Duration
1.1 hour

Scope Statement
This module covers the NFPA 1403 Chapter 9 which focuses on the records and reports that must be maintained on all live fire training evolutions. In addition, the five annexes that are included in NFPA 1403 that provide additional information regarding the various sections of the standard are also reviewed in this module.

Terminal Learning Objectives (TLO)
At the conclusion of this module, participants will be able to describe the records and reports that must be maintained on all live fire training evolutions. In addition, participants will review the additional information that is included in the annexes of NFPA 1403.

Enabling Learning Objectives (ELO)
- ELO 4-1: Prepare required records and reports that must be maintained on live fire training evolutions.
- ELO 4-2: Correlate NFPA 1403 annex materials to appropriate requirement in the standard including use of checklists, responsibilities of personnel, heat exhaustion and heat stroke, and additional references.

Resources
- NFPA compliant self-contained breathing apparatus (SCBA) AND structural fire gear - EACH PARTICIPANT MUST BRING THEIR OWN EQUIPMENT
- CD with supplemental training materials that includes copies of specific materials as noted in the content – one per participant -

Instructor to Participant Ratio
1:25

Reference List
- NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting 2012 Edition
- NFPA 1500, Standard on Fire Department Occupational Safety and Health Program 2013 Edition

INSTRUCTOR’S NOTE:
Remind participants that this Administration Page will not be reviewed in detail but can be referenced by participant if more information is desired on the module.
• NFPA 1402, Guide to Building Fire Service Training Center 2012 Edition

**Practical Exercise Statement**

Group hands-on activities will be conducted in modules 6 and 7 which occur on days 2 and 3 of training, respectively.

**Assessment Strategy**

• Observation of student participation as well as performance in group activities
• Instructor facilitated verbal review of module content
• Administration of post-test

**Prerequisites:**

• Refer to the Ohio Emergency Medical Services (OEMS) Firefighter and Fire Safety Inspector Training Subcommittee list of prerequisites included at the beginning of this manual
## Instructor Notes Icon Map

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td><strong>Knowledge Check</strong>: Used when it is time to assess the learners’ understanding</td>
</tr>
<tr>
<td>🎯</td>
<td><strong>Example</strong>: Used when there is a descriptive illustration to show or explain</td>
</tr>
<tr>
<td>🎯</td>
<td><strong>Key Points</strong>: Used to convey essential learning concepts, discussions and introduction of supplemental material</td>
</tr>
<tr>
<td>!</td>
<td><strong>Hint</strong>: Used to cover administrative items or instructional tips that aid in the flow of the instruction</td>
</tr>
<tr>
<td>🔁</td>
<td><strong>Interaction</strong>: Used for suggested small group activity or other interaction</td>
</tr>
<tr>
<td>🎥</td>
<td><strong>Video</strong>: Used to prompt instructor to play a video, which has been included on the slide</td>
</tr>
</tbody>
</table>
Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:

Play the video embedded in the PowerPoint of a fire training mishap as an introduction to module 4. To play the video embedded in the PowerPoint slide, move the mouse cursor over the picture until a “play” arrow icon appears. Click on the icon to start the video which will play in full screen mode. The video is only 25 seconds long. After the video is played, discuss how tunnel vision and lack of situational awareness can cause firefighters to make poor decisions that can lead to injuries and death. Do not be afraid to stop the plan if something does not look or feel right.
INSTRUCTOR’S NOTE:
Briefly review the learning objectives for this module since each will be discussed in more detail on subsequent slides.

Learning Objectives:

• Prepare required records and reports that must be maintained on live fire training evolutions

• Correlate NFPA 1403 annex materials to appropriate requirement in the standard including use of checklists, responsibilities of personnel, heat exhaustion and heat stroke, and additional references
Live Fire Training – Operations Level

Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:

Divide the class into 2 or more groups (3 to 5 participants per group). Distribute a copy of the NIOSH Report (F2005-31) to each group. (A copy of the report is included on the CD of supplemental training materials given to each instructor so ensure sufficient copies are on hand for the number of groups. It is important for instructor to be familiar with the details of this incident prior to the training class.) Have each group review the report and discuss the investigator conclusions list found in the report. Assign each group 1 or 2 of the findings. Have each group prepare a presentation on the assigned conclusions and propose solutions to each issue, identifying who might be responsible for the implementation of the solution. Remind participants to use their current knowledge of 1403 and determine how this fatality could be prevented.

