

FIRE CONTROL 3A

Approved and Adopted by the
Office of State Fire Marshal



Recommended for adoption by the
Statewide Training and Education
Advisory Committee and the
State Board of Fire Services



COURSE GUIDE

April 2008



Fire Control 3A

Structural Firefighting in Acquired Structures

Course Guide

April 2008

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SECTION 1 **COURSE DESCRIPTION**

The Fire Control 3A (FC 3A) course is designed to enhance firefighting skills in combating building fires. In many cases this will be the firefighters first exposure to live structural firefighting but can also serve as an educational tool for the seasoned firefighter. It utilizes the burning of an otherwise useless building for the purpose of increasing our fire fighting experience and knowledge levels. It is designed to provide information on fire behavior, ventilation procedures and techniques; search and rescue, interior attack, exterior attack, basement fire fighting, overhaul techniques, exposure protection, and an opportunity to attack a well involved building fire with several hand lines and master stream appliances. It also provides an excellent opportunity to train personnel in breathing apparatus survival.

Although there are many training scenarios that can be done in an acquired structure, exercises utilizing the structure to conduct a FC 3A course are limited to the standards as set forth in this manual. When conducted in an organized and safe manner, this course is one of the most valuable courses a fire fighter, especially a new fire fighter, can experience.

Fire Control 3A Course and NFPA 1403

The National Fire Protection Association (NFPA) is **not** a legal authority unless a state's Occupational Safety Health Administration (OSHA) or a local jurisdiction has adopted its standards. California OSHA has not adopted this (NFPA 1403) standard. Therefore the document "NFPA 1403 Live Fire Training Evolutions" should be used as another tool in conducting a FC 3A course.

If you are a State Fire Training FC 3A registered instructor you shall have direct access to the latest 1403 document. The FC 3A Instructor shall be familiar with its contents and be able to apply those items that will be of assistance in conducting a safe FC 3A course.

(Note: The California State Fire Training Manual on "Fire Control 3" was used to create the original NFPA 1403 document).

FC 3A Instructors should be familiar with the "Notice and Disclaimer of Liability" statement found on the inside cover of NFPA 1403.

SECTION 2

INSTRUCTOR REQUIREMENTS

SENIOR INSTRUCTOR (Senior)

The Senior Instructor will have total authority for FC 3A course. The Senior is the representative of State Fire Training Division of the Office of the State Fire Marshal. The Senior acts as a technical specialist to the Primary Instructor (Primary). The Senior may also serve as the Primary on a FC 3A course involving limited training operations. For example a single family building that will provide training for no more than 30 students.

The Senior must be kept apprised of all pre burn planning. An open line of communication shall be kept between the Senior and the Primary. The Senior will be physically present during all instructional portions of a FC 3A course. The Senior will ensure that all safety precautions are identified, planned for, noted and adhered to and that a safety plan has been developed for the course. The Senior shall review all documentation prior to the FC 3A course.

The Senior has the authority and responsibility to stop a burn exercise when adherence to the FC 3A course guidelines are being violated. This may include notification to the Primary that State certification of the burn may be denied. If this occurs, the Senior will immediately notify the jurisdiction having authority for the FC 3A course. The Senior will also notify State Fire Training as soon as practical.

The Senior will oversee completion of all instructor evaluations utilizing ICS For 226. The Senior will complete a course evaluation on the Primary that may or may not be accompanied by a letter of recommendation to the position of Senior Instructor. The Senior will also collect and review all Primary documentation. This will include the performance of all instructors involved and any occurrences good or bad, which may lead to better delivery of future FC 3A courses. A copy of these reviewed documents will be sent to SFT within 15 days of course completion.

THE SENIOR SHALL ENSURE THAT DOCUMENTATION AND REPORTING OF ALL INJURIES, NO MATTER HOW MINOR, ARE SENT TO STATE FIRE TRAINING AND THE AHJ WITHIN 2 WORKING DAYS OF THE INJURY.

Note: Utilize the Personal Injury and Illness Investigation Report located in Appendix B of this guide.

Minimum Qualifications Required For A Senior Instructor:

SECTION 2

To qualify as a FC 3 Senior Instructor, the applicant shall satisfy the following criteria.

1. Instructional Training
 - a. Same as Primary Instructor requirements.
2. Occupational Experience (all of the following)
 - b. Shall be currently registered with State Fire Training as a Primary Instructor in both FC 3A and Fire Control 3B (FC 3B)
 - c. Three letters of recommendation in acquired structures from three separate registered State Fire Training Senior FC 3 Instructors.
 - d. Three letters of recommendation for structure fire simulator facilities from three separate registered State Fire Training Senior FC 3 Instructors.
 - e. Shall have completed the FC 3 Senior Instructor Task Book (Within 36 months of initial entry)

Registration Process

Applicant shall submit a completed application package for review that includes all of the following:

1. Application for registration form
2. Up-to-date resume of education, position/rank, and experience
3. Verification of instructor training
4. Verification of occupational experience
5. Verification of coursework
6. Completed FC 3 Senior Instructor Task Book
7. All letters of recommendation for the position
8. Approved through Pace II

Written verification of your occupational experience shall be submitted on department letterhead and signed by your supervisor and/or Fire Chief

FC 3A Primary Instructor (Primary)

Primary Instructors are responsible for planning, management and delivery of the FC 3A course.

All FC 3A courses should have a Primary designated. A Senior may act in the capacity of Primary on smaller, less complex classes. A Primary and Senior or a Senior acting in a Primary's capacity shall be present during the entire course.

The Primary may be designated as the Incident Commander (IC). The Primary is responsible for all documentation of the course. This includes injury reports,

rosters and instructor evaluation forms. The Primary shall evaluate the instructional staff before, during and after the course has been delivered. The Primary also sends a report to State Fire Training on any unusual events that occurred during the course, both good and bad, that may benefit future FC 3A courses. All documentation will be given to the Senior to be reviewed and forwarded to SFT within 15 days of course completion

Minimum qualifications for a Primary FC 3A Instructor

To qualify as a FC 3A Primary Instructor, the applicant shall satisfy the following criteria:

Instructional Training (any one of the following)

- 1) Completed Fire Instructor 1A and 1B
- 2) Have a valid community college teaching credential
- 3) Completed the UC/CSU's 60-hour "Techniques of Teaching" course
- 4) Completed the NFA's "Fire Service Instructional Methodology" course
- 5) Completed four semester units of upper division credit in education materials, methods, and curriculum development

Occupational Experience (all of the following)

- 1) Completed FC 3A.
- 2) Three letters of recommendation from 3 registered Senior Instructors as documented in the Position Task Book.
- 3) Shall have completed the FC 3A Primary Instructor Position Task Book (within 36 months of initial entry)
- 4) Shall have a minimum five years experience in subject matter
- 5) Have attended and passed I-200

Written verification of your occupational experience shall be submitted on department letterhead and signed by your supervisor and/or Fire Chief

Registration Process

Resume evaluation

Applicant shall submit a completed application package for review that includes all of the following:

- 1) Application for registration form
 - 2) Up-to-date resume of education, position/rank, and experience
 - 3) Verification of instructor training
 - 4) Verification of occupational experience
 - 5) Verification of coursework
-

- 6) Completed FC 3A Primary Instructor Task Book
- 7) All letters of recommendation or evaluation for the position
- 8) I-200 certification

Written verification of your occupational experience shall be submitted on department letterhead and signed by your supervisor and/or Fire Chief

ASSISTANT INSTRUCTOR (Assistant)

Assistant Instructors are responsible for teaching their portion of the course (Subject matter expertise) without supervision. The Senior and the Primary will monitor, evaluate and complete the evaluation form on the Assistant and forward it to State Fire Training. Primary's should encourage Assistants to broaden their areas of expertise through instruction of various portions of a FC 3A course. This will enhance the Primary's ability to develop a cadre of qualified instructors for future FC 3A courses. However if the Assistant chooses to stay within their area of expertise it should be allowed.

Instructional Training (any one of the following)

- a. Completed Fire Instructor 1A and 1B
- b. Have a valid community college teaching credential
- c. Completed the UC/CSU's 60-hour "Techniques of Teaching" course
- d. Completed the NFA's "Fire Service Instructional Methodology" course
- e. Completed four semester units of upper division credit in education materials, methods, and curriculum development

Minimum qualifications for an Assistant Instructor:

- 1) Completion of a FC 3A Course.
- 2) Subject matter experience
- 3) Demonstration of instructional ability
- 4) Instructor 1A and 1B desired.

