES Environmental Impact Policy (Appendix B).
- 2.5 Monitoring the wind and weather conditions is important for determining the impact of the wind on the live fire evolutions. Placing students and instructors downwind of the fire, either inside or outside of the structure, could result in exposure to thermal or chemical

hazards that exceed those normally associated with the planned evolution, which could result in injury or death.

- 2.6 Reliable, readily available methods of emergency communications to request EMS or other resources shall be established, in place, and tested prior to initiating an evolution.
- 2.7 Rehabilitation capability shall be established prior to initiating an evolution. (This includes but not limited to cooling/misting fans, tent, water and other methods of re-hydration). See UCDES Hydration Policy (Appendix C).
- 2.8 A Safety Officer shall be designated for all live fire evolutions.
 - 2.8.1 The Safety Officer shall be a fire instructor with training on latest edition of NFPA 1403.
 - 2.8.2 The Safety Officer shall have the authority to intervene and control any aspect of the operations when, in his or her judgment, a potential or actual danger, potential for accident or unsafe condition exists.
 - 2.8.3 The responsibilities of the Safety Officer shall include but not be limited to the following:
 - 2.8.3.1 Prevention of unsafe acts.
 - 2.8.3.2 Elimination of unsafe conditions.
 - 2.8.3.3 The Safety Officer shall provide for the safety of all persons at the live fire training evolution.
 - 2.8.3.4 The Safety Officer shall not be assigned other duties that interfere with their safety responsibilities.
 - 2.8.3.5 The Safety Officer shall be knowledgeable in the operations and location of safety features available for the live fire training structure or prop, such as emergency shutoff switches, gas shutoff valves, and evacuation alarms.
 - 2.8.3.6 Additional Safety personnel, as deemed necessary by the Safety Officer, shall be positioned to react to any unsafe or threatening situation or condition.
 - 2.8.3.7 The Safety Officer shall ensure that all participants' PPE has been inspected in accordance with NFPA 1851 and NFPA 1852 prior to entry into a live fire training evolution.
 - 2.8.3.8 Guidance is provided in NFPA 1851 and NFPA 1852 to assist the Instructor, Safety Officer, and department in determining if PPE and breathing apparatus are in serviceable condition.

3.0 Instructor Requirements

- 3.1 All instructors shall be qualified and authorized to deliver firefighter training.
- 3.2 All instructors shall have completed the Live Fire Training Instructor Authorization.
 - 3.2.1 Equivalencies include: Live Fire Safety Training (NYS OFPC Course 1A) and Conducting Live Fire Training Evolutions (NYS OFPC Course 1B) effective 3/2003 or Live Fire Training (NFPA 1403, 2012 Edition) (NYS OFPC Course 6F)
- 3.3 Instructors shall have successfully completed a respirator physical, and have been issued Personnel Protective Clothing and Equipment.
- 3.4 The participating student-to-instructor ratio shall not exceed 5 to 1.
- 3.5 A minimum of four instructors are required for all live fire training evolutions:
 - 3.5.1 One instructor assigned as the Incident Commander/Lead Instructor.
 - 3.5.2 One instructor assigned to the attack group.
 - 3.5.3 One instructor assigned to the backup group.
 - 3.5.3.1 The instructor assigned to the backup group may also serve as the Ignition Officer for the Fire Control Team.

- 3.5.4 One instructor assigned as the Safety Officer.
- 3.5.5 One additional instructor shall be assigned for each additional functional assignment to be performed during the live fire training evolution.
- 3.6 Instructors shall conduct a Personnel Accountability Report (PAR) prior to entering and upon exiting the structure during live fire training evolution using proper communication.
- 3.7 Instructors shall supervise and monitor all students during the live fire training evolutions.
- 3.8 Awareness of weather conditions, wind velocity and wind direction shall be maintained including final check for possible changes in weather conditions immediately before actual ignition. See UCDES Environmental Impact Policy (Appendix B).
- 3.9 The UCDES Live Fire Evolution Checklist (Appendix A) shall be reviewed and completed prior to the start of each live fire evolution.
- 3.10 The completed UCDES Live Fire Evolution Checklist (Appendix A) shall be submitted to the UCDES Fire Training office at the conclusion of Live Fire Training.

4.0 Lead Instructor Responsibilities

- 4.1 The Lead Instructor shall be responsible for full compliance with this policy and meet the minimum job performance requirements for Fire Instructor II in NFPA 1041.
- 4.2 Prior to ignition of any fire, the Lead Instructor shall ensure that all Personal Protective Clothing and Equipment is compliant with the current edition of NFPA 1851, are being worn in accordance with the manufacturer's instructions.
- 4.3 Guidance is provided in NFPA 1851 and NFPA 1852 to assist the instructor, safety officer, and department in determining if PPE and breathing apparatus are in serviceable condition.
- 4.4 The Lead Instructor shall ensure that the responsibilities of all instructors rotate as to provide rest periods for all instructors.
 - 4.4.1 Instructors shall be rotated through duty assignments. An instructor shall not serve as the ignition officer for more than one evolution in a row.
 - 4.4.2 Instructors should be provided rest and rehabilitation as required by section 4.4.1
 - 4.4.3 Instructors should remove their PPE to reduce thermal saturation of the PPE.
- 4.5 The Lead Instructor shall identify a location for rest and rehabilitation of all personnel operating at the live fire training evolution, including medical evaluation and treatment, food and fluid placement and relief from climatic conditions in accordance with the circumstances during the training session.
- 4.6 The Lead Instructor shall establish an emergency notification procedure for real, unexpected incidents that may occur during training.
- 4.7 Upon stopping an evolution due to an accident, injury or safety concern, the Lead Instructor shall confer with the Safety Officer (or Training Officer for Company Training) and corrective action shall be taken prior to continuing the live fire evolutions.
 - 4.7.1 Whenever an evolution is stopped due to an accident, injury or safety concern, the Lead Instructor shall ensure that a Personnel Accountability Report (PAR) is conducted immediately for all personnel operating on scene.

5.0 Training Instructors on How to Use Specialty Props

- 5.1 The instructors and Safety Officer are responsible for conducting live fire training evolutions with gas-fueled training systems or other specialty props shall be trained in the operation of the system and the props.
- 5.2 The training of instructors and Safety Officer shall be performed by an individual authorized by the gas-fueled training system and specialty prop manufacturer or by others qualified to perform this type of training.
- 5.3 The Fire Behavior Lab is to only be used by County Fire Instructors for UCDES sponsored courses.

6.0 Fire Control Team

- 6.1 The Fire Control Team shall have the responsibility of assisting with the ignition of the training fire and shall be supervised by the Ignition Officer.
- 6.2 A Fire Control Team shall consist of a minimum of two personnel who are not students.
- 6.3 The instructor who is assigned the duties of backup group instructor shall act as the Ignition Officer and will make up one of the members of the Fire Control Team.
- 6.4 One member of the Fire Control Team shall be in the area to observe the Ignition Officer ignite the fire.
- 6.5 The decision to ignite a training fire shall be made by the lead instructor in coordination with the Safety Officer.
- 6.6 The fire shall be ignited by the Ignition Officer.
- 6.7 The Fire Control Team shall wear full Personal Protective Clothing and Equipment, when performing this control function.
- 6.8 A charged hose line shall be available when the Fire Control Team is igniting or tending to any fire.
- 6.9 Fires shall not be ignited without an instructor visually confirming that the flame area is clear of personnel being trained.

7.0 Student Prerequisites

- 7.1 Prior to being permitted to participate in live fire training evolutions, the student shall have received training to meet the minimum job performance requirements for Firefighter I (or equivalent) in compliance with the latest edition of NFPA 1001, related to the following subjects:
 1. Safety
 2. Fire behavior
 3. Portable extinguishers
 4. Personal protective equipment (PPE)
 5. Ladders
 6. Fire hose, appliances, and streams
 7. Overhaul
 8. Water supply
 9. Ventilation
 10. Forcible entry
 11. Building construction
- 7.2 Prior to being permitted to participate in live fire training evolutions, all participants shall have received training to meet the requirements in accordance with the following:
 - 7.2.1 Fire Dynamics: All participants shall have received training for the following:
 - 7.2.1.1 The conditions necessary for flashover to occur.
 - 7.2.1.2 The components of fire and definition of a fire.
 - 7.2.1.3 The three mechanisms of heat transfer – conduction, convection, and radiation.
 - 7.2.2 *Health and Safety*. All participants shall receive training on the components of their PPE and equipment required for use during operational evolutions and the capabilities and limitations of their PPE and equipment.
 - 7.2.3 *Fundamentals of Fire Behavior*. All participants shall be given classroom training for the basic chemical and physical processes involved in combustion, fire phenomena, thermal dynamics, combustion process for gaseous, liquid, and solid fuels, concepts of heat combustion and heat release rate, influence of the fuel/oxygen mixture on combustion, chemical chain reaction as it related to

flaming combustions, and terminology related to combustion and fire dynamics.