Allow 15 minutes for activity including time for each group to review report, create presentation and present their findings on the assigned findings.
INSTRUCTOR’S NOTE:
The group activity will afford the opportunity to discuss the Pennsylvania incident. This slide allows for a summary of the incident, if needed. Briefly discuss this Pennsylvania State Fire Academy live fire training incident that resulted in the death of a career Captain. An overview of the incident is included in the content below this slide. It is important for the instructor to review the details of this case study and discuss the major lessons learned. A copy of the full NIOSH F2005-31 fatality report is included on the CD with supplemental training materials given to each participant.

NIOSH Fatality Report

• NIOSH F2005-31 – Career Officer Injured During a Live Fire Evolution at a Training Academy Dies Two Days Later – Pennsylvania

• Pennsylvania State Fire Academy – October 23, 2005

• Suspected SCBA face piece failure

Slide 4-4

On October 23, 2005, a 47-year-old male career Captain (the victim) was severely burned during a live fire training evolution in the burn building at the Pennsylvania State Fire Academy. The victim was an adjunct instructor at the Academy in addition to being a career fire officer. The Academy was teaching a Suppression Instructor Development (train-the-trainer) course when the incident occurred. The victim was in the basement of the burn building adding pallets to the fire prior to the last evolution of a 5-day training course. Three students in the course found the victim on the floor in the burn room as they were advancing a hose line during their evolution. The students immediately carried the victim outside where emergency medical care was administered. The victim was transported via ambulance to a community hospital where he was stabilized prior to transport via helicopter to a regional trauma/burn center. The victim died from his injuries on October 25, 2005.

The NIOSH investigator concluded that, to minimize the risk of similar occurrences, fire departments and training academies should:

• ensure that two training officers are present with a charged hose line during the ignition or refueling of a training fire in accordance with NFPA 1403

• determine the minimum amount of flame, heat and/or smoke required during live fire evolutions to perform the training while ensuring firefighter safety
• use the minimum fuel load necessary to conduct live fire training
• have a written respiratory protection program and ensure that self-contained breathing apparatus (SCBAs) face pieces are properly inspected, used, and maintained
• have burn rooms with at least two exits
• avoid having basement burn rooms

Additionally training academies should consider:
• installing instrumentation within live fire training structures to record information such as heat, the effects of suppression and the byproducts of combustion
• installing a ventilation system within the burn structure
• having a qualified engineer evaluate fuel loads, heat retention, and the instrumentation and ventilation systems of live fire training facilities

A copy of the full NIOSH F2005-31 report is included on the CD that has been given to each participant for more information on this incident.
INSTRUCTOR’S NOTE:
Explain to participants Chapter 9 of NFPA provides guidance on reports and recording keeping. As part of the reporting requirement, instructors must collect the information noted on the slide and keep documentation in a format that works best for their organization since NFPA 1403 does not specify format. As noted in the content below the slide, NFPA 1401, Recommended Practice for Fire Service Training Reports and Records, is a good source for additional guidance on training records.

Included later in this module is a Live Fire Evolution Sample Checklist that lists all of the required reports to document that the participants can use to help keep track of the reports and records required.

Chapter 9 Reports and Records

- Required reports to document
  - Activities conducted
  - Instructors present with assignments
  - List of all participants
  - Unusual conditions
  - Injuries and treatment
  - Changes or deterioration in structure
  - Condition of premises and adjacent areas when finished

Slide 4-5

NFPA 1403 requires the following records and reports be maintained on all live fire training evolutions, including:

1. An accounting of the activities conducted
2. A listing of instructors present and their assignments
3. A listing of all other participants
4. Documentation of unusual conditions encountered
5. Any injuries incurred and treatment rendered
6. Any changes or deterioration of the structure
7. Documentation of the condition of the premises and adjacent area at the conclusion of the training

NFPA 1401, Recommended Practice for Fire Service Training Reports and Records, is a good source for additional guidance on training records. Included later in this module is a Live Fire Evolution Sample Checklist that lists all of the required reports to document.
Chapter 9 Reports and Records (cont.)