The Primary Instructor may require verification of the above listed qualifications.

INSTRUCTOR TRAINEE

This is the level at which a student starts into the FC 3A instructional cadre. This position may instruct portions of a FC 3A course under the immediate supervision of a Primary or Assistant Instructor. They may also fill positions such as Stoker, Pump Operator, Staging Area Manager, Medical Staff, Personal Accountability, Communications Staff, or any other position that the person may qualify for as recommended by a Senior, Primary, or Assistant Instructor.

Minimum Qualifications for a Trainee Instructor

- 1) Completion of a FC 3A course.

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SECTION 3 **ACQUIRING STRUCTURES**

There are several methods of obtaining acquired structures for FC 3A training burns. One of the best methods is to maintain a working relationship with your agency's building department. They can advise you of condemnations and new construction. Often in new building construction there are old buildings that have to be removed to clear the land. **Buildings fifty years of age or older requires notification to the local Historical Society (See Section 8 for Notification Requirements).**

If you have freeway construction in your community, contact Caltrans; they oftentimes have buildings that must be destroyed to provide the right of way.

Military bases may also offer training opportunities.

As you travel around your jurisdiction, you may find buildings that are vacant and in a run-down condition. When you contact the owner, you may find them very eager to allow you to remove the building.

It is very important to educate the owner of the expected timeframe to safely and properly demolish a building(s) by means of a FC 3A burn. The timeframe to plan a FC 3A course may be longer than direct demolition by equipment; however, the direct costs to the owner are substantially less than hiring a contractor to tear down the building and haul the debris to a landfill.

Agency notifications and permit requirements for Federal, State and Local environmental compliance are the same whether a structure is removed by a FC 3A burn or by direct demolition with hired equipment.

Another opportunity may arise after you've conducted a FC 3A training burn. Local residents, after observing the FC 3A training, may provide you with additional training buildings.

The U.S. Forest Service may also have buildings in their jurisdiction that need to be removed.

SECTION 4 **ACQUIRED STRUCTURE**

Once you have been offered a building or a group of buildings, a decision must be made whether or not to accept this offer. This requires that you survey the site to check the general condition of the building(s).

WALK AROUND

You may find that it will take more time to set up the buildings for a safe and effective training than time or money will allow. You may want to consider the type of building (residential, mercantile, manufacturing, etc.) and the neighborhood. Consideration must be given as to whether the burn will disrupt or help the nearby residents and businesses. It is very important to observe all six sides of the building **for potential hazards and exposures (See Section 5 for a general list of hazards).**

ASBESTOS and NESHAP

The Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) are operating under the National Emissions Standards for Hazardous Air Pollutants (NESHAP) – 1990, 1994, and 40 CFR 61.145 requiring all asbestos containing materials (ACMs) to be removed from the building(s) prior to demolition.

NOTE: A FC 3A training burn is considered a demolition.

The owner is responsible for the required removal of all ACMs. The Model Accreditation Plan (MAP) requires only certified Asbestos Hazard Emergency Response Act (AHERA) Inspectors can conduct site surveys and samples for ACMs.

The owner will need to hire an AHERA / CAL-OSHA approved and licensed ACM abatement contractor to conduct an ACM Survey Report (See page 6, *DOSH CONSULTANT LIST*). The owner will receive a Survey Report identifying all ACMs requiring removal.-The building(s) shall not be demolished in any manner until all identified ACMs are removed or abated. The owner may chose to use the same contractor or seek alternate bids for removal or abatement of the ACMs. Upon the complete removal and abatement of all ACMs, a “Clearance Letter” or “Letter of Abatement” from the contractor is required by law to the owner.

Failure to comply with NESHAP and MAP can result in a possible fine of up to \$25,000 per violation. (Source: CARB letter, FIRE DEPARTMENT TRAINING BURNS- June 21, 2001).

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Section 8 lists the NESHAP notification agencies and their contact information.

NOTE: The FC 3A Primary Instructor has a vital role in the education and coordination to the owner regarding their responsibilities for environmental compliance.

OSHA CONSULTANT LIST

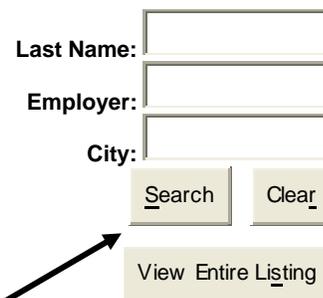
The Division of Occupational Safety and Health (DOSH) has a list of individuals who are certified as Asbestos Consultants or Site Surveillance Technicians that meet MAP certification requirements. If any ACMs are suspected to be in a structure slated for an FC 3A training burn, the property owner(s) are required by law to hire a DOSH approved qualified technician for the inspection and removal of ACMS greater than 100 square feet.

See NESHAP requirements at <http://www.epa.gov/asbestos> for more information.

The DOSH list of consultants and technicians is a reference only to the available contractors.

1. To find a contractor in your area, visit web site <http://www.dir.ca.gov>

Scroll to the bottom of the page to find query field "Top of Form"...



The screenshot shows a search form with three input fields: "Last Name:", "Employer:", and "City:". Below the "City:" field are two buttons: "Search" and "Clear". Below these buttons is a button labeled "View Entire Listing". Two black arrows point from the text below to the "City:" field and the "Search" button.

2. Type in the City, then click on Search for a list of contractors in your area.

RAILROADS

If the structure is near a railroad right of way, determine if there are telecommunication lines owned by the railroad, Western Union, or any other major communications corporation which run along the tracks. Damage to

telecommunication lines can result in huge financial losses and fines as well as disruption of vital services to the community.

WATER SUPPLY

Find out the status of the water supply. Is there adequate volume and pressure? Will streets and roads have to be closed to protect hose lines? If no water is available, consider how far it will be to shuttle water to the burn site. Portable water sources are acceptable as long as they meet fire flow requirements. A water tender can be used to supply two different pumping engines to develop two separate water supplies for attack and back-up lines. Take into consideration fire flow requirements for fire suppression and exposure protection.

TRAFFIC

Finally, check the traffic conditions. Give consideration to the traffic flow and times of peak usage. If a freeway is near, it may cause serious problems. Training burns have totally disrupted and caused accidents on the freeway system. If necessary, plan to burn only during light periods of traffic. A check with the CHP can help determine these times. Local and state law enforcement can also help with traffic control and signage. Getting Cal Trans or Streets Dept. involved will allow access to warning signs and traffic control devices helping motorists navigate around obstacles or slow traffic making a safer environment for all persons involved with the FC 3A program.

Determine the value of the structure for FC 3A

After completing a walk around and listing all of the potential hazards and required work preparations, now determine if the building(s) will possess the training quality needed to justify the live fire exercise. It is illegal to burn a building(s) just for the sake of demolition.

If the building(s) are acceptable, be sure to establish how much time is available for the training burn. Determine if the time necessary to obtain compliances, complete the planning process and execute the training burn is allowable by the owner.

Establish amicable roles and responsibilities between the host department and the property owner. For example, but not limited to:

- Materials to be burned and materials expected to remain
 - Responsible party for the clean up of the remaining material
 - The expected timeframe, conditions and remaining hazards during the transfer back to the owner.
-

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SURVEYING THE BUILDING(S) FOR THEIR TRAINING VALUE

Survey the building(s) on the burn site for possible exercises that could be conducted or hazardous situations that need special attention. Be creative; use the additional elements of instruction to expand the student's knowledge. Determine the experience level of the students and adjust the training accordingly. The required elements of a Fire Control 3A course should be of primary consideration during this phase.