7.2.4 *Fire Development in a Compartment.* The general development of a fire and extension beyond a single room or compartment, including heat transfer methods, pressurization within the space, stages of fire development, and transition from fuel-controlled to ventilation-controlled combustion.

7.2.5 *Nozzle Techniques and Door Control.* All participants shall have received training on factors influencing the effectiveness of extinguishment by cooling, the application of indirect attack and direct attack, key door entry size-up and risk assessment factors, integrated door control and fire gas cooling to reduce the risk of flashover during door entry, and effective door entry and control procedures.

7.3 Documentation of Prescribed Minimum Training. All participants in a live fire training evolution who have received the required minimum training from other than the AHJ shall not be permitted to participate in any live fire training evolution without first presenting written evidence of having successfully completed the minimum training to the levels specifies in this policy. (Appendix D)

7.3.1 Participating fire departments shall be responsible to verify that all firefighters participating in live burn evolutions are physically qualified, have current mask fit testing, and have achieved a minimum certification of NYS OFPC Firefighter I training or the equivalent as determined by NYS OFPC.

7.3.2 The Fire Department Chief or highest ranking officer participating in live fire training evolutions at UCPSTC must complete and submit the Live Fire Training Waiver form prior to starting any evolutions, (Appendix D).

7.4 All students involved with live fire training evolutions shall have obtained medical clearance to use self-contained breathing apparatus (SCBA) in accordance with OSHA 29 CFR part 1910.134

7.4.1 Students must be mask fit tested within one year prior to live fire training evolutions.

7.4.2 Students must meet all requirements of the UCDES Grooming Policy (Appendix E).

7.5 All students must be dressed appropriately for live fire training.

7.5.1 It is recommended that rings, necklaces, bracelets, or other body piercings be removed prior to engaging in any live fire activity.

8.0 Personal Protective Equipment

8.1 All students, instructors, safety personnel, and other personnel shall wear all Personal Protective Clothing and Equipment according to the manufacturer's instructions whenever they are involved in any evolution or fire suppression operations during the live fire training evolution. PPE must meet the requirements of the latest edition of NFPA 1851.

8.2 Full Personal Protective Clothing and Equipment shall be helmet with chin strap and eye protection, protective hood, firefighting gloves, turnout coat, turnout pants, firefighting boots, and self-contained breathing apparatus.

8.2.1 Personal Protective Clothing and Equipment must be in compliance with the edition of the applicable NFPA standard that was current when the ensembles and ensemble elements were manufactured (NFPA 1851).

8.2.1.1 Full Personal Protective Clothing shall have been manufactured to meet the requirements of NFPA 1971.

8.2.1.2 SCBA shall have been manufactured to meet the requirements of NFPA 1981.

8.2.1.3 Personal alarm devices (PASS Devices) shall have been manufactured to meet the requirements of NFPA 1982.

9.0 Communications

9.1 A method of fireground communications shall be established to enable coordination among the incident commander, the interior and exterior sectors, the safety officer, and external requests for assistance.

9.2 The Lead Instructor shall establish an emergency notification procedure for real, unexpected incidents that may occur during training.

9.2.1 The emergency notification shall be tested so that all participants fully understand the procedure, prior to the live fire training.

9.2.2 Upon activation of the emergency notification procedure, the participants shall meet at a predefined location for accountability and further instructions.

10.0 Emergency Medical Services

10.1 Non-transporting basic life support (BLS) emergency medical services personnel shall be available on-site to handle injuries.

10.1.1 BLS is defined as a NYS certified Emergency Medical Technician.

10.1.2 The AHJ reserving the training center for live fire training is responsible to meet this requirement.

10.2 A UCDES Personal Injury Report form shall be completed and submitted to the UCDES Fire Training Office for all injuries and all medical aid rendered.

11.0 Fuel Materials

11.1 Class "A" Fuels

11.1.1 Class "A" Fuels shall be limited to non-pressure treated wood and wood products, hay, and straw.

11.1.2 Unidentified materials, such as debris found in or around the structure or prop that could burn in unanticipated ways, react violently, or create environmental or health hazards shall not be used.

11.1.3 Propane lighters, butane lighters, flares, kitchen type matches, and similar devices are permitted to be used to ignite the training fire if the device is removed immediately after ignition.

11.1.4 Pressure treated wood, rubber, plastic, polyurethane foam, tar paper, upholstered furniture, carpeting, and chemically treated or pesticide-treated straw or hay shall not be used.

11.1.5 Hazardous waste and flammable metals shall not be used in live fire evolutions.

11.1.6 Flammable and combustible liquids, as defined in NFPA 30, shall not be used in live fire training evolutions.

11.2 Propane Gas Fire Props

11.2.1 Live fire training structures and props that are specifically designed for and fueled by propane or natural gas shall be permitted.

11.2.2 Fuel-fired buildings and props are permitted to use the appropriate fuels for the design of the building or prop.

11.2.3 Flammable gas fires, in gas-fired live fire training structures, shall not be ignited manually.

11.2.4 Unidentified materials, such as debris found in or around the structure or prop that could burn in unanticipated ways, react violently, or create environmental or health hazards shall not be used.

11.2.5 Liquefied petroleum gas props shall be equipped with all safety features as described in NFPA 58 and NFPA 59.

12.0 Water Supply

- 12.1** The Lead Instructor and the Safety Officer shall determine the rate and duration of waterflow necessary for each individual live fire training evolution.
- 12.2** Each hose line shall be capable of delivering a minimum of 95gpm.
- 12.3** The minimum water supply and delivery for the live fire training evolutions shall meet the criteria identified in NFPA 1142.
- 12.4** Apparatus booster tanks shall remain full after a positive water source has been established.

13.0 Pre-Burn Plan/Briefing

- 13.1** A pre-burn plan shall be conducted by the Lead Instructor, in conjunction with the Safety Officer, for all participants. All evolutions shall be described and group assignments shall be made at this time.
 - 13.1.1** Prior to conducting actual live fire training evolutions, a pre-burn briefing session shall be conducted by the lead instructor with the safety officer for all participants.
 - 13.1.2** Written learning objectives shall be required for all live fire training evaluations. (Appendix H and Appendix I).
 - 13.1.2.1** The AHJ reserving the training center must provide their own live fire lesson plan. The AHJ reserving the training center must meet with the training center facilitator prior to the planned prior to the training for final approval and comment.
- 13.2** All facets of each evolution shall be discussed and assignments shall be made for all groups participating in the training session.
- 13.3** No person(s) shall play the role of a victim during live fire training evolutions.
 - 13.3.1** Only manikins shall be used as victims during live fire evolutions.
 - 13.3.2** The location of the manikin shall not be required to be disclosed, provided that the possibility of victims is discussed in the pre-burn briefing.
- 13.4** All participants shall be required to conduct a walk-through of the structure in order to have knowledge of and familiarity with the layout of the structure and to facilitate any necessary evacuation.
- 13.5** There shall be no artificial maydays scripted in any live fire training evolution.
- 13.6** Rescue manikins dressed in firefighting PPE and used as victims shall be uniquely colored or specifically marked.

14.0 Non-Gas-Fired Live Fire Training Structures and Mobile Enclosed Live Fire Training Props

- 14.1** This section pertains to all interior spaces where non-gas-fired live fire training exercises occur.
- 14.2** Debris hindering the access or egress of firefighters shall be removed prior to the beginning of the training exercises.
- 14.3** Live fire training structures shall be inspected visually for damage prior to live fire training evolutions.
- 14.4** All doors, windows and window shutters, railings, mechanical equipment, lighting, and standpipes necessary for the live fire training evolution shall be checked and operated prior to any live fire training evolution to ensure they operate correctly.
- 14.5** The structural integrity of the live fire training structure shall be evaluated and documented annually or as deemed necessary by the UCDES Fire Division staff.
- 14.6** If visible structural defects are found, such as cracks, rust, spalls, or warps in structural floors, columns, beams, walls, UCDES Fire Division staff shall perform a follow-up evaluation and determine if it is required to have an evaluation conducted by a licensed

professional engineer with live fire training structure experience and expertise, or by another competent professional.

14.6.1 Any structural defects found by the training center facilitator or the AHJ reserving the training center, shall be documented on the Live Fire Evolution Checklist (Appendix A)

14.7 The structural integrity of the live fire training structure shall be evaluated and documented by a licensed professional engineer with live fire training structure experience and expertise, or by another competent professional as determined by UCDES at least once every 5 years or more frequently if determined to be required by the evaluator.