• Complete records pertaining to structure

• Formally return control to property owner
  – Use standard form

• Post Training critique with documentation

NFPA 1403 does not provide recommended documents for capturing the required information, so it is up to each organization to determine what works best for them. For acquired structures, as was discussed in module 3, records must be completed. Included on the following page as well as on the CD of supplemental training materials given to each participant, is a sample form that can be used for notice of cancellation or nonrenewal of insurance.

Once the training is completed, the acquired structure must be formally turned over to the control of the property owner. This process of transferring the authority for the acquired structure must be documented on a standard form.

At the end of the training, an assessment must be administered and results documented on the student performance and to reinforce the training that was covered.
## Notice of Cancellation or Nonrenewal

<table>
<thead>
<tr>
<th>Policy No.</th>
<th>Issued through agency or office at:</th>
<th>Cancellation or termination will take effect at:</th>
<th>Date of notice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Date) (Hour-Standard Time)</td>
<td></td>
</tr>
</tbody>
</table>

### Insurance Company:

### Name and Address of Insured:

- **Cancellation**
  - D You are hereby notified in accordance with the terms and conditions of the above-mentioned policy that your insurance will cease at and from the hour and date mentioned above.
  - If the premium has been paid, premium adjustment will be made as soon as practicable after cancellation becomes effective.
  - If the premium has not been paid, a bill for the premium earned to the time of cancellation will be forwarded in due course.

- **Nonrenewal**
  - D You are hereby notified in accordance with the terms and conditions of the above-mentioned policy that your insurance will cease at and from the hour and date mentioned above due to nonpayment of premium.
  - A bill for the premium earned to the time of cancellation will be forwarded in due course.

- **Important Notice**
  - D In compliance with the Fair Credit Reporting Act (Public Law 91-508), you are hereby informed that the action taken above is being taken wholly or partly because of information contained in a consumer report from the following consumer reporting agency:

  - **Name**
  - **Address**

---

Insured's Copy

Authorized Representative

---

Adapted from 2012 NFPA 1403 Figure A.9.1.2(a) Standard Notice of Cancellation or Nonrenewal of Insurance Form
Included below is a sample release form that could be used with acquired structures. The exact form should be approved by the AHJ and/or legal counsel.

Release Form

_________________________ Fire Department

Address_______________

City__________________  State______________

Date___________________

Having agreed with the Building Official, City of ________________________________,
that a structure owned by me and located at ________________________________
_____________________________ is unfit for human habitation and is beyond rehabilitation, I further agree that the structure should be demolished. In order that demolition may be accomplished, I give my consent to the City of ________________________________
to demolish, by burning or other means, the said structure.

I further release the City of ________________________________
________________________ from any claim for loss resulting from such demolition.

__________________________________________
Owner/Agent

__________________________________________
Owner/Agent

__________________________________________
Witness

Adapted from 2012 NFPA 1403 Figure A.9.1.2(b) Sample Release Form
Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:
Direct participants to turn to Annex A in their copy of the NFPA 1403 standard. Highlight a few of the explanatory materials noting that all of the material has already been discussed in the appropriate Chapters 1-9.

Annex A – Explanatory Material

• Additional information pertinent to specific numbered paragraphs in standard

• This material has already been added to the appropriate section in Chapters 1 through 9 in previous modules

Annex A is not a part of the requirements of NFPA 1403 but included for informational purposes only. The explanatory materials included in Annex A are numbered to correspond to the applicable section in the standard. All of the materials included in Annex A have been integrated in the appropriate section previously discussed.
INSTRUCTOR’S NOTE:

Although not a requirement in NFPA 1403, the checklist included on the following pages – Live Fire Evolution Sample Checklist – provides a good reference for procedures to follow for live fire evolutions.
Live Fire Evolution Sample Checklist