Required Elements of Instruction;

- Fire Behavior
- Interior Attack
- Exterior Attack
- Ventilation

Here are some examples of additional exercises that may be considered:

- SCBA Confidence Course
- RIC training
- Attic attack
- Basement attack
- Salvage operations
- Search and rescue
- Use of power and hand tools
- Building construction
- Use of various nozzles and patterns including master streams
- Overhaul
- Exposure protection
- Building stabilization
- Cause and origin
- Forced entry
- New equipment testing
- Indirect versus direct attack

Hazards that should be considered BUT ARE NOT LIMITED TO:

- Exposures: other buildings, vegetation, and vehicles
 - Overhead wires: including power, telephone and cable (contact appropriate utility company for assistance)
 - Trees, Shrubs and other Landscaping Hazards
 - with overhead branches, widow makers, fire carrier
 - some areas require a removal permit for large trees
-

SECTION 5

- impedes egress and/or visual monitoring of the exercise
- retaining walls and drop offs
- ability to protect sensitive landscaping (not a good promise to make)
- Condition of the buildings, (don't expose students to a hazard)
- ACMs used in building construction especially prior to 1972; some examples are insulation material, floor tiles, sheet rock seam tape, acoustic ceilings, roofing materials, heat panels behind furnaces- both wall and ceiling mounted and pipe insulation.
- Weather Conditions (daily wind patterns), research temporarily relocating affected occupants during the burning evolution
 - Spot Weather Forecast Sources:
 - ✓ National Weather Service www.nws.noaa.gov
 - ✓ The Weather Channel www.weather.com
 - ✓ National Oceanic and Atmospheric Administration (NOAA) www.noaa.org
 - Logging personal observations is recommended on an ICS-214
- Holes (floor, walls, and roof)
 - Basements
 - Dumb waiters
 - Laundry Chutes
- Mines Shafts
- HVAC units, locate and remove or acknowledge on rooftop or in attic, other overhead hazards, including chimneys
- Septic tanks (there is nothing worse than having an engine buried up to its running boards in a septic tank)
 - Leach lines
 - Cesspools
- Neighbors and Businesses (i.e., friendly, hostile), Find compromise and help educate citizens of the value and benefits to a well trained fire suppression team. Explain the rare and unique opportunity for the firefighters involved. For those citizens who need extra attention to find a comfort level, invite them to the training site, show and explain to them exactly what training is to take place and the techniques used to increase the knowledge of firefighters.
- Exits in burn building(s)
- Hazardous Materials on site
- Fuel Types, in buildings including wood, tar paper, linoleum, celotex, pesticides and insecticides (which are found ground into the floors of old farm and ranch buildings), or any other material that may be hazardous to fire fighters

After the survey has been made, exercises identified, and hazards

SECTION 5

indicated, the IC can turn this information over to the Planning Section Chief to develop a map of the training site. The mapping procedures will be discussed in the next section.

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SECTION 6

SECTION 6

RECOMMENDED PROCEDURES FOR WORKING WITH THE LOCAL AIR QUALITY MANAGEMENT DISTRICT (AQMD)

The local AQMD must be contacted early in the planning phase of the course. It is recommended to have AQMD personnel be part of the burn planning and organization. Include that staff member in the communications circle, and invite them to witness the FC 3A course.

When conducting a burn in a high smog area, try to burn during a low smog episode time of the year.

An upfront and honest exchange of information between the FC 3A Instructors and the AQMD staff is critical. AQMD representatives should be told specifically what the desired results of the training are. Explain specifically what types of fuels are to be used, the anticipated size and duration of each burn, as well as contingency plans for the day's training. Welcome them to become a part of the burn. (Safely) Leave no room for AQMD to be surprised by the training burn in any way.

When appropriate, ascertain if a variance is necessary. A variance will allow for burning on a "No Burn" day. AQMD should be approached on this matter only after a burn permit has been obtained. A positive and professional interaction between FC 3A personnel and AQMD is essential for the success of the program.

If the course is conducted on a "No Burn" day without a variance, a citation may be issued by AQMD. "Spare the Air" days are exempt from a variance, and all burning must be cancelled.

The AQMD office may require a presentation at an AQMD Hearing Board.

Have all documentation and presentation materials prepared prior to going before the Board. The information that will be requested includes the location of the burn, organizations involved, dates of the burn, number of students, material(s) to be burned, etc. This information is available in ICS Planning documents, such as an Incident Action Plan (IAP).

When appearing in front of the AQMD Hearing Board, look professional, be on time and make sure you have copies of the burn plan (IAP) for the Board and the Board's attorney. Seek the assistance of AQMD in this matter, and be certain to have an AQMD consultant present. Consider contacting the Board's attorney prior to the hearing with the AQMD consultant's support. Attorneys don't like

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RECOMMENDED PROCEDURES FOR WORKING
WITH AQMDs

surprises in front of the Board. Most AQMD Board hearings have granted variances to fire departments for training purposes.

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DOCUMENTATION AND RELATED PAPERWORK, RECORDS, AND REPORTS

The next step is to complete the necessary paperwork. There are several items that must be considered; some of which will be completed by the instructor of the burn, and some the property owner will have to furnish (See "ACQUIRED STRUCTURE CHECK LIST" for assistance).

Required documentation from the owner includes:

- Notarized release of the property
Note: See an example of "LIABILITY RELEASE FORM" in the appendices
- Current Property's parcel number from the Public Tax Record
- A demolition permit from the jurisdiction's building department
- Written notarized proof of cancellation of fire insurance
Note: (Usually a letter from the insurance company is sufficient)
- Submittal of the "Clearance Letter" and "ASBESTOS NESHAP NOTIFICATION OF DEMOLITION AND RENOVATION" form (<http://www.epa.gov/asbestos/neshap.htm>).

All paperwork should be kept as a permanent record by the agency conducting the course with copies to the agency having jurisdiction, should any question regarding the training exercise every arise.

Required documentation from the person responsible for conducting the Fire Control 3A training burn includes:

- A burning permit from the jurisdiction in which the training is taking place
- Submit FSTEP Course application with in six weeks prior to the course date

State Fire Training is available to assist you with larger or more complex Fire Control 3A courses. For additional assistance please submit a letter to State Fire Training that includes the date(s) of the burn, description of the course, the location, and contact information. A Training Specialist will then contact you for an appointment.

- Written notification to the chief of the jurisdiction in which the burn is taking place and to the chiefs of the other participating agencies. The letter should contain the following information:
 - What is going to be burned
 - Where the burn is located
 - When the burn is going to take place
 - Copy of the release from the owner
-

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- Senior Instructors' names
- Incident Commander's name
- Safety Officer's name
- Primary Instructors' names
- A short description of the specific burn objectives
- An agenda of the actual burn
- A list of all the agencies participating

Required documentation and material from the department having jurisdiction over the participants of the training include but are not limited to:

- Authorization to attend the training, including a statement of insurance for participant. Note: If the course will be coordinated through a community college, the college may provide additional insurance for participants and instructional staff.
- Current fit test documentation
- The participant's agency must also provide the student with
 - Compliant SCBA in good repair
 - Compliant PPE in good repair

Required documentation from the department hosting the Fire Control 3A

- Federal EPA, California Air Resources Board and Local AQMD approval
 - AQMD Confirmation of a Training Variance in the absence of a "No Burn" day
 - A burning permit from the jurisdiction in which the training is taking place. Confirm that the owner has clear title to the property. This will require researching county/city records.
-

SECTION 8

NOTIFICATION INFORMATION AND CHECKLIST

When planning a FC 3A training exercise, all agencies, citizens, and news media directly or remotely associated with the training should be notified. These would include, but not be limited to:

- City Manager
- Mayor
- Board of Supervisor area representative
- Local AQMD, CARB and EPA*
- News media
- Local ambulance transporting agency for a possible standby
- Historical Society (Buildings greater than fifty years old)
- Coastal Commission
- Police and fire agencies in the local area
- Water department
- Public works department
- California Highway Patrol
- U.S. Forest Service
- Nearby schools, churches, and parks
- Utility companies
- Neighboring residents and businesses

*Federal law requires you to notify the following agencies of the date and time for the controlled burning of any building. These notifications must be done utilizing the "Notification of Demolition and Renovation form" (See Appendix or available on-line at <http://www.arb.ca.gov/enf/asbestos/asbestosform.htm>). Mail one copy each of the Notification of Demolition and Renovation form, Survey Report and Clearance Letter to each of the agencies below (faxing or E-mail is not acceptable). The notification is required ten (10) working days prior to the controlled burn.

Send original to:

U.S. EPA - Region IX
Asbestos NESHAP Notification (Air 5)
75 Hawthorne Street
San Francisco, CA 94105
Phone: (415) 972-3989

And a copy to

California Air Resources Board
Enforcement Division

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Asbestos NESHAP Notification
P.O. Box 2815
Sacramento, CA 95812
Phone: (916) 322-6036

For more information regarding NESHAP, visit...
<http://www.epa.gov/region04/air/asbestos/asbqa.htm>

Or call the ASBESTOS HOTLINE (202) 554-1404, Option #3.