14.8 Sequential Live Fire Evolutions

14.8.1 A burn matrix chart (Appendix F) shall be developed for the burn rooms in a live fire training structure.

14.8.2 The burn matrix chart will include the maximum fuel loading per evolution and maximum number of sequential live fire evolutions that can be conducted per day in each burn room.

14.8.3 The burn sequence for each room shall define the maximum fuel load that can be used for the first burn and each successive burn.

14.8.4 The burn sequence matrix for each room shall also specify the maximum number of evolutions that can be safely conducted during a given training period before the room is allowed to cool.

15.0 Exterior Live Fire Training Props/Vehicle Fires

15.1 This section pertains to all exterior props where live fire training exercises occur.

15.2 Personal Protective Clothing and Equipment must be worn during exterior live fire evolutions.

15.3 Props used for outside live fire training shall be designated specifically for the evolution to be performed.

15.4 For outside training, care shall be taken to select areas that limit the hazards to both personal safety and the environment.

15.5 Exterior props shall be inspected visually for damage prior to live fire training evolutions.

15.6 All safety devices and emergency shutdown switches, and other operable devices, shall be checked prior to any live fire training evolution to ensure they operate correctly.

16.0 Portable Fire Extinguisher Training

16.1 Live fire evolutions shall be conducted outdoors, in a well-ventilated area.

16.1.1 Shall not be within 50 feet of any exposure.

16.1.2 Personal Protective Clothing and Equipment for students shall be determined by the Lead Instructor based on the audience being served.

16.2 Fire extinguisher props shall be inspected visually for damage prior to live fire evolutions.

16.3 Two instructors are required for all fire extinguisher live fire training evolutions.

16.3.1 One instructor to serve as the trainer.

16.3.2 One instructor to serve as the Safety Officer.

16.4 Students shall have received detailed instructions as to their participation accordance with the live fire training including familiarity of the training prop, and the fire extinguishers utilized during the training session.

17.0 Fire/Arson Investigation Training

17.1 Participants shall have received detailed instructions as to their participation, in accordance with the training or lesson plan.

17.2 Structures and Facilities

- 17.2.1 Live fire evolutions shall be conducted in structures designated for such use or outdoors, in a well-ventilated area, shall not be within 50 feet of any exposure.
- 17.2.2 Prior to conducting actual live fire training evolutions, a pre-burn briefing session shall be conducted for all participants.
- 17.2.3 All facets of each evolution to be conducted shall be discussed and assignments shall be made for all groups participating in the training session.
- 17.2.4 Prior to conducting any live fire, all participants shall have knowledge of and familiarity with the prop or props being used for the evolution.
- 17.2.5 All possible sources of ignition, other than those that are under the direct supervision of the ignition officer, shall be removed from the operations area.
- 17.3 Fuel Materials
 - 17.3.1 Fuel material shall be used only in amounts necessary to create the desired learning objective.
 - 17.3.2 The use of small quantities of ignitable liquids shall be permitted.
 - 17.3.3 Fires used for Fire/Arson Investigation training which used ignitable liquids shall not be used as interior structural firefighting training.
 - 17.3.4 Fire investigation training can utilize an intact vehicle intact, however all pistons and compression cylinders shall be removed prior to burning.
- 17.4 Safety
 - 17.4.1 An evacuation plan shall be established, including an evacuation signal to be demonstrated to all participants.
 - 17.4.2 Participants involved in the act of suppression shall be equipped with Full Personal Protective Clothing and Equipment.
 - 17.4.3 A Safety Officer shall be designated for the suppression evolution and shall be responsible for the safety of all participants.
- 17.5 Instructors shall be assigned as required by the training or lesson plan.

18.0 Minimum Staffing Requirements for Live Fire Evolutions

- 18.1 Fire Departments reserving the UCDES Fire Training Center involving live fire training within a structure must meet all requirements of this policy as well as the minimum staffing levels listed in Appendix G.
- 18.2 Fire Departments reserving the UCDES Fire Training Center involving live fire for an exterior prop (i.e. car fire prop, LP tank fire prop, fire extinguisher prop, etc.) must meet the requirements this policy as well as the minimum staffing levels listed in Appendix G.



APPENDIX A

Ulster County Department of Emergency Services Live Fire Evolution Checklist

Complete all information below prior to commencing live fire evolution.

Course Name/Department Name: _____

***Lead Instructor:** _____

***Safety Officer:** _____

***Additional Instructors:** _____

**Indicates positions that must be staffed for live fires to occur.*

PREBURN PLANNING:

- Command Post established
- Apparatus placement established
- Water supply established
- Current weather report
- Rehabilitation station established
- BLS personnel and equipment on location
- Communications frequencies established, radio equipment checked and operating
- Written lesson plan in place

TRAINING STRUCTURE PREPARATION:

- Training structure inspected visually for damage
- Training structure components checked and operating
 - Mechanical equipment
 - Lighting equipment
 - Standpipes
- Debris hindering the access/egress of firefighters removed
- All extraordinary exterior and interior hazards remedied

PREBURN PROCEDURES:

- All participants briefed:
 - Training structure layout and walkthrough
 - Group and instructor assignments
 - Safety rules and accountability procedures
 - Safety briefing regarding the live fire

- Training structure evacuation procedure
- Evacuation signal (demonstrate)
- All hose lines checked:
 - Sufficient size for the area of fire involvement
 - Supervised by qualified instructors
 - Adequate number of personnel on each hose line.
- Necessary tools and equipment positioned
- Participants checked:
 - Approved full PPE
 - Self-contained breathing apparatus (SCBA)
 - Adequate SCBA air volume
 - All equipment donned properly
- Fire load is not excessive and meets the specifications per the live burn matrix (Appendix F)
- Building is completely empty prior to ignition of fires
- FAST (RIT) personnel in place and briefed.

POST BURN PROCEDURES:

- All personnel accounted for
- Remaining fires overhauled as needed
- Training structure inspected for stability and hazards
- Training after action conducted

Instructor Comments:

Name of Instructor completing this report: _____

PLEASE PRINT

Signature: _____

Please submit this completed report with the UCDES Activity Report for this training session.



Appendix B

Ulster County Department of Emergency Services

Environmental Impact Policy

(Extreme Weather Conditions)

PURPOSE:

The Fire Training Center has implemented a weather policy, for the protection of students, instructors, firefighters and other emergency service personnel, engaged in outdoor training activities. This policy is to be used in conjunction with; “Hydration Policy Appendix C”. The fire training staff, instructors, training officers and training facilities shall monitor weather conditions for any training session or testing site involving skills training/testing; the use of protective clothing (PPE); or any session/site where strenuous work is expected of the students; and/or instructors, firefighters, other emergency services personnel, etc. Environmental conditions have been proven to have a significant effect on an individual’s response to physical activity.

SCOPE:

This policy addresses the impact of extreme heat, cold and other inclement weather conditions on those engaged in physical activity/work; prior to, during and upon completion of any physically demanding training/testing evolutions; and is to be used as a guide for proper hydration. The fire training staff, lead instructor and subordinate instructors shall adjust, cancel and/or postpone activities as weather conditions warrant.

APPLICATION:

The fire training staff, inclusive of the instructors and training officers, is required to adhere to this policy for all outdoor courses, classes, municipal training and testing activities. However; this policy and its’ guidelines shall not circumvent or supersede any local (FD/PD) policy, which has been established to protect their personnel under such circumstances, providing that their operating rules and guidelines either meet or exceed the standards as set forth in this policy.

All local (AHJ) rules, regulations, guidelines, policies or contractual agreements, if different from this policy, must be submitted to this department, prior to engaging in any activities, training or testing evolution. This documentation will be reviewed for acceptance and compliance, subject to the approval or denial of this department.

The National Weather Service Heat and Wind Chill Indexes shall be the guideline for determining extreme heat and cold conditions. Local weather forecasts shall be consulted because conditions can vary greatly over a relatively small geographic area.