<table>
<thead>
<tr>
<th>Permits, Documents, Notifications, Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Written documentation received from owner:</td>
</tr>
<tr>
<td>- Permission to burn structure</td>
</tr>
<tr>
<td>- Proof of clear title</td>
</tr>
<tr>
<td>- Certificate of insurance cancellation</td>
</tr>
<tr>
<td>- Acknowledgment of post-burn property</td>
</tr>
<tr>
<td>2. Local burn permit received</td>
</tr>
<tr>
<td>3. Permission obtained to utilize fire hydrants</td>
</tr>
<tr>
<td>4. Notification made to appropriate dispatch</td>
</tr>
<tr>
<td>- Office of date, time, and location of burn</td>
</tr>
<tr>
<td>5. Notification made to all affected police</td>
</tr>
<tr>
<td>- Agencies:</td>
</tr>
<tr>
<td>- Received authority to block off roads</td>
</tr>
<tr>
<td>- Received assistance in traffic control</td>
</tr>
<tr>
<td>6. Notification made to owners and users of</td>
</tr>
<tr>
<td>- Adjacent property of date, time, and</td>
</tr>
<tr>
<td>- Location of burn</td>
</tr>
<tr>
<td>7. Liability insurance obtained covering</td>
</tr>
<tr>
<td>- Damage to other property</td>
</tr>
<tr>
<td>8. Written evidence of prerequisite training</td>
</tr>
<tr>
<td>- Obtained from participating students from</td>
</tr>
<tr>
<td>- Outside agencies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preburn Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preburn plans made, showing the following:</td>
</tr>
<tr>
<td>- Site plan drawing, including all exposures</td>
</tr>
<tr>
<td>- Floor plan detailing all rooms, hallways,</td>
</tr>
<tr>
<td>- And exterior openings</td>
</tr>
<tr>
<td>- Location of command post</td>
</tr>
<tr>
<td>- Position of all apparatus</td>
</tr>
<tr>
<td>- Position of all hoses, including backup</td>
</tr>
<tr>
<td>- Lines</td>
</tr>
<tr>
<td>- Location of emergency escape routes</td>
</tr>
<tr>
<td>- Location of emergency evacuation assembly</td>
</tr>
<tr>
<td>- Area</td>
</tr>
<tr>
<td>- Location of ingress and egress routes for</td>
</tr>
<tr>
<td>- Emergency vehicles</td>
</tr>
<tr>
<td>2. Available water supply determined</td>
</tr>
<tr>
<td>3. Required fire flow determined for the</td>
</tr>
<tr>
<td>- Acquired structure/live fire training</td>
</tr>
<tr>
<td>- Structure/burn prop and exposure buildings</td>
</tr>
<tr>
<td>4. Required reserve flow determine (50% of</td>
</tr>
<tr>
<td>- Fire flow)</td>
</tr>
<tr>
<td>5. Apparatus pumps obtained that meet or</td>
</tr>
<tr>
<td>- Exceed the required fire flow for the</td>
</tr>
<tr>
<td>- Building and exposures</td>
</tr>
<tr>
<td>6. Separate water sources established for</td>
</tr>
<tr>
<td>- Attack and backup hose lines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Structure Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Training structure inspected to determine</td>
</tr>
<tr>
<td>- Structural integrity</td>
</tr>
<tr>
<td>2. All utilities disconnected (acquired</td>
</tr>
<tr>
<td>- Structures only)</td>
</tr>
<tr>
<td>3. Highly combustible interior wall and ceiling</td>
</tr>
<tr>
<td>- Coverings removed</td>
</tr>
<tr>
<td>4. All holes in walls and ceilings patched</td>
</tr>
<tr>
<td>5. Materials of exceptional weight removed</td>
</tr>
<tr>
<td>- From above training area (or area sealed</td>
</tr>
<tr>
<td>- From activity)</td>
</tr>
<tr>
<td>6. Ventilation openings of adequate size</td>
</tr>
<tr>
<td>- Precut for each separate roof area</td>
</tr>
<tr>
<td>7. Windows openings of adequate size</td>
</tr>
<tr>
<td>- Precut for each separate roof area</td>
</tr>
<tr>
<td>8. Doors checked and operated, opened or</td>
</tr>
<tr>
<td>- Closed, as needed</td>
</tr>
<tr>
<td>9. Training structure components checked and</td>
</tr>
<tr>
<td>- Operated:</td>
</tr>
<tr>
<td>- Roof scuttles</td>
</tr>
<tr>
<td>- Automatic ventilators</td>
</tr>
<tr>
<td>- Mechanical equipment</td>
</tr>
<tr>
<td>- Lighting equipment</td>
</tr>
<tr>
<td>- Manual or automatic sprinklers</td>
</tr>
<tr>
<td>- Standpipes</td>
</tr>
<tr>
<td>10. Stairways made safe with railings in place</td>
</tr>
<tr>
<td>11. Chimney checked for stability</td>
</tr>
<tr>
<td>12. Fuel tanks and closed vessels removed or</td>
</tr>
<tr>
<td>- Adequately vented</td>
</tr>
<tr>
<td>13. Unnecessary inside and outside debris</td>
</tr>
<tr>
<td>- Removed</td>
</tr>
<tr>
<td>14. Porches and outside steps made safe</td>
</tr>
<tr>
<td>15. Cisterns, wells, cesspools, and other</td>
</tr>
<tr>
<td>- Ground openings fenced or filled</td>
</tr>
<tr>
<td>16. Hazards from toxic weeds, hives, and</td>
</tr>
<tr>
<td>- Vermin eliminated</td>
</tr>
<tr>
<td>17. Hazardous trees, brush, and surrounding</td>
</tr>
<tr>
<td>- Vegetation removed</td>
</tr>
<tr>
<td>18. Exposures such as buildings, trees, and</td>
</tr>
<tr>
<td>- Utilities removed or protected</td>
</tr>
</tbody>
</table>