✓ Refer to the "PERMIT/NOTIFICATION QUICK REFERENCE MATRIX"

The contacts should be made by the Public Information Officer (PIO). As these contacts are made, log the agency, telephone number, person contacted, and their reaction. (See Illustration # 1 on the following page)

Insert Illustration #1 here

The following information should be given to everyone notified:

- Nature of the activity
- Reasons for the activity
- Location of the activity
- Schedule of the activity
- How the training is to be conducted
- Department contact for information

An informational flier may be dispersed to residents in the area around the burn site. This may be accomplished by local volunteers, engine companies, explorer scouts, etc.

Failure to notify those concerned can cause embarrassment and unnecessary problems to the agency having jurisdiction. A meeting of area residents and businesses will help alleviate their concerns.

NOTICE TO NEIGHBORING PROPERTIES

This is to inform you, that your fire department will be conducting a live fire safety

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training exercise(s);

Vehicle

Vegetation

Structural

on the property located at:

The date(s) for the training are _____,

from the hours of _____ to _____.

This type of training is essential to providing this community with well-trained firefighters. The exercise will allow our personnel a chance to enhance their skills in suppression activities and to work safely in a controlled environment for future fire and life safety needs.

Please note that smoke and flame may be visible from time to time. All precautions have been made for the safety of surrounding properties.

We sincerely hope this training opportunity does not cause any disruption of your normal activities.

Thank you, for your indulgence and cooperation.

For further information contact _____
Live Fire Safety Training Exercise Coordinator

Office:(_____) _____

Cell:(_____) _____

PERMIT/NOTIFICATION QUICK REFERENCE MATRIX

Type of Training Burn			Sets Only in a Structure (Fire Investigation)	
Permit and Notification Requirements	Vehicle	Vegetation		Structure

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NOTIFICATION INFORMATION AND CHECKLIST

<i>U.S. EPA</i>	NESHAP applies the same as Structure notification	No Requirements	No Requirements	NESHAP Applies, Fire Agency Notification 10 working days before burn plus obtain copy of Asbestos Report from Owner
<i>California Air Resources Board</i>	NESHAP applies the same as Structure notification	No Requirements	No Requirements	NESHAP Applies, Fire Agency Notification 10 working days before burn plus obtain copy of Asbestos Report from Owner
<i>Local AQMD</i>	Fire Agency Obtain Burn Permit	Fire Agency Obtain Burn Permit	Fire Agency Obtain Burn Permit	Fire Agency Obtain Burn Permit with copy of Asbestos Report from Owner
<i>Local Building Department</i>	No Requirements	No Requirements	No Requirements	Owner obtain Demolition Permit
<i>Local Historical Society/Planning Department</i>	No Requirements	No Requirements	No Requirements	Owner contacts Society/Department, if building is over 50 Years old, a determination of historical significance is required
<i>California Department of Forestry and Fire Protection (CAL FIRE)</i>	Notification to the CAL FIRE Administrative Unit if in the SRA	Notification to the CAL FIRE Administrative Unit if in the SRA	Notification to the CAL FIRE Administrative Unit if in the SRA	Notification to the CAL FIRE Administrative if in the SRA, FSTEP if you want to issue Fire Control 3 certificates, Requires 6 weeks notice
<i>Community</i>	Door to door, or telephone affected neighbors	Letters of Notification should be sent to all affected areas and the media	Door to door, or telephone affected neighbors	Letters of Notification should be sent to all affected area homes and businesses, including the media
<i>Local Water Agency</i>	No Requirements	No Requirements	No Requirements	Possible permit required, depending on the estimated total gallons to be used

The reference matrix is not intended to be accurate for every county or jurisdiction with in California. It should only to be used as a guide

ACQUIRED STRUCTURE BURN CHECK LIST

Project Name: _____ Date: _____

Location: _____

Contact Person(s): _____ Numbers: _____

Project Description: _____

SECTION 8

Check List

Item:

Performed by

Date and initial

- | | | |
|---|-------------|-------|
| 1. [] Determine Training Value | Fire Agency | _____ |
| 2. [] Live Fire Training Plan Packet to Owner | Fire Agency | _____ |
| 3. [] Proof of Cancellation of Fire Insurance | Owner | _____ |
| 4. [] Historical Society (>50 years old) | Owner | _____ |
| 5. [] Copy of Deed-No Lien Holders | Owner | _____ |
| 6. [] District "Release of Liability" Letter | Owner | _____ |
| 7. [] Demolition Permit | Owner | _____ |
| [] Removal of ACMS | Owner | _____ |
| 8. [] Air Pollution Control Burn Permit | Fire Agency | _____ |
| 9. [] Schedule with State Fire Marshal (FSTEP) | Fire Agency | _____ |
| 10. [] Federal EPA-NESHAP Notification (form sent) | Fire Agency | _____ |
| 11. [] State Air Resources Board Notification | Fire Agency | _____ |
| 12. [] Utilities Secured | Owner | _____ |
| 13. [] Political entities notified (Mayor, Manager, etc) | Fire Agency | _____ |
| 14. [] Ambulance Company notified | Fire Agency | _____ |
| 15. [] Notification to Water Department | Fire Agency | _____ |
| 16. [] Incident Action Plan (Safety Plan) | Fire Agency | _____ |
| 17. [] Notification to Neighbors | Fire Agency | _____ |
| 18. [] Notification to Law Enforcement | Fire Agency | _____ |
| 19. [] Portable Toilets | Owner | _____ |
| 20. [] Logistics (Lunch, Drinks) | Owner | _____ |
| 21. [] Safety of Scene During Operations | Fire Agency | _____ |
| 22. [] Security of Scene After Burning, Clean Up | Owner | _____ |
| 23. [] After Action Review | Fire Agency | _____ |
| 24. [] Follow up Call to Owner | Fire Agency | _____ |
| 25. [] Instructor Evaluations and Documentation | Fire Agency | _____ |
-

SECTION 9

DEVELOPING INSTRUCTIONAL STAFF

Provided in this section are tools to assist in the planning of a live fire safety training burn exercise. The key organizational tool is the Incident Command System.

A Senior Instructor must be on scene in the Technical Advisor position.

Probably the easiest way to develop the instructional staff is to gather the training officers from the agencies who are going to participate in the burn. Another source of instructors may be from the local training officers' association or from State Fire Training's FSTEP instructor list, (<http://osfm.fire.ca.gov/TrainingInstructor.asp>)

Using Assistant Instructors with specific areas of expertise is an excellent way to introduce firefighters to instruction and expand the knowledge base of participants.

Position Task Books can be partially completed on a FC 3A for all of the listed examples such as Staging Area Manager, Check In/Status Recorder, Division Group Supervisor, Resource Unit leader, Documentation Unit Leader, Situation/Status Unit Leader, Medical Unit Leader, Branch Director, Safety Officer, Public Information Officer, and Incident Commander. Consider using ICS Trainees as a resource for filling organizational positions.

Once the instructional staff has been assembled, define the objectives of the burn. Make a tour of the burn site and identify staff positions to start the planning process.

Identify any potential hazards or concerns and mitigate and or correct the hazards as necessary for safety. Encourage the discussion of any safety items from instructional staff. Obtain feedback from instructional staff to ensure everyone understands what is expected during the training evolution. Utilizing ICS position titles provides for clarification of roles and responsibilities.

At the second meeting, staff and needed resources should be identified. On large burns this planning should start at least one month before the course starts. Most large burns (10 buildings or more) usually require about three months of planning to take care of all the needs the course requires.

Requested resources should include those necessary to accomplish the required training exercises and any additional exercises identified from Section 5 of this manual.

SECTION 9

DEVELOPING INSTRUCTIONAL STAFF

Staff positions and descriptions are outlined in Section 10 of this course guide as “Staff Organization and Description.”

DRAFT

SECTION 10

STAFF ORGANIZATION AND DESCRIPTION

Organization and management of the course should be considered as part of the overall training process. The Incident Command System (ICS) should be utilized for the organizational framework for managing the course.

POSITION DESCRIPTION – Command Staff

Incident Commander (IC)

The IC is usually from the agency in whose jurisdiction the course is located and is responsible for everything that does or does not happen. Any position not filled in the system, is the IC's responsibility. The IC may have an aid. This position conducts all planning meetings before, during, and after the course.

Safety Officer and Staff (SOFR)

All Fire Control 3 classes are required to have a safety officer and is responsible for reviewing the course plan and site usage. There must be a safety staff member in attendance during all exercises. The safety staff has total authority to stop any exercise, where eminent danger to students is present. They also assist during the critique of the exercise. Safety staff members must be familiar with fire behavior.