EXTREME HEAT CONDITIONS:

- Outdoor activities requiring physical exertion or the use of PPE (including haz-mat), shall be terminated when the heat index has reached 95 degrees Fahrenheit. All outdoor activity and evolutions will be suspended when the heat index reaches 100 degrees Fahrenheit.
- Full PPE may create conditions whereas the ambient heat index may have to be increased by an additional 10 degrees Fahrenheit. Other factors such as; age and physical condition may also make an individual more vulnerable to heat conditions and disorders.
- Factors such as; time of day, length of activity, type of activity, and the individual student's direct participation may influence the decision to modify or suspend outdoor activity.
- Outdoor training and testing activities requiring physical activity or full PPE may be conducted, but the following examples of such activities must be evaluated in each case. This is only illustrative of the activities that would warrant an evaluation of weather conditions:
 - Live fire training should be evaluated for each specific class, course, or municipal training.
 - Activities other than live fire training that can be safely conducted wearing partial or reduced PPE (i.e. helmet, gloves, boots/bunker pants).
 - All skills based evolutions shall have an adequate supply of drinking water, EMS precautions in place for monitoring and assistance, and a rehab station established for rest and rehydration.
 - All skill based evolutions; strenuous physical activity is monitored and limited to 15 – 20 minutes of activity.
- Per NFPA 1584 Rehabilitation Process for Members during Emergency Operations and Training Exercises, a supervisor shall be permitted to adjust the time frames depending upon work or environmental conditions.
- Instructors need to monitor students to ensure that they are not attempting to overhydrate which can lead to hyponatremia.
 - Hyponatremia occurs when the concentration of sodium in your blood is abnormally low. Sodium is an electrolyte, and it helps regulate the amount of water that's in and around your cells. In hyponatremia, one or more factors — ranging from an underlying medical condition to drinking too much water — cause the sodium in your body to become diluted. When this happens, your body's water levels rise, and your cells begin to swell. This swelling can cause many health problems, from mild to life-threatening.
- Per NFPA 1584 Rehabilitation Process for Members during Emergency Operations and Training Exercises, supervisors shall ensure that appropriate calorie and electrolyte replacements are available.

The chart on page 3, developed by the National Weather Service, will be used as a guideline for all decisions.

NOAA's National Weather Service

Heat Index

Temperature (°F)

		80	82	84	86	88	90	92	94	95	98	100	102	104	106	108	110	
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136	
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137		
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137			
	55	81	84	86	89	93	97	101	106	112	117	124	130	137				
	60	82	84	88	91	95	100	105	110	116	123	129	137					
	65	82	85	89	93	98	103	108	114	121	126	130						
	70	83	86	90	95	100	105	112	119	126	134							
	75	84	88	92	97	103	109	116	124	132								
	80	84	89	94	100	106	113	121	129									
	85	85	90	96	102	110	117	126	135									
90	86	91	98	105	113	122	131											
95	86	93	100	108	117	127												
100	87	95	103	112	121	132												

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger

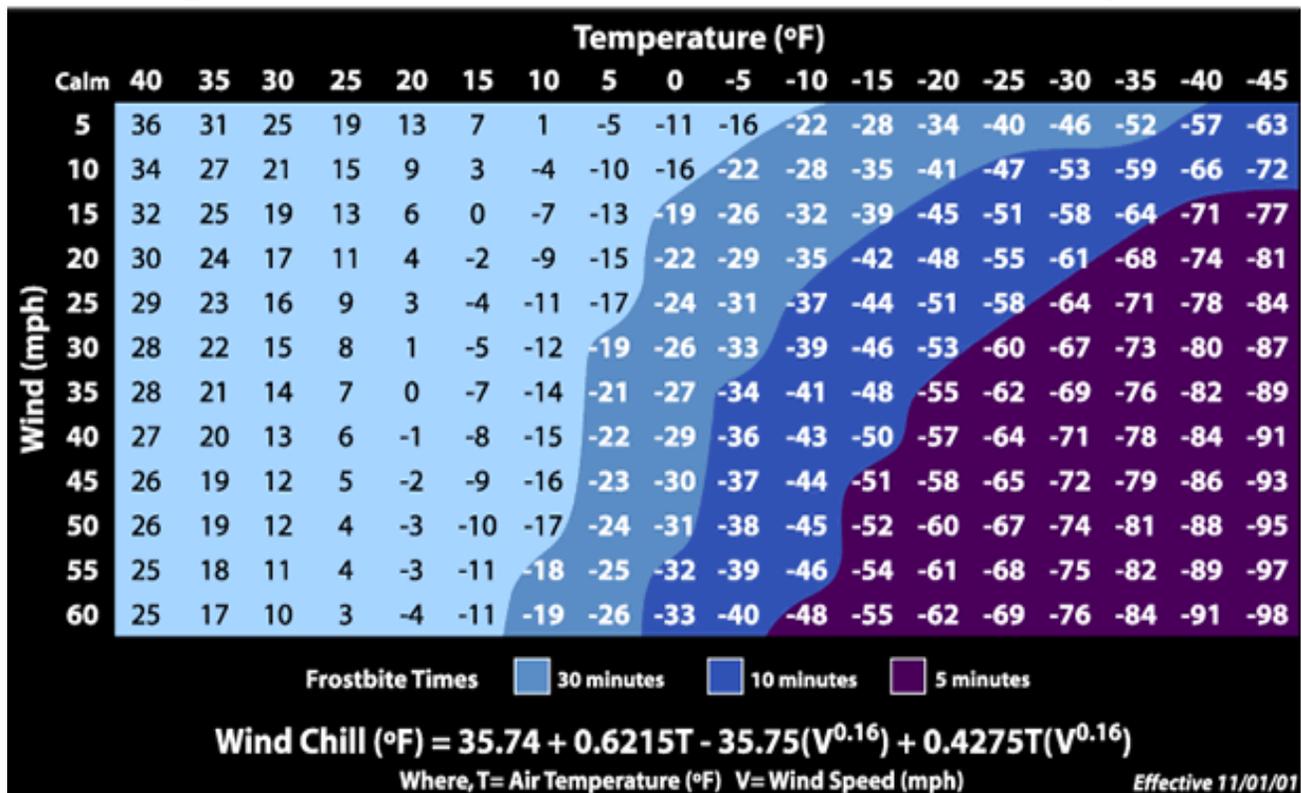
Extreme Cold Conditions:

- Depending upon the training location, proximity to wind barriers, and time of day; the wind chill factor may vary as noted on the National Weather Service chart illustrated below.
- Frostbite is possible at temperatures less than 0 degrees Fahrenheit, and temperatures are considered dangerous at 20 degrees Fahrenheit.
- Outdoor training activities or testing should not be conducted when the wind chill factor is less than 20 degrees Fahrenheit, unless:
 - Participants (i.e. students, firefighters, etc.) are properly dressed for the appropriate cold weather conditions.
 - The cold weather will not affect the safe and proper function of tools, equipment and apparatus.
 - An adequate supply of liquids and/or food is available on site.
 - Strenuous physical activity is monitored and limited from 15 to 20 minutes.
- Per NFPA 1584 Rehabilitation Process for Members during Emergency Operations and Training Exercises, a supervisor shall be permitted to adjust the time frames depending upon work or environmental conditions.
 - A heated indoor rehabilitation site is within close proximity to the training activity.
- Weather conditions such as those described above, will also produce other conditions that must be monitored. Any of these conditions may influence the decision for modifying, postponing or canceling training activity. Such conditions may produce; freezing or icing conditions, creating slippery and hazardous conditions that can pose a risk of injury; freezing or icing of tools, appliances and apparatus, posing a threat of equipment failure and/or personal injury; reduced visibility as the result of foggy conditions.

This chart, developed by the National Weather Service, will be used as a guideline for all decisions



NWS Windchill Chart



Other Weather Conditions:

- Other extreme weather conditions must be evaluated before any outdoor training activity or testing can begin.
- Based on those weather conditions and observations as previously mentioned, in conjunction with local weather forecasts and the participants; the instructor may determine if the activity must be modified, postponed or cancelled due to inclement weather conditions.
- Conditions such as, but not limited to:
 - High winds
 - Excessive snow cover
 - Sleet or ice
 - Heavy rain or hail
 - Thunderstorms, including lightning (as described in the Flash & Bang method)
 - Tornado watches and warnings
- Instructors should monitor students for inappropriate functions, acts of bravery and belittlement of the instructors' decision, and improper placement of personnel or individuals in relationship to weather conditions.
- DO NOT permit the Incident Command System (ICS) to be compromised by those who may declare themselves as invincible to any of the weather conditions as noted, or what is happening or predicted to happen in the local area.

Lightning; “the flash – to – bang method”:

To estimate the distance between you and a lightning flash, use the “Flash to Bang” method (F&B). If you observe lightning, count the number of seconds until you hear the thunder. Divide the number of seconds by five to get the distance in miles. (I.e. if a clap of thunder occurs 10 seconds after the lightning flash, then the lightning is 2 miles away from you, $10 / 5 = 2$. ***Get to a safe location if the time between the lightning flash and the rumble of thunder is 30 seconds or less. DO NOT resume outdoor activities until 30 minutes after the last thunder clap.***

Sources for the information used in the formulation of this policy are: New York State Office of Fire Prevention & Control, National Weather Service, University of Maryland, Center for Firefighter Safety Research & Development, U.S. Army Center for Health Promotion & Preventative Medicine Health Information Operations Division, Nebraska State Fire Marshal Training Division, South Carolina Fire Academy, and the current edition of NFPA 1584 Rehabilitation Process for members during Emergency Operations and Training Exercises.