Adapted from 2012 NFPA 1403 Figure B.1. Sample Checklist Procedures for a Live Fire Evolution
### Preburn Procedures

1. All participants briefed:
   - Training structure layout
   - Crew and instructor assignments
   - Safety rules
   - Training structure evacuation procedure
   - Evacuation signal (demonstrate)

2. All hose lines checked:
   - Sufficient size for the area of fire involvement
   - Charged and test flowed
   - Supervised by qualified instructors
   - Adequate number of personnel

3. Necessary tools and equipment positioned

4. Participants checked:
   - Approved full protective clothing
   - Self-contained breathing apparatus (SCBA)
   - Adequate SCBA air volume
   - All equipment properly donned

### Postburn Procedures

1. All personnel accounted for

2. Remaining fires overhauled, as needed

3. Training structure inspected for stability and hazards where more training is to follow (see Training Structure Preparation)

4. Training critique conducted

5. Records and reports prepared, as required:
   - Account of activities conducted
   - List of instructors and assignments
   - List of other participants
   - Documentation of unusual conditions or events
   - Documentation of injuries incurred and treatment rendered
   - Documentation of changes or deterioration of live fire training structure
   - Acquired structure release
   - Student training records
   - Certificates of completion

6. Building and property released to owner, release document signed

---

**Release Form**

Having agreed with the Building Official, City of ________, that a structure owned by me and located at ________, is unfit for human habitation and is beyond rehabilitation, I further agree that the structure should be demolished. In order that demolition may be accomplished, I give my consent to the City of ________, to demolish, by burning or other means, the said structure.

I further release the City of ________, from any claim for loss resulting from such demolition.

Fire Department: ____________________________________________

Address: ___________________________________________________

City, State: ________________________________

Date: ________________________________

Owner/Agent: ____________________________

Owner/Agent: ____________________________

Witness: ____________________________

Adapted from 2012 NFPA 1403 Figure B.1. Sample Checklist Procedures for a Live Fire Evolution
Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:
Annex C outlines the responsibilities of participants during a live fire evolution, which was previously discussed in module 2. The Responsibilities of Personnel and checklist were already discussed in module 2. A copy of the checklist is included on the next page. Participants could use this example or perhaps come up with their own. Note the student section on the checklist and point out that students have responsibilities during training as well; for example, students are expected to obey instructions and safety rules.