Information Officer (PIO)

This position is not always necessary, especially on one building or one day burns. However, on large burns of several buildings or long duration burns, this is an important position. The PIO starts his/her operation during the first planning meeting and is responsible for notifying the news media and the neighbors in the area as to the particulars of the course. The PIO should be available during the entire course to handle news media and neighbors' inquiries.

Liaison Officer (LOFR)

Answers inquiries from other agencies, i.e., fire, police, AQMD, water department, etc. This position is invaluable during larger courses involving many agencies.

Operations Section Chief (OSC2)

Supervises the various exercises during the course. Oversees all exercises being conducted at the site and ensures the instructors are conducting each exercise safely and properly. Assists Planning Section Chief in outlining the next day's activities. This position may be filled by the Senior Instructor.

Branch Director-(OPBD) when activated, is responsible for the implementation of the portion of the Incident Action Plan (IAP) appropriate to the Branches.

SECTION 10

Division/Group Supervisor (DIVS)

A DS/GS is an instructor for a particular division/group of the course and is in charge of that portion of instruction but may have other instructors assisting. The DS/Gs also functions as an additional Safety Officer.

Logistics Section Chief (LSC)

Obtains all materials and services necessary for the course. This position's operation starts during the first pre-course planning session. The Logistics Chief should have a staff for large burns. On small burns, however, the Logistics Chief may perform all the functions of the logistics section.

Supply Unit Leader (SUPL)

Collects all equipment used on scene. Insures that proper identification is on the equipment. Issues all equipment to burn exercises. Accounts for all equipment before returning it to its agency. Reports on all damaged or missing equipment. Advises as to equipment needs for each class period.

Ignition Officer

Provides ignition and burn materials for all burn exercises. Ignition Officer may have personnel for assistance. These personnel may also function as light off personnel for a division if necessary.

Staging Area Manager (STAM)

This position is important on all burns. Maintains accountability of student attendance at the various divisions of the course. Coordinates with the DS/GS and keeps the students involved. One of the methods of tracking the students in a matrix set up on a chalk/white board. (See Illustration #2 in appendix B)

Medical Unit Leader (MEDL)

Insures proper medical equipment and personnel are on the training site to care for any injury that may occur. Arranges for transportation of the injured. Advises local hospitals of the possibility of injuries prior to the course. Makes reports on all injuries no matter how small. Completes the ICS 206 form.

Water Supply Group

Establishes fire flow requirements for the course. Advises on locations and amounts of water available. Estimates the amount of water necessary for the entire course. Supervises the laying of supply lines. Establishes pumping apparatus requirements and placement. This position may be filled for only a short time each day. The Water Supply Specialist must be present during the planning session.

Communications Unit Leader (COML)

SECTION 10

Obtains communications equipment. Assigns operational prerequisites. Issues and collects radio equipment, and after use is accountable for same. Assures that portable radios are recharged for each training period. Issues a copy of the communication plan to all staff officers. Completes the ICS 205 form.

Note: It is recommended that three frequencies be utilized on larger operations. These are a command frequency, a tactical frequency, and a support frequency. This may be altered to fit the need.

Finance/Administration Section Chief (FSC)

Accounts for all course costs, establishes fee collection procedures, if applicable, and insures that all bills are paid. Makes a total financial report for the course. This position may have a deputy. The deputy should be informed of all aspects of the course regarding finance requirements.

Planning Section Chief (PSC)

Supervises the planning section. Advises personnel of their responsibilities. Develops the course plan. Ensures that all staff are aware of the plan and conducts the evening planning sessions. Maintains all records for the course.

Check-In/Status Recorder (SCKN)

Sets up the registration site and directs student and staff sign-ups. Prepares a daily report for the plans chief. Assigns division or team numbers and identifies Division and Team Leaders. Places proper markings on all staff officers and students. Prepares roster for Certificate coordinator and provides display for the Incident Command Post (ICP) of various assignments. May also work as a Demobilization Unit.

Documentation Unit Leader (DOCL)

Obtains students and staff names and total hours. Coordinates certificate preparation, issues certificates, and compiles report of certificates issued.

Map Unit Leader

Makes maps of training area identifying division of assignments and locations for important sites (ICP, medical station, water supply, communications, rest area, etc.) Provides copies for each Division/Group Supervisor or Team Leader. Provides display in ICP of training divisions and identifies building use or destruction for each planning session.

These positions have been described as they apply to the Fire Control 3 course. Filling each of the preceding positions is optional depending upon the size and needs of the burn. (See Illustration #3 below)

SECTION 10

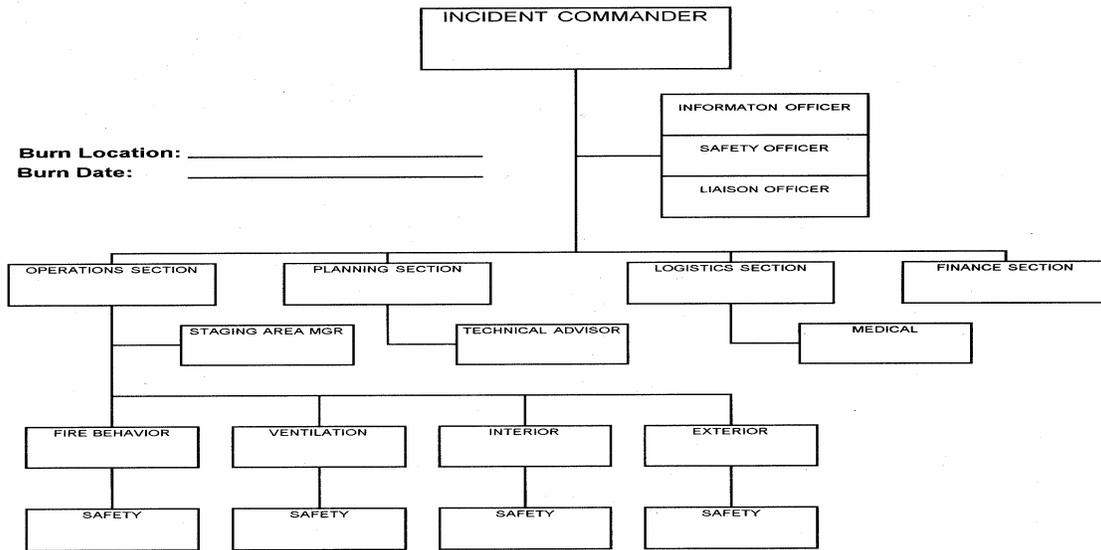


Illustration #3

The use of an Incident Action Plan will assist your organizational abilities greatly by identifying key overhead and safety positions, resources, span of control, communications, emergency plan, medical treatment, organization chart and mapping.

For further descriptions of these positions, refer to the specific ICS position manual or the ICS Field Operations Guide II-420. Each position may have additional responsibilities. Again, you decide what will work for your course.

Identification of Personnel for Accountability

A means of accountability for all participants an instructional staff will be used on all FC 3A courses. The Senior and Primary Instructors shall be clearly identified on the course grounds. The following system may be of assistance. Place a piece of duct tape on the rear dome of each student's helmet. Use a waterproof, wide-tip marker to make the identifications.

BLACK: NUMBER AND LETTERS

RED: TEAM LEADER

Using 1" colored tape to mark staff members is also an option. The tape is placed horizontally on each side of the dome of the staff member's helmet.

Incident Commander:	2 Blue Stripes
Operations Section Chief:	2 Red Stripes
Ops Staff:	1 Red Stripe
Team Leader:	1 Red and 1 Green Stripe
Safety Officer:	2 Green Stripes

SECTION 10

Safety Staff:	1 Green Stripe
Logistics Section Chief:	2 Brown Stripes
Logistics Staff:	1 Brown Stripe

Note: If anyone is wearing a red helmet that requires a red stripe, first use a piece of duct tape then add the red stripe through the middle of the duct tape.

Planning Section Chief and staff and Finance Section Chief are usually marked with a piece of duct tape with their position title on each side of their helmets.

All on-site personnel should be identified including visitors, photographers, and news media. This will help control unauthorized personnel from entering the site. These identification markings are possible recommendations, but only if they fit your situation.