Appendix C

Ulster County Department of Emergency Services Hydration Policy

Participants shall avoid:

- Caffeinated, carbonated and high sugar drinks
- Food w/ high fat and/or protein content
- Alcohol
- Excessive fluids

A loss of 1% to 2% of body water will compromise work performance. A loss of 2% to 3% of body water will compromise mental alertness, and a loss of 3% to 5% can be life threatening. Thirst is one, but not the only indication of dehydration. By the time a person feels thirsty they may already be suffering from dehydration. Other symptoms or warning signs include:

- Dizziness / light-headedness
- Headache
- Dry mouth
- Nausea or vomiting
- Excessive fatigue, general discomfort, irritability, decreased performance
- Low urine output and darker colored urine

Dehydration often leads to heat cramps, heat exhaustion and possibly heat stroke.

When incorporating sports drinks into the hydration regimen, its' contents need to be clearly understood. Some sports drinks may contain caffeine, which is not clearly stated on the label.

Sports drinks are not to be confused with 'energy drinks'. Many 'energy drinks' are marketed as energy boosters for pre-or-post workouts. They do not contain the carbohydrates and electrolytes needed for rehab and must be avoided. Some may even contain alcohol and caffeine, which can be detrimental.

Sports drinks and/or water should be served either cool or tepid, not ice cold.

A sports drink is a combination of water, carbohydrates, and electrolytes. The water replaces the water the body loses through sweat. The carbohydrates replace energy stores in the body to increase performance and stamina. Electrolytes replace those that the body has lost and needs for continued performance. The glucose and sodium also enhance fluid absorption in the small intestines, thus rapidly replacing what the body has lost. The water, carbohydrates, and electrolytes work together to keep the body's thirst mechanism active

Choose a drink that has glucose or sucrose as the carbohydrate source, because they are quickly absorbed by the body and easily utilized as energy. Drinks with high-fructose corn syrup or galactose can upset the stomach and can be a far less effective energy source.

Avoid fruit juices. Although healthful, they are not ideal fluid replacement beverages because of their high

carbohydrate and low sodium content. Fruit juice is absorbed at a slow rate and can cause stomach discomfort and gastrointestinal distress. Even when diluted with water to help absorption rates, they still do not contain enough sodium to be effective rehab choices

Source Material: New York State Office of Fire Prevention and Control, Derek Williams, Mesa, Arizona Fire Department "Fire Engineering Magazine 12/1/06", VFIS, University of Maryland, Tempe, Arizona Fire Department Nebraska SFMTD, NFPA 1584 current edition, FireRehab.com



APPENDIX D

Ulster County Department of Emergency Services Live Fire Training Waiver

Complete all information below prior to commencing live fire evolution.

Department Name: _____

Chief /Officer in Charge: _____

I hereby attest to the fact that all firefighters from _____ Fire
DEPARTMENT NAME

Department, participating in the live fire training evolution on _____ at
DATE OF TRAINING

the Ulster County Public Safety Training Center have;

1. Successfully completed NYS Office of Fire Prevention and Control Firefighter I course or the equivalent as determined by NYS OFPC.
 - a. Meets all of Section 7.0 in the Ulster County DES Live Fire Policy
2. Medical clearance to use Self Contained Breathing Apparatus (SCBA), in accordance with OSHA 29 C.F.R. part 1910.134.
3. Mask fit tested within a year of the date of this training.
4. Meet all requirements of the UCDES Grooming Policy, Appendix G of the UCDES Live Fire Policy.
5. Firefighters dedicated for FAST are interior firefighters who have successfully completed NYS OFPC Firefighter Survival and NYS OFPC FAST courses.
6. Will follow the agreed upon live fire training lesson plan(s) while operating at UCDES.
7. I have attached a roster of firefighters attending training.

I also attest that all fire department personnel protective clothing including SCBA utilized during this training session meet the latest edition of NFPA 1851 *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* and NFPA 1852 *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*.

Name: _____
PLEASE PRINT CLEARLY

FD Rank/Title: _____

Signature: _____

Date: _____



Appendix E

Ulster County Department of Emergency Services Grooming Policy

PURPOSE:

This policy addresses a firefighter's personal grooming habits, as it relates to fire and rescue training. It has been developed to help ensure firefighter safety, while engaged in fire training activities requiring the use of personal protective equipment (PPE) and/or self-contained breathing apparatus (SCBA), as required by OSHA and NFPA 1500.

SCOPE:

This policy applies to all firefighters and students engaged in training activities at the Fire Training Center.

FACIAL HAIR:

1. As per OSHA Section 29 CFR 1910.134 – Facial hair that lies along the sealing area of a respirator, such as beards, sideburns, moustaches, or even a few days growth of stubble, is not permitted on employees who are required to wear respirators that rely on a tight face piece fit to achieve maximum protection. Respirators shall not be worn when conditions prevent a good face seal. Such conditions may be the growth of a beard, sideburns, a skull cap that projects under the face piece, or temple pieces of glasses.
 - a. Positive pressure-type respirators can have leakage paths that can cause aspiration of the outside atmosphere. With SCBAs, high leakage will markedly reduce the service life of the air cylinder. In addition, research has demonstrated that even modest facial hair growth can have a significant adverse impact on the protection of a positive-pressure system.
2. As per OSHA CFR 29 1910.134 – The employer shall not permit respirators with tight fitting face pieces to be worn by employees who have:
 - a. Facial hair that comes between the sealing surface of the face piece and the face that interferes with valve function;
 - b. Any condition that interferes with the face to face piece seal of valve function.
 - c. When a respirator must be worn to protect employees from airborne contaminants, it has to fit correctly, and this will require the wearer's face to be clean-shaven where the respirator seals against it.

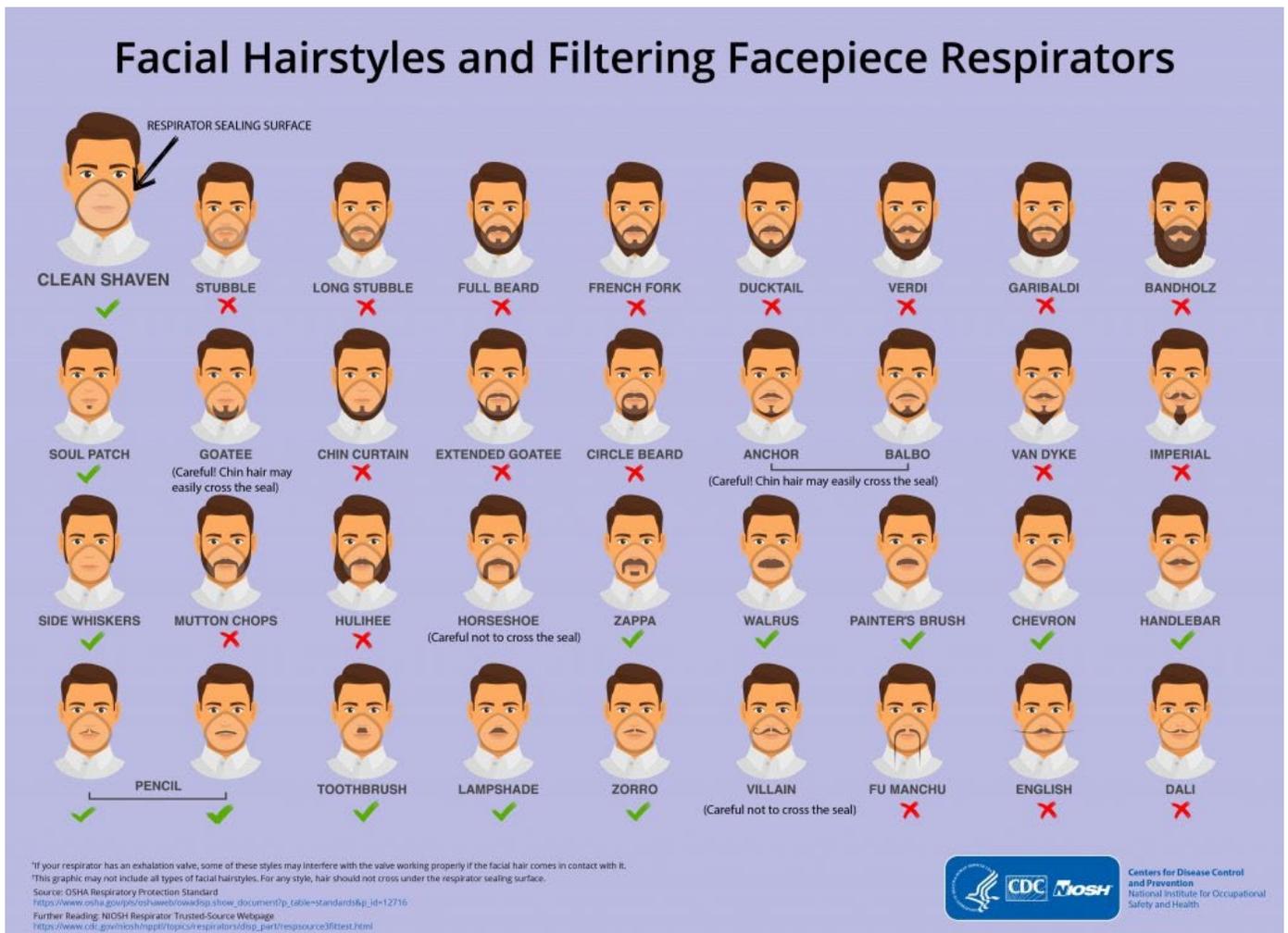
Therefore, anyone wearing a beard or excessive facial hair as described herein shall NOT be permitted to participate in any evolutions requiring the use of SCBA.