Annex C – Responsibilities of Personnel

• Although not an NFPA requirement, checklist outlining responsibilities of personnel is provided for informational purposes only

Slide 4-9

The Responsibilities of Personnel and checklist were already discussed in module 2. Although not a requirement in NFPA 1403, the checklist included on the following page – Responsibilities of Personnel – provides a good reference for the responsibilities of each personnel involved in a live fire training event. As is shown on the checklist, students have responsibilities during training as well; for example, students are expected to obey instructions and safety rules.
## Responsibilities of Personnel

### Instructor-in-Charge
- 1. Plan and coordinate all training activities
- 2. Monitor activities to ensure safe practices
- 3. Inspect training structure integrity prior to each fire
- 4. Assign instructors:
  - Attack hose lines
  - Backup hose lines
  - Functional assignments
  - Teaching assignments
- 5. Brief instructors on responsibilities:
  - Accounting for assigned students
  - Assessing student performance
  - Clothing and equipment inspection
  - Monitoring safety
  - Achieving tactical and training objectives
- 6. Assign coordinating personnel, as needed:
  - Emergency Medical Services
  - Communications
  - Water supply
  - Apparatus staging
  - Equipment staging
  - Breathing apparatus
  - Personnel welfare
  - Public relations
- 7. Ensure adherence to this standard by all persons within the training area

### Safety Officer
- 1. Prevent unsafe acts
- 2. Eliminate unsafe conditions
- 3. Intervene and terminate unsafe acts
- 4. Supervise additional safety personnel, as needed
- 5. Coordinate lighting of fires with instructor-in-charge
- 6. Ensure compliance of participants’ personal equipment with applicable standards:
  - Protective clothing
  - Self-contained breathing apparatus (SCBA)
  - Personal alarm devices, where used
- 7. Ensure that all participants are accounted for, both before and after each evolution

### Student
- 1. Acquire prerequisite training
- 2. Become familiar with building layout
- 3. Wear approved full protective clothing
- 4. Wear approved SCBA
- 5. Obey all instructions and safety rules
- 6. Provide documentation of prerequisite training, where from an outside agency

---

Adapted from 2012 NFPA 1403 Figure C.1. Checklist for Responsibilities of Personnel
The two most serious heat-related illnesses are heat exhaustion and heat stroke. The following material is excerpted from the NIOSH document *Occupational Exposure to Hot Environments, Revised Criteria*.

Symptoms of heat exhaustion include fatigue, nausea, headache, dizziness, pallor, weakness, and thirst. Factors that predispose a person to heat exhaustion include sustained exertion in the heat, failure to replace the water lost in sweat, and lack of acclimatization. Heat exhaustion responds readily to prompt treatments such as moving to a cooler environment, resting in a recumbent position, and taking fluids by mouth.

Heat stroke is the more serious of the heat-related illnesses and is considered a medical emergency. Symptoms of heat stroke include hot, red, dry skin a rectal temperature of 104°F (40°C) or above, confusion, possible convulsions or loss of consciousness, or any combination of these symptoms. Heat stroke should be treated immediately including reducing body temperature rapidly by immersing in chilled water, rinsing with alcohol, wrapping in a wet sheet, fanning with cool dry air or any combination of these treatments.

INSTRUCTOR’S NOTE:
Annex D covers the very important topic of heat exhaustion and heat stroke. Review symptoms of both heat exhaustion and heat stroke. Heat stroke is the more serious heat related illness. Possible treatments are included in content below the slide.

Annex D – Heat Exhaustion and Heat Stroke in Training

- Heat exhaustion symptoms include:
  - Fatigue, nausea, headache, dizziness, pallor, weakness, thirst

- Heat stroke symptoms include:
  - Hot/red/dry skin, rectal temperature 104°F, confusion, convulsions, loss of consciousness

- Heat stroke is a more serious illness

Slide 4-10
INSTRUCTOR’S NOTE:

Weather conditions will dictate the number of instructors needed; if extreme heat or cold is an issue, more instructors might be needed. The USFA has created a heat stress index to help prevent heat exhaustion and heat stroke. The heat stress index considers relative humidity and air temperature to determine when conditions are dangerous for heat related illnesses to occur. Review the graphic on the slide and explain how the elements are interrelated.

Remind participants that rest and rehab was first discussed in module 2. There are two references given in the content below the slide for more information on rehabilitation including: NFPA 1584, Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises, and USFA-314, Emergency Incident Rehabilitation, 2008. A copy of the USFA-314 document is included on the supplemental training materials CD given to each participant.