Student Organization

On large-scale burns involving multiple buildings, it is common to conduct a separate exercise for each building. These buildings may be organized as divisions or groups with a Division/Group Supervisor assigned for span of control. Remember, in the ICS, divisions are assigned for geographical areas and groups are organized for functional responsibility.

To help organize the students into workable units, it is recommended that they be divided first into divisions/groups and then each division/group divided into crews. A Division/Group Supervisor is part of the instructional staff and should be at least an Associate Instructor. Each division/group consists of four crews of four students each. Each crew has a Crew Leader. The Crew Leader should be the most experienced student on the crew and reports to the Division/Group Supervisor.

Crew Leaders are given specific assignments for the exercise. For example, one crew on attack, a second crew on back-up, and the third crew works ventilation, and the fourth crew takes care of fueling the burn. The Division/Group Supervisor then rotates the crew through the various assignments until all have completed the exercise.

When finished, the division/group is released by the Division/Group Supervisor and reports to the Staging Area Manager for reassignment. This procedure works very well and ensures that students have an opportunity to be involved in all training exercises. (See Illustration #4 on below)

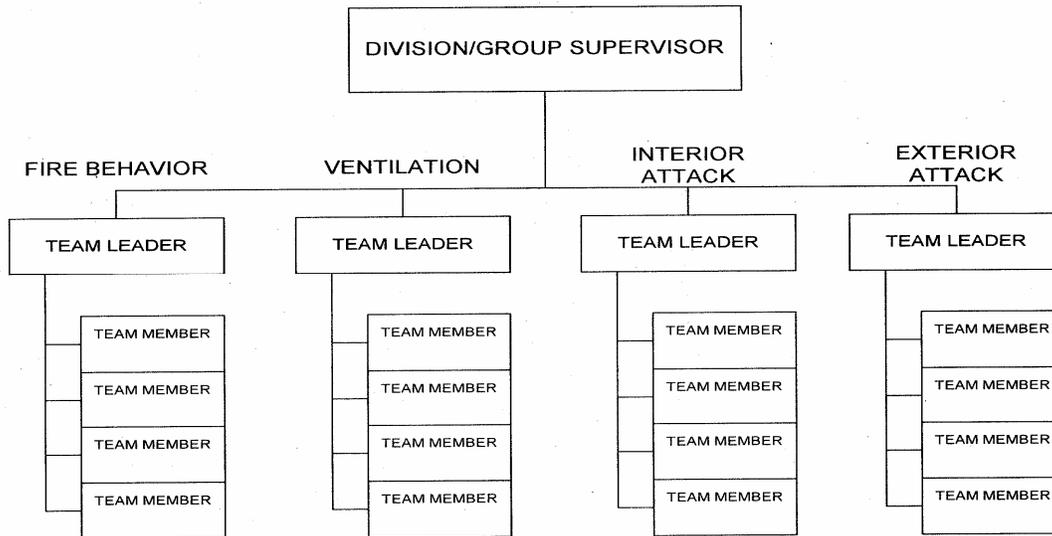


Illustration #4

Crew Leaders are responsible for keeping the team involved in all phases of the course, conducting critiques with the other instructional staff, ensuring the crew is conforming to safety regulations, and taking their crew to the staging area immediately after being released by the Division/Group Supervisor.

SECTION 11

MAPPING THE BURN SITE

The Plans Section Chief (PSC) is responsible for developing a map showing all pertinent information for the burn. The PSC may assign a Situation Unit Leader. Here is a list of considerations:

- All building sites
 - . Indicate type of construction and roofing materials
 - . Indicate special hazards (Basements, chimneys, etc)
 - . identify each building
 - . Locate Septic Tanks, Wells
 - . Identify and provide for collapse zone
 - All exposures
 - . Include power lines, vegetation, trees, other buildings
 - . Show flammable liquid storage areas
 - . Identify exposures to be saved
 - Property boundaries
 - Roads and access to the burn site (Include traffic plan)
 - Check-in site
 - Incident Command Post (ICP)
 - Staging area
 - Water supply, hydrants with GPMs available and static pressure, pools or other static water supply with approximate capacity, and location of portable water supply placement (fold-a-tanks, large tanks, etc.)
 - Determine and map water run-off
 - Holes that cannot be filled in
 - Garbage or junk that cannot be moved
 - Supply Unit Leader location
 - Medical Unit Leader location
 - REHAB
-

- Student parking

Additional items to map should include exits of the burn buildings, and any potential hazards.

Once this map is completed, it should be reproduced both as a large map and many small maps. The large map will hang in the ICP for reference. The small maps can be utilized by Command Staff, Division/Group Supervisors, and Team Leaders for a ready reference.

A large map might also be posted in the staging area for directions or orientation for students. It is a good idea to cover these large maps with Mylar to protect them. This will allow note taking to be done on the map with a grease type marker. (See Illustration #5 on the following page)

LIABILITY RELEASE FORM

DATE: _____

TO: _____ Fire Protection District / Department

FROM: _____

SUBJECT: **PLANNED LIVE FIRE SAFETY TRAINING EXERCISE**

This is to certify that the undersigned is the owner and / or legal occupant and possessor of real property commonly described as;

and the undersigned has the full authority to authorize the _____ Fire Protection District / Department to demolition the above described property by controlled burning.

The undersigned hereby authorizes the _____ Fire Protection District / Department to burn the above property. That the undersigned hereby covenants, declares, warrants and represents the following:

WHEREAS:

- * there is no insurance obligation that can be violated; and
- * there are no liens on the property; and
- * there are no legal obligations that can be violated by said burning; and
- * the undersigned has public liability and property damage insurance covering the claims of third persons for injuries and / or property damage proximately caused by said burning.

SECTION 12

LIABILITY RELEASE FORM (Continued):

The undersigned hereby releases the _____ Fire Protection District / Department of any claim of liability that the undersigned may have in connection with the said burning, and acknowledges that such burning and all activities connected therein is performed on order of the undersigned and the undersigned agrees to be responsible therefore.

In consideration of this agreement, the undersigned does hereby covenant and agree to indemnify and hold harmless the _____ Fire Protection District / Department from any and all claims of the undersigned. Furthermore, I indemnify them or any other person or persons whomsoever for personal injuries and / or property damage arising out of or incidental to said burning inside, upon, or outside of said premises.

The undersigned agree that the _____ Fire Protection District / Department will not be held responsible for any materials removed from the premises nor will the Fire Protection District / Department be responsible for any clean up or damage to any plant, animal, human, environment or other properties.

The undersigned further states that all public utilities and other agencies that have property in the area described above have been notified of the burning and have had the opportunity of having their property removed.

SIGNED: _____ **DATE:** _____

WITNESSED: _____ **DATE:** _____
(Fire District / Department Representative)

SECTION 12

THE EIGHT BASIC EXERCISES

There are four basic exercises that must be completed in order for students to receive SFT certification in Fire Control 3A. There are additional exercises that may be added if resources and time will allow. Each exercise will be discussed in the following sections.

The 4 mandatory exercises

- Fire Behavior
- Ventilation Techniques
- Interior Attack
- Exterior Attack

Additional exercises.

- SCBA Confidence Course
- Attic Attack
- Fire Cause and Origin
- Basement Attack (if available)

As structures become more difficult to acquire, the instructor must attempt to utilize all acquired structures to their maximum potential. Other potential training exercises that may occur in the building prior to a Fire Control 3A course include but may not be limited to:

- Forcible entry training
- Selective breaching and breaking
- Self rescue techniques
- Thermal Imaging Camera (TIC) training
- RIC training
- SCBA training
- Building Construction
- Building Stabilization
- Search and Rescue

NOTE: If plans are made to utilize the structure for training prior to a Fire Control 3A class, caution must be taken to minimize damage to the structure so as to ensure maximum FC 3A training and safety.

SECTION 13

FIRE BEHAVIOR

This is the first live fire exercise that the students will attend. This section of a Fire Control 3A class will be the foundation of all fire behavior witnessed by students for the rest of the day's events. The instructor should attempt to illustrate as many aspects of fire behavior to the students as possible so as to continue to build upon them throughout the class.