Students enrolled in any training program that requires the use of SCBA must NOT have facial hair, other than a moustache, for the ENTIRE duration of the course. (*reference Table 1.0 below as examples of proper and improper facial hairstyles*)

Students attending any course that requires the use of SCBA, live fire training including but not limited to Firefighter 1 and Firefighter 2, who has facial hair extending below the lower lip shall not be permitted to participate or receive acknowledgement for the course, including lectures.

Any firefighter participating in live fire training must wear an OSHA approved hood.

Table 1.0



Source Material:

Occupational Safety & Health Administration, National Fire Protection Association, Bergen County, N.J. Law & Public Safety Institute, International Association of Women in Fire & Emergency Services, Allegheny County, Pa. Fire Academy, Centers for Disease Control/NIOSH.



APPENDIX F

Ulster County Department of Emergency Services Class “A” Burn Pod Matrix

The Ulster County Department of Emergency Services has a class “A” burn building that was specifically designed and engineered for live fire training. The pods are constructed with High Temperature Linings. This allows our structures to withstand multiple live fire training evolutions without affecting the integrity of the structure.

Controlling the evolutions and the environment created is essential for safety of the student, instructors, and Personal Protective Clothing and Equipment. For these reasons, listed below is the allowable fuel load, number of evolutions and cool down times needed to maintain safety and effective live fire training evolutions.

Burn Matrix for the Class “A” Burn Building

Maximum Fuel Loads and Max. Number of Evolutions in Burn Building – 4 Hour Session				
Burn Room	Max. Pallets Used	Max. Hay Used (Bales)	Sequential Burns	Interval between next sequence
Garage	4	1	2	20 minutes
Burn Rooms	3	1	2	20 minutes

The maximum pallet size is 50 pounds of clean (untreated and uncontaminated) dry, wood pallets. Bales of hay should be clean, dry, untreated, straw weighing about 35 pounds. A maximum of 6 burns can take place in a scheduled 4 hour training session, and a maximum of 12 burns can take place in a scheduled 9 hour training session providing that there is a one hour cool-down session. For a 9 hour training session, after the 1 hour cool-down period, matrix listed above for the Burn Building should be restarted.



APPENDIX G

Ulster County Department of Emergency Services Minimum Staff Requirements for Live Fire Evolutions at the UCPS Training Center

The Chief or highest ranking fire officer leading the training evolution for the fire department must comply with the following guidelines set forth by UCDES.

A. Live Fire Evolutions within a Structure.

- a. Participating fire department must have a minimum of 9 interior firefighters involved with the live fire training evolution and 1 Certified NYS EMT. All participants must meet the minimum requirements listed in the UCDES Live Burn Policy as well as Appendix D of the policy.
- b. 10 firefighter positions:
 - 1 firefighter acting as an Incident Commander
 - 1 Certified NY State EMT ¹
 - 2 firefighters for initial attack line
 - 2 firefighters for back-up hose line
 - 4 firefighters serving as FAST ²
- c. Every additional team must have a minimum of 2 interior firefighters assigned to it.

B. Live Fire Evolutions utilizing exterior propane props.

- a. Participating fire department must have a minimum of 6 firefighters involved with the live fire training evolution. All participants must meet the minimum requirements listed in the UCDES Live Burn Policy as well as Appendix D of the policy.
- b. 6 firefighters positions:
 - 1 firefighter acting as an Incident Commander
 - 1 Certified NYS EMT ¹
 - 2 firefighters for initial attack line
 - 2 firefighters for back-up/safety hose line

1 - Participating fire departments are required to provide a certified NYS Emergency Medical Technician (EMT) assigned to each live burn evolution. BLS emergency medical equipment can be provided by UCDES, and shall be readily available for the EMT's use. An EMT must be staged and available during the entire training session. Equipment shall include a trauma bag, AED, O₂ tank with regulator and appropriate masks/airway management equipment; burn sheet and burn treatment supplies.

2 - Must have a dedicated Firefighter Assist and Safety Team. There shall be a minimum of 4 firefighters, trained as interior firefighters with NYS OFPC Firefighter Survival and NYS OFPC FAST certifications available and dedicated to the FAST. FAST members cannot be involved in the training evolution.



APPENDIX I

Ulster County Department of Emergency Services

Lesson Plan Summary

Structural Interior Fire Props

Course: Live Fire Training

Instructors: To be determined by UCDES, Division of Fire Services Staff

Lesson/Job Title: Live Fire Training

Lesson Time: Daytime 8HRS Night 4HRS

Type of Lesson: Psychomotor Cognitive Affective

Objective(s): Following a pre-burn walkthrough, safety briefing and establishing a safety handline from a separate water source, the firefighters will accomplish initial fire attack actions, including apparatus positioning, establishing a water supply and advancing handlines. Other firefighting actions may include but are not limited to; primary and secondary search, forcible entry, ground ladder deployment and placement, Vent Enter Isolate Search (V.E.I.S.), thermodynamics utilizing the thermal imaging camera, fire behavior, roof operations, victim removal, F.A.S.T. evolutions, and firefighter survival. Students will be required to operate handlines, utilize hand tools, and perform other firefighting duties in a potentially obscured visibility environment while in full PPE and activated SCBA.

Requirements:

- Establish a water supply to an engine from a hydrant
- Select, place and operate a charged hose line through the structure, as well as up and down stairs
- Operate a handline in an obscured visibility environment while in full PPE and activated SCBA
- Advance a charged hoseline to the seat of the fire and perform complete extinguishment of the fire
- Work and communicate as part of a team
- Maintain crew integrity

Optional Additional Objectives:

- Conduct a primary search for a victim(s) (manikins) in an obscured visibility environment while in full PPE and on activated SCBA
- Utilize hand tools for the purpose of forcing entry, searching and ventilation
- Lift, carry, deploy and climb a ground ladder for ventilation, ingress or egress (VEIS)
- Utilize a thermal imaging camera (TIC) for the purpose of searching for fire and life as well as maintaining crew integrity

(These objectives can be part of a more advanced or task-specific lesson plan)

Terminal Objective: The Live Fire student/candidate, given the required fire suppression equipment, shall select and advance a hose line and suppress fire during a live fire evolution with 100% accuracy as established by NFPA 1403 (2018), UCDES Live Fire Training policy and NYSOFPC curriculum.

Classroom/Drill Facility: UCDES Class "A" Burn Building, Fire Behavior Lab

Method of Instruction: Hands on demonstration / observation

Student Size: Minimum of 10 students for the Fire Behavior Lab, Class “A” Burn Building. Please reference UCDES Live Fire Policy Appendix G - Minimum Staff Requirements for further details.

Student Preparation: Reference current UCDES Live Fire Policy section 6.0 “Student Pre-requisites”. Students shall be medically cleared to use SCBA in accordance with OSHA 29 C.F.R. part 1910.134. All students PPE must meet the minimum requirements of the latest editions of NFPA 1851 *Standard on Selection care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* and NFPA 1852 *Standard of the Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*.

Required Documentation: UCDES Live Fire Policy including; Appendix A – Live Fire Evolution Checklist; Appendix D – Live Fire Training Waiver; and Appendix H - Minimum Staff Requirements.