Heat Stress Index

The United States Fire Administration (USFA) recommends that rehab operations be initiated whenever the heat stress index exceeds 90 °F (32 °C).

All of these factors have the potential to raise our core body temperatures and increase the potential for heat stress.

- Air temperature
- Humidity
- Radiant heat
- Air movement
- Physical demands of work
- Clothing, material, construction and use
- Physical fitness and body composition
- Psychological/Perception

Rehabilitation is a major issue that each department must take seriously to insure the health and safety of firefighters. NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises* establishes the minimum criteria for developing and implementing a rehabilitation process for fire department members at incident scene operations and training exercises. Departments are required to have an SOP in place on how rehabilitation is handled at their department. NFPA 1584 addresses several topics including: relief from climatic conditions, rest and recovery, cooling or rewarming, rehydration, calorie and electrolyte replacement, medical monitoring, EMS treatment in accordance with local protocol, member accountability, and release. For more information on the NFPA 1584, visit [www.nfpa.org](http://www.nfpa.org).

The United States Fire Administration in cooperation with International Association of Fire Fighters (IAFF), Division of Occupational Health, Safety and Medicine, updated the 1992 FA-114, *Emergency Incident Rehabilitation* report to ensure that the latest information on the care of firefighters engaged in emergency scene and training operations was made available. The updated report USFA-314, *Emergency Incident Rehabilitation, 2008* contains valuable information that should be considered when establishing department SOPs on rehabilitation. A full copy of the USFA-314 report is included on the supplemental training materials CD given to each participant.
INSTRUCTOR’S NOTE:
Emphasize that each jurisdiction should have procedures to handle heat related illnesses and the importance of rehab and the requirement that everyone must rehab. Refer participants to Annex D for more information.

Annex D – Heat Exhaustion and Heat Stroke in Training (cont.)

- Include procedures in standard operating procedures for handling heat related illnesses as part of rehabilitating firefighters

- Goals of rehabilitating include:
  - Provide physical and mental rest to recuperate
  - Revitalize firefighters with fluid replacement and food
  - Provide medical monitoring and treatment

Slide 4-12

It is important to include procedures in the standard operating procedures for handling heat related illnesses as it relates to rehabilitating firefighters. There are fire incidents which even the fittest, most acclimated firefighter is exposed to significant heat stress. The general goals of rehabilitation are as follows:

1. To provide physical and mental rest, allowing the firefighter to recuperate from demands of emergency operations and adverse environmental conditions
2. To revitalize firefighters by providing fluid replacement and food as needed
3. To provide medical monitoring, including treatment of injuries, to determine if and when firefighters are able to return to action

Annex D in NFPA 1403 provides additional information on heat exhaustion and heat stroke.
Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:
Discuss the various informational references contained in Annex E.

Annex E – Informational References

• NFPA
  – NFPA 1001 – NFPA 1851
  – NFPA 1081 – NFPA 1852
  – NFPA 1401 – NFPA 1975

• NIOSH
  – Occupational Exposure to Hot Environments

NFPA 1403 Annex E provides a listing of additional information references that include:
  • NFPA 1001, Standard for Fire Fighter Professional Qualifications, 2008 edition
  • NFPA 1081, Standard for Industrial Fire Brigade Member Professional Qualifications, 2012 edition
  • NFPA 1401, Recommended Practice for Fire Service Training Reports and Records, 2012 edition
  • NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2008 edition
  • NFPA 1852, Standard on Selection, Care and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA), 2008 edition
  • NFPA 1975, Standard on Station/Work Uniforms for Emergency Services, 2009 edition

The National Institute for Occupational Safety and Health (NIOSH) report – Occupational Exposure to Hot Environments, Revised Criteria is an additional reference included in Annex E.
Module 4 – NFPA 1403 Chapter 9 and Annexes

INSTRUCTOR’S NOTE:
Review the learning objectives of this module and ask participants to provide examples for each objective to ensure each has been discussed.

Review of Module 4 Learning Objectives

• Prepare required records and reports that must be maintained on live fire training evolutions

• Correlate NFPA 1403 annex materials to appropriate requirement in the standard including use of checklists, responsibilities of personnel, heat exhaustion and heat stroke, and additional references

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