This exercise should begin with a brief lecture explaining to the students what fire behavior they will see in the specific room chosen, and then with the ignition of the crib, allow the students to watch the fire grow and behave as the instructor has predicted. Speaking points that shall be covered during this lecture include but are not be limited to:

- Factors influencing fire behavior
 - Amount of fuel
 - Type of fuel
 - Arrangement of fuel
 - Ratio of fuel to room or building
 - Ventilation
 - Time temperature curve
 - Types of fire classes
 - BTU output
 - Stages of fire
 - Heat transfer
 - Smoke
 - Water application anchor points
 - Barriers and Shielding
 - Nozzle patterns
 - Steam production
 - Air flow
 - Indicators
 - Horizontal and vertical thermal balance
 - Ember production
 - Ash production
 - Flame lengths
 - Flammable gases
 - Overhead or atmosphere control
 - Roll over
 - Flashover
-

- Backdraft

The number of students in the class will determine the potential need for more than one behavior class. It is conducted in a live fire situation, in a designated training room. Modifying or removing interior walls can increase floor space and/or allow for a better view for students participating in this exercise. Construction knowledge is key in choosing walls that can be modified.

The training room will be dark and potentially dangerous. All measures must be taken to remove any and all hazards prior to the exercise. A minimum of 2 exits shall be identified for all students. These exits may be marked both on the floors and walls. The instructor for this exercise shall be capable of providing planned, expected, and desired fire behavior before being assigned to this exercise. The instructor shall discuss anticipated fire behavior of the specific room based on fuel, construction, and all other variables and then illustrate this behavior with examples after ignition. Key points that do not occur during the various demonstrations can be discussed outside following the exercise.

During this exercise, students will be exposed to fire from incipient to the rollover stage. At the same time, the instructor will be demonstrating proper application of various nozzle patterns, and the effects of water application (steam production, thermal influence, etc). This is also an opportunity to demonstrate interior ventilation techniques using nozzle streams.

Items needed for this exercise:

- Pressurized water extinguisher or hand-pump fire extinguisher
- Attack line (Staffed by Instructors only)
- Back-up line (from a separate water source and staffed by instructors only)
- Ignitions Officer with hook
- Instructor staffing near exits

Utilize ventilation during the behavior burn to demonstrate air movement and its effect on fire travel.

Using the pump can and teaching anchor points will demonstrate the small amount of water needed to control fire.

Crib Construction

By using proper crib construction the fire can be knocked down and then allowed to build for the next demonstration. When using pallets for this class it can be very difficult to get the fire burning again if all the starter fuels are consumed too early.

NOTE: It is recommended that a crib be constructed to allow consistent flow of air through the base of the fire for this portion of the class. This will allow for demonstration of air flow, ventilation, extinguishment, and fire growth. (See illustration #)

Room set-up

Make sure that the training room is prepared for the class to be on floor. Remove all hazards that could harm a student or damage their PPE. Remove all floor coverings, carpet, and tack strips. Remove all window glass and cover with knock out panels. Remove all ceiling lights, interior mirrors and other items that may fall and cause injury during the burn. Render safe all abandoned fire extinguishing systems. Change the swing of any doors that are not removed to open outward. Cover any holes in the ceiling or walls where fire could extend. Assign instructional staff to the roof to watch for any extension to the attic space or roof fires. Mark the floors and exits with hi-visibility paint using arrows leading to the exits. Make sure that the water supplies for both the attack and back-up lines come from two different supplies.

SECTION 14 VENTILATION TECHNIQUES EXERCISE

The ventilation phase of fire fighting is second only in importance to the application of an extinguishing agent. Ventilation strategy and tactics shall be imparted to the students as a part of this exercise.

This exercise is designed to provide the student with proper methods and techniques of ventilation and an opportunity to utilize ventilation equipment. This includes using both hand tools and power equipment.

The ventilation exercise should be planned well in advance and be designed to facilitate the entire course. The instructor for this exercise should have a good working knowledge of building construction, both old and new, and show methods of determining what type of construction is utilized in a particular building. It is imperative that ventilation operations be coordinated with the fire behavior and fire attack operations.

This is a training exercise and every opportunity to anticipate fire spread and potential problems need to be addressed prior to starting operations.

Most of the time, residential buildings are the subject of FC 3A classes. The classroom for this exercise is on the roof. Inspection should be made to assure structural integrity of the roof. Some older buildings do not have ridge poles, tie boards (webs), or vertical upright supports to hold the extra weight of 20 students. You may need to rebuild or reinforce some roofs.

Safety is paramount while burning is conducted beneath the ventilation exercise. A minimum of two ladders shall be in place to aid in rapid evacuation. The addition of at least one Assistant Safety Officer is advisable. The Assistant Safety Officer is responsible for safe operations while conducting ventilation exercises on the roof.

It is strongly recommended that ventilation techniques be taught on a separate roof, or at a time that live fire is not occurring below the students.

Ensure that reliable radio communications are maintained between the Ventilation Instructors and the Fire Behavior/Interior Attack Instructors. Have an operational plan for coordinated suppression and student evacuations in the event the fire extends into the attic or other areas not intended to burn during instruction.

SECTION 14

During the Exterior Attack Exercise, a strip ventilation cut can be used to illustrate the effectiveness of this ventilation technique by safely positioning students inside the structure and allowing them to hold the fire at the cut with hoselines. This must be a well coordinated effort and safety personnel must be in position at all times.

As a means of accommodating the overall burn plan, it may be advantageous to put a strip ventilation cut in place prior to beginning the burn. This will allow for a predetermined location to make an offensive or defensive stand if necessary later in the day's evolution to capture a running attic fire.

Note: This is an effective means of separating larger or uniquely shaped structures for multiple day burns.

Remove all overhead obstructions such as wires, trees, etc. Make sure there is adequate room to store tools so they will not fall to the ground and possibly injure someone.

Tools might include axes, pike poles, pulaski, rubbish hooks, power tools, sledge hammers and roof ladders. The hosting and cooperating agencies attending may influence the type of tools and operational guidelines, or techniques, utilized by their respective agencies.

All students will be in full personal protective equipment while participating in ventilation operations. If live fire exists, all students must wear an SCBA.

The ventilation exercise lecture should begin while on the ground and include but not be limited to:

- Safety briefing
- Building size up
- Building construction features
- Ventilation principles
- Ventilation terminology
- Ladder placement
- Safe power equipment and tool use
- Photo Voltaic (solar panels or PV panels)

The safety briefing will include travel and escape routes on the structure and communication methods that will be used while power tools are in use including the signal to evacuate.

Each student shall be given the opportunity to use each tool.

To help identify hazardous areas, marking paint shall be utilized to show roof

SECTION 14

areas that have been cut. All personnel shall be advised to avoid all painted areas.

Stage a 1 ½" or 1 ¾" charged hose line dedicated for roof operations, while personnel are on the roof.

Ventilation Instructors and the Assistant Safety Officer shall monitor operations. Tolerate no horse play or unsafe acts.

When the roof portion of the ventilation exercise is completed, there should be several planned vent holes for later use during burning operations. If it is necessary to cover holes, use thin plywood. Do not nail these down. Pull-cords or wires may be attached to these covers for easy removal by personnel from the ground. This will enable the students to see the effects of ventilation without exposing personnel to the hazards associated with roof operations. Ensure that the pull-cord will not melt or burn between the cover and the pull point.

It is also possible to conduct an exercise on natural and mechanical ventilation. This may be done by charging the building with smoke and demonstrating positive pressure ventilation techniques. This process may be valuable during the entire course.

Example: Set up for positive pressure ventilation during interior attack. This has to be highly coordinated.

Step 1 With all exterior doors and window openings covered, interior doors open or closed appropriately, a fire is started in the rear of the building and allowed to burn.

Step 2 At a given signal, the vent crew will remove the window covers from the fire room. As this is done, the attack crew will coordinate their attack with the implementation of positive pressure ventilation. As the smoke is pushed back to the fire room, the attack crew can make entry and extinguish the fire in a more tenable environment.

Note: This is a technique of coordinating interior attack and positive pressure ventilation. When correctly implemented, this method of ventilation can be very effective. (See Illustration #6 on Page 32)

This technique will be utilized many times during the course of the day's exercises to remove smoke and heat from rooms that have been used for live fire attack.

SECTION 14

Remember to plan the ventilation exercises to allow all students to have an opportunity to participate. This segment of the days training will be used for strategic placement of vent holes needed for the entire course.

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SECTION 15

SCBA CONFIDENCE COURSE

This exercise is designed to provide fire fighters an opportunity to experience basic performance evolutions while utilizing self-contained breathing apparatus (SCBA). This exercise is not designed to teach proper donning and doffing of SCBA. All students should be proficient in SCBA prior to participating in a FC 3A course. This exercise will teach interior firefighting survival by allowing the students the opportunity to gain confidence in proven survival techniques with emphasis on remaining calm and creating a heightened awareness in a firefighting environment. It will also assist fire fighters in getting the maximum performance from an SCBA.

A building or room utilized for this section should be safe and have more than one exit and an escape route large enough to move several students. The area should be dark even before the smoke is introduced. The class size should consist of a maximum of 10 students. All props should be of sturdy construction. Plywood can be used to cover the windows. Installation should allow the covering to be removed without trouble.

Note: If it is necessary to cover a window, use plywood or drywall. The covering must be placed on the outside and only lightly tacked into place for easy removal in case of an emergency. Also, cover all vertical and horizontal openings. If possible, cut a ventilation hole over the smoke room and cover it with plywood. This covering should be placed on the opening without tacking for easy removal if ventilation becomes necessary.

There should also be an interior hose line present with a reliable water source. If one corner of the door is cut out, it can be closed over the hose.

The tighter the area used, the smaller and cooler the fire can be to generate the necessary smoke and heat.

A Safety Officer must be present in the room during the exercise.

A crib or shopping cart are examples of acceptable methods of producing smoke. Burn materials should be both wet and dry hollow core feed hay (HCFH). A chemical smoke generator can also be used. Proper chemical smoke shall be utilized. **DO NOT USE FLAMMABLE / COMBUSTIBLE LIQUIDS IN ANY FORM DURING A FC 3A COURSE.**

There shall be an Assistant Instructor or Trainee Instructor in the room to check and monitor the fire, and cool it if necessary, at all times.

SECTION 15

All instructors, Safety Officer, and students should have a SCBA on prior to entering the smoke room.

Students are briefed before entering the room. All PPE will be assessed prior to allowing students to participate in the exercise.

Remember safety in this exercise is of paramount importance and will receive priority over all else.

Another method of conducting the SCBA training is to use a maze. This can be set up in an existing building using 1) a charged hose line for the students to follow and 2) a method of obscuring their vision. A safe chemical smoke is preferred for obscuring their vision, however if this is not possible, taping the mask face piece will suffice.

The exercise starts when the student is instructed on how to follow the maze by keeping contact with the hose. An item predetermined to be the victim (traffic cone, empty SCBA bottle etc.) must be located and retrieved by the students during each evolution.

The instructor should keep track of the students entry and exit times as well as the amount of air consumed for the exercise. As the student exits the drill, give these figures to them. These figures will give an indication of how the students utilize their air.

Set up the maze so that it takes about 15 minutes to complete. All students should be in full protective clothing when participating in the exercise.

Illustration #7 on Page 36 is an example of a typical maze using a three bedroom house.

Instructors wearing SCBAs must be inside to assist the students if problems develop. Each student is finished when they exit with the simulated victim. Be creative, but do not create unsafe conditions.

As an added note, have the students tell you how much hose is in the maze. This will give them an opportunity to think while they are traversing the maze.

If time permits, let students having difficulty with the exercise go through the maze a second time.

Per CAL OSHA regulations, have a mask cleaning station set up at the end of this exercise. Make students utilize this process as part of the instruction.

Speaking Points

- Donning and offing the SCBA inside a structure
 - Search techniques
 - Search tools
 - Changing profile
 - Buddy breathing
 - Loss of air techniques
 - Entanglement hazards and techniques
 - Forcible exiting
 - SCBA emergency procedures
 - Visual and audible indicators
 - RIC Tactics
 - Situational awareness
 - Self awareness
-

SECTION 16

INTERIOR ATTACK EXERCISE

This exercise is designed to provide students with methods and procedures used for direct, indirect, and combination water application on interior building fires.

The building chosen to be utilized for this exercise must be of solid construction and have more than one escape route. There should also be ample room to manipulate hose lines. Fuel used can be paper, wood, wood pallets, or hollow core feed hay (HCFH).

The use of existing fuel inside the structure (cabinetry, doors, etc.) may be done at the discretion of the AQMD having jurisdiction of the specific structure. All holes in walls and floors should be covered, and stairs and railings should be made safe. All debris that is not going to be used for the exercise should be removed. All carpeting, padding, and carpet tacking systems must be removed.

If water heaters or other closed vessels are present, they should be removed. If it is not possible to do so, the vessels should be punctured thoroughly.

Safety Note: A water heater poses a major problem in Fire Control 3A classes and should be removed. In the event it cannot be removed due to damage to the structure, numerous holes must be punctured in the water heater. This will prevent an over build-up of pressure in the heater. Care should be given in working with water heaters; they could contain asbestos which requires special handling as discussed in Section 4.

All glass should be removed from windows and interior decorations. Window openings can be covered with plywood or drywall knockout panel. The covering shall be placed on the outside of the building and secured in a manner that allows for easy removal. This will assist in quickly opening the window, both for demonstrating coordinated attack, and in case an emergency situation occurs requiring the windows use for quick escapes.

Prior to starting the exercise, bring students into the building for orientation. Explain what is going to happen, the location of the safety exits, who is the Safety Officer, and any safety precautions you may deem necessary. It is a good practice to identify all load locations with a large felt tip marker or spray paint prior to beginning the exercise. This will help both students and assistant instructors to accommodate your burn plan.

STUDENTS MUST BE FAMILIAR WITH THE LAYOUT OF THE BUILDING. THERE MUST BE NO SURPRISES.

To start the exercise, a Primary Instructor, Safety Officer, Fuel Unit Leader, and four crews must be present.

Assign a crew as the attack crew. All personnel in the attack crew must wear SCBA. The next crew will be the back-up crew. They too will wear SCBA. There must be an equal number of students on both crews. This is in case the back-up crew has to perform rescue on the attack crew. Both crews should have a hose line, each line coming from a different water supply. Each crew member **MUST** be familiar with the attached nozzles operation. Failure to do this can, and has, caused serious injury.

The next crew is the ventilation crew. They must have SCBA available but not necessarily on unless the situation dictates. They should have pike poles, appropriate ladders, axes, and anything else necessary to perform proper ventilation if, for example, there is going to be a demonstration of positive pressure ventilation.

The last crew is the fuel crew. They work under the direction of the Ignitions Officer. It is their job to refuel after each exercise. They also may need SCBA.

Illustration #8 on Page 39 depicts what a typical exercise scene may look like.

Speaking Points

- Heat shielding and barriers
 - Stages of fire
 - Indicators
 - Air flows
 - Heat transfer
 - Horizontal and vertical thermal balance
 - Ember production
 - Ash Production
 - Flame lengths
 - Water application
 - Production of gases
 - Anchor points
 - Ventilation
 - Overhead control
 - Roll over
 - Steam production (floor and ceiling)
 - Heat indicators
-

SECTION 17

ATTIC ATTACK EXERCISE

Attic fires are among the more difficult types of fire faced in the fire service today. During the FC 3A course, an exercise can be conducted to demonstrate effective methods of controlling an attic fire. The attic attack exercise is not one of the required evolutions for FC 3A but, if properly presented to a class, will add invaluable experience to the students participating. There is a lot of planning and coordination involved in teaching this portion of the class. When conducting an attic attack exercise, remember to continually re-evaluate the structural integrity of the roof and ceiling area both during and after the exercise as personnel will be working under and around it for the duration of the day's evolutions.

Tools used to combat attic fires vary by department and types of construction. One of the most efficient instructional tools this exercise is an attic or piercing nozzle. This nozzle can be placed into service and address fires that have unintentionally extended into the attic during interior attack without compromising the ceiling of the room currently being used or rooms of future use. This nozzle should be left connected to a charged line during the interior exercises. It should be kept in a location known by all personnel participating in the class and should be equipped with enough hose to reach all areas of the training structure.

The demonstration on how to use this tool should be done in an area where students may also view the attic area. Show half the students how to "stick" the nozzle while the other half watch the nozzle discharge in the attic, then rotate the students. A fire may be started in the attic if conditions permit. This requires a great deal of coordination and close supervision. It is also possible to show the operation of the nozzle by piercing down through a floor into a room below. Have the students in the room below as a vantage point to witness the application of water onto a potential fire in this area. Piercing interior walls can also serve for purpose of demonstration.

Illustration #9 on page 42 provides information on how to construct your own attic nozzle. It is inexpensive and simple to manufacture. The nozzle should be approximately 5 ½ feet long. This will give the average firefighter a 13 1/2 foot reach. This should be adequate for