I. Preparation Step – Introduction and Motivation

- A. Establish and implement the pre-burn plan.
- B. Identify and document all areas that shall be utilized during the Live Fire training evolution.
- C. Lead instructor and safety officer shall identify and document weather conditions that are in compliance with the UCDES Live Fire Policy Appendix B – Environmental Impact Policy.
- D. Lead Instructor to ensure UCDES Live Fire Policy Appendix D – Live Fire Training Waiver is signed by the agencies highest ranking officer participating with the training when Live Fire Training is not included in a NYS OFPC or UCDES course.
- E. Lead Instructor and Safety Officer shall perform a visual inspection of the Live Fire structure to check for damage or potential safety concerns prior to start of live fire evolutions.
- F. Lead instructor shall assign instructor positions as per the UCDES Live Fire Policy.
- G. Lead Instructor and Safety Officer shall identify the location for rest and rehabilitation for all participating personnel.
 - 1. UCDES EMS equipment including a fully stocked first aid bag, O₂ tank with nasal cannulas, non-rebreather masks, and bag valve mask, as well as an automatic defibrillator are located in administrative building.
- H. Clearly state learning objectives and expectations for the Live Fire training evolution, including location of Command Post (CP), ***Real World*** mayday procedures, rehabilitation protocols, portable radio channels (fire ground channel), accountability protocols (PAR) and PASS Alarm management.
- I. Clearly communicate to all Instructors and participants – **“ALL MAYDAYS ARE REAL” - No training Maydays shall be used for these evolutions.**

Lead Instructor shall assign Instructor positions per NFPA 1403; positions should be rotated after each evolution.

EMS equipment can be supplied by UCDES.

Fire ground channels should be established and tested, rehabilitation (ice, water, etc.) should be set up and identified; F.A.S.T. (RIT) Team should be briefed on expectations in the event of a Real-World Emergency.

II. Presentation Step – Walk through; Station / Task Review

- A. Lead Instructor and Safety Officer shall conduct a pre-burn briefing session.
- B. Officer in charge shall assign students/crews participating in the Live Fire training session (Attack Team, Search Team, F.A.S.T. (RIT) Team).
- C. If utilized, instructors may place a manikin for the purpose of conducting searches, instructor shall explain to the students of the possibility of “victims” as part of the evolution if being utilized.
- D. Familiarize all participants with the structure/ props that shall be used for the evolution.
- E. Conduct a pre-burn walk through with all participating students/candidates that they may become familiar with the lay-out, exits and location of the fire room.

Manikin(s) should be clearly distinguished and have gear distinct from operating crews, (blue coveralls).

III. Application – Evolution rotations

- A. All Student/ Candidates don firefighting PPE.
- B. Establish and maintain a competent water source i.e. fire hydrant.
- C. Stretch the appropriate size handline (initial attack line) i.e. hose length and diameter, to a designated area outside of the IDLH (Immediate Death or Life Hazard).
- D. *(Optional)* If Forcible Entry is being utilized, the Search Team may begin forcing entry on one of the forcible entry props.
- E. Using the designated hand signal or via portable radio, the Attack Team signals to have the initial attack handline charged with water.
- F. The Attack Team confirms the establishment of a competent water source, sets the appropriate stream shape (combination nozzle) and removes air from the initial attack line by flow testing the nozzle outside of the IDLH.
- G. *(Optional)* If a Search Team is being utilized, the Search Team, donning SCBA face pieces, may make entry into the IDLH to search for “victims” and the location of the fire.
 - 1. The Search Team takes appropriate action to control flow paths enroute to the fire’s location.
 - 2. The Search Team upon identifying the location of the fire, communicates via portable radio to the IC and Attack Team, the fire’s location as well as the status of the primary search.
 - 3. The Search Team may position themselves outside the fire room and continue a primary search from the fire room back towards the initial entry point.
 - 4. The Search Team takes all appropriate actions to maintain crew integrity.
 - 5. Primary search shall be rapid and will be searching for location and any life hazards.
- H. The Attack Team, donning SCBA face pieces makes entry into the IDLH with a charged hoseline.

Fire ground benchmarks should be established and agreed upon prior to the initiation of the live fire evolutions.

Have Instructors and student/ candidates perform PPE “buddy check” before making entry.

Have students/candidates secure hydrant and set engine into pump operations.

Set up forcible entry prop (irons, flathead ax (8lbs) wood slats, chocks (If being utilized).

Student/ candidates should have an understanding of ventilation profiles prior to participating in Live Fire evolutions.

- I. The Attack Team takes appropriate actions to control flow paths enroute to the fire's location
- J. Attack team coordinates their efforts with the Search team and water supply officer through command.
- K. The Attack Team uses the nozzle, positioned on the appropriate setting to perform gas-cooling (penciling) and extinguishes all fires enroute to the Fire Room.
- L. Upon locating the fire, the Attack Team positions themselves outside the Fire Room, to the side of the entry point (door way) (out of the way of the lateral vent point) and uses the reach and angle of the hose stream to extinguish the fire.
 - 1. Opening hoseline at ceiling to prevent flashover, sweep floor before entry, operate handline in a wide circular "Floors, Walls, Ceiling" technique.
- M. The Attack Team takes all appropriate actions to maintain crew integrity.
- N. All actions and benchmarks are communicated to Incident Commander (IC), i.e. "water on the fire", "primary search is negative".
- O. The Attack Team shall maintain their position until communication with the other teams operating in the structure is established (to ensure other groups are protected by the handline).
- P. The commencement and termination of each individual evolution is announced by the Incident Commander (IC) via portable radio.
- Q. Once evolution is complete a Personal Accountability Report (PAR) shall be conducted and reported to the IC.
- R. All fire evolutions are managed using the Incident Command System (ICS).
- S. In the event a "Real World Emergency Mayday" is called, the lead instructor will become the incident commander and coordinate with the designated F.A.S.T. team and inside instructors to remove the victim. The IC should also contact the Emergency Communications Center (UC911) to request an ambulance.

***Evolutions may include portable ground ladders, forcible entry, floor-above tactics, vent-enter-isolate-search (VEIS), thermal imaging cameras (TIC), as well as standpipe operations. These specific evolutions can be conducted using this lesson plan as a base starting point.**

IV. Evaluation Step – Review evolutions individually or collectively at the end of training.

- A. Live Fire Incident Debrief conducted.
- B. Discuss issues, obstacles, strengths, weaknesses, operational errors and successes at the conclusion of each evolution.

Discuss nozzle team responsibilities, hose flaking techniques, set stream shape and test flow integrity.

A "water can" may be utilized to illustrate the function and effectiveness of portable water, as well as add to the real-world responsibility of the Search Team (Truck Company).

Locate, Confine, Extinguish, Ventilate (Lloyd Layman)

Personnel Accountability Reports (PAR) are conducted upon exit of individual crews from the burn building or prop.

The Lead Instructor should contact the ECC directly or through the lead CFI assigned to the facility to request an ambulance in case of injury or illness.

Injury health/assessment is conducted to assure student/candidates have not neglected to inform the Instructor staff of any health issues or injuries.

<p>C. Ensure that no injury or illness has occurred as a result of the evolution.</p> <p>1. If an injury/illness has occurred, Instructors are to follow the UCDES Injury Reporting Policy.</p> <p>D. Any serious issues or safety concerns must be corrected prior to the start of the next evolution.</p>	<p><i>In the event an ambulance is needed the lead instructor shall contact the lead CFI assigned to the facility to request an ambulance through the ECC.</i></p>
<p>V. Conclusion/Summary Step – De-Brief and De-mobilize</p> <p>A. Summarize Key Points of the training evolutions, provide objective feedback through an after-action report.</p> <p>B. Restate Objective: Instructors shall check with the officer in charge to ensure all expected objectives have been met throughout the evolutions.</p> <p>C. <u>Closing Statement</u> – Instructors to add anything of importance and value.</p>	<p><i>Discuss issues, obstacles, strengths, weaknesses, operational errors and successes, as well as overall take-aways.</i></p> <p><i>Summarize key points of the training evolutions.</i></p>

SAMPLE



APPENDIX J

Ulster County Department of Emergency Services

Lesson Plan Summary

Outdoor Propane Props

Course: Live Fire Training

Instructors: To be determined by UCDES, Division of Fire Services Staff

Lesson/Job Title: Live Fire Training

Lesson Time: Daytime 8HRS Night 4HRS

Type of Lesson: Psychomotor Cognitive Affective

Objective(s): Following a pre-burn walkthrough, safety briefing and establishing a safety handline from a separate water source, the firefighters will accomplish initial fire attack actions, including apparatus positioning, establishing a water supply and advancing handlines. Students will be required to operate handlines and perform other firefighting duties in a potentially obscured visibility environment while in full PPE and activated SCBA.

Requirements:

- Establish a water supply to an engine from a hydrant
- Select, place and operate a charged hose line to an outdoor live fire prop
- Operate a handline in a potentially obscured visibility environment while in full PPE and activated SCBA
- Advance a charged hoseline to the fire and perform complete extinguishment of the fire
- Work and communicate as part of a team
- Maintain crew integrity

Optional Additional Objectives:

- Through simulation through a controlled propane prop, students will control a pressurized flammable gas cylinder by cooling the cylinder and approaching from the side of the tank to try to isolate the control valve.
- Through simulation through a controlled propane prop, students will attack a vehicle fire at a 45° angle from either the front or rear avoiding bumpers, recognizing potential airbag presence, catalytic converters, and the unknown contents or cargo.

Terminal Objective: The Live Fire student/candidate, given the required fire suppression equipment, shall select and advance a hose line and suppress fire during a live fire evolution with 100% accuracy as established by NFPA 1403 (2018), WDES Live Fire Training policy and NYSOFPC curriculum.

Classroom/Drill Facility: UCDES Outdoor Propane Props including the LP tank, Propane car prop and fire extinguisher prop when outside the structure.

Method of Instruction: Hands on demonstration / observation

Student Size: Minimum of 6 students for each prop. Please reference UCDES Live Fire Policy Appendix G - Minimum Staff Requirements for further details.

Student Preparation: Reference current UCDES Live Fire Policy section 6.0 “Student Pre-requisites”. Students shall be medically cleared to use SCBA in accordance with OSHA 29 C.F.R. part 1910.134. All students PPE must meet the minimum requirements of the latest editions of NFPA 1851 *Standard on Selection care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* and NFPA 1852 *Standard of the Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*.

Required Documentation: UCDES Live Fire Policy including; Appendix A – Live Fire Evolution Checklist; Appendix D – Live Fire Training Waiver; and Appendix H - Minimum Staff Requirements.

<p>I. Preparation Step – Introduction and Motivation</p> <ul style="list-style-type: none"> A. Establish and implement the pre-burn plan. B. Identify and document all areas that shall be utilized during the Live Fire training evolution. C. Lead instructor and safety officer shall identify and document weather conditions that are in compliance with the UCDES Live Fire Policy Appendix B – Environmental Impact Policy. D. Lead Instructor to ensure UCDES Live Fire Policy Appendix D – Live Fire Training Waiver is signed by the agencies highest ranking officer participating with the training when Live Fire Training is not included in a NYS OFPC or UCDES course. E. Lead Instructor and Safety Officer shall perform a visual inspection of the Live Fire Prop(s) to check for damage or potential safety concerns prior to start of live fire evolutions. F. Lead instructor shall assign instructor positions as per the UCDES Live Fire Policy G. Lead Instructor and Safety Officer shall identify the location for rest and rehabilitation for all participating personnel. <ul style="list-style-type: none"> 1. UCDES EMS equipment including a fully stocked first aid bag, O₂ tank with nasal cannulas, non-rebreather masks, and bag valve mask, as well as an automatic defibrillator are located in the administration building. H. Clearly state learning objectives and expectations for the Live Fire training evolution, including location of Command Post (CP), <i>Real World</i> mayday procedures, rehabilitation protocols, portable radio channels (fire ground channel), accountability protocols (PAR) and PASS Alarm management. I. Clearly communicate to all Instructors and participants – <i>“ALL MAYDAYS ARE REAL” - No Training Maydays shall be used for these evolutions.</i> <p>II. Presentation Step – Walk through; Station / Task Review</p> <ul style="list-style-type: none"> A. Lead Instructor and Safety Officer shall conduct a pre-burn briefing session. B. Officer in charge shall assign students/crews 	<p><i>Lead Instructor shall assign Instructor positions per NFPA 1403; positions should be rotated after each evolution.</i></p> <p><i>EMS equipment can be supplied by UCDES.</i></p> <p><i>Fire ground channels should be established and tested, rehabilitation (ice, water, etc.) should be set up and identified</i></p>
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<p>participating in the Live Fire training session (Attack Team, back-up team).</p> <p>C. Familiarize all participants with the prop(s) that shall be used for the evolution.</p> <p>D. Conduct a pre-burn walk through with all participating students/candidates that they may become familiar with the lay-out of the outdoor prop(s)</p> <p>III. Application – Evolution rotations</p> <p>A. All Student/ Candidates don firefighting PPE.</p> <p>B. Establish and maintain a competent water source i.e. fire hydrant.</p> <p>C. Stretch the appropriate size handline (initial attack line) i.e. hose length and diameter, to a designated area outside of the IDLH (Immediate Death or Life Hazard).</p> <p>D. Using the designated hand signal or via portable radio, the Attack Team signals to have the initial attack handline charged with water.</p> <p>E. The Attack Team confirms the establishment of a competent water source, sets the appropriate stream shape (combination nozzle) and removes air from the initial attack line by flow testing the nozzle outside of the IDLH.</p> <p>F. The Attack Team, donning SCBA face pieces makes entry into the IDLH with a charged hoseline.</p> <p>G. The Attack Team takes appropriate actions to control flow paths enroute to the fire’s location.</p> <p>H. The Attack Team uses the nozzle, positioned on the appropriate setting to perform the appropriate action for the specific prop.</p> <p>I. The Attack Team positions themselves correctly moving towards the live fire prop(s) and uses the reach and angle of the hose stream to being to cool and extinguish the fire.</p> <ol style="list-style-type: none"> 1. LP tank and Christmas tree prop, attack team shall cool the tank with hoselines and isolate the control valve as they advance the hoseline. 2. For vehicle fires, the attack team shall approach the vehicle at a 45° angle from either the front or the rear avoiding bumpers, recognizing potential airbag presence, catalytic converters, and the unknown contents or cargo. <ol style="list-style-type: none"> a. Students shall identify, control, and avoid hazards and sweep under the vehicle for ground fluids, and overhaul vehicle compartments as needed. 3. Students shall ensure they are upwind/uphill from the fire. <p>J. The Attack Team takes all appropriate actions to maintain crew integrity.</p> <p>K. All actions and benchmarks are communicated to Incident Commander (IC), i.e. “water on the fire.”</p> <p>L. The commencement and termination of each individual evolution is announced by the Incident Commander</p>	<p><i>Fire ground benchmarks should be established and agreed upon prior to the initiation of the live fire evolutions.</i></p> <p><i>Have Instructors and student/candidates perform PPE “buddy check” before making entry.</i></p> <p><i>Have students/candidates secure hydrant and set engine into pump operations.</i></p> <p><i>Discuss nozzle team responsibilities, hose flaking techniques, set stream shape and test flow integrity.</i></p> <p><i>Depending on which outdoor prop is being used, for the Christmas tree and LP tank, isolation of the control valve should be utilized when possible.</i></p> <p><i>For vehicle fires including the van fire prop, the box truck fire, and the propane car outside of the structure students shall recognize the hazards of how to initially approach the vehicle.</i></p>
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<p>(IC) via portable radio.</p> <p>M. Once evolution is complete a Personal Accountability Report (PAR) shall be conducted and reported to the IC.</p> <p>N. All fire evolutions are managed using the Incident Command System (ICS).</p> <p>O. In the event a “Real World Emergency” is called, the lead instructor will become the incident commander and coordinate with the designated instructors to remove the victim. The IC should also contact the Emergency Communications Center (UC911) to request an ambulance.</p> <p>IV. Evaluation Step – Review evolutions individually or collectively at the end of training.</p> <p>A. Live Fire Incident Debrief conducted.</p> <p>B. Discuss issues, obstacles, strengths, weaknesses, operational errors and successes at the conclusion of each evolution.</p> <p>C. Ensure that no injury or illness has occurred as a result of the evolution.</p> <p> 1. If an injury/illness has occurred, Instructors are to follow the UCDES Injury Reporting Policy.</p> <p>D. Any serious issues or safety concerns must be corrected prior to the start of the next evolution.</p> <p>V. Conclusion/Summary Step – De-Brief and De-mobilize</p> <p>A. Summarize Key Points of the training evolutions, provide objective feedback through an after-action report.</p> <p>B. Restate Objective: Instructors shall check with the officer in charge to ensure all expected objectives have been met throughout the evolutions.</p> <p>C. <u>Closing Statement</u> – Instructors to add anything of importance and value.</p>	<p><i>Personnel Accountability Reports (PAR) are conducted upon conclusion of the evolution.</i></p> <p><i>The Lead Instructor should contact the ECC directly or through the lead CFI assigned to the facility to request an ambulance in case of injury or illness.</i></p> <p><i>Injury health/assessment is conducted to assure student/candidates have not neglected to inform the Instructor staff of any health issues or injuries.</i></p> <p><i>In the event an ambulance is needed the lead instructor shall contact the lead CFU assigned to the facility to request an ambulance through the ECC.</i></p> <p><i>Discuss issues, obstacles, strengths, weaknesses, operational errors and successes, as well as overall take-aways.</i></p> <p><i>Summarize key points of the training evolutions.</i></p>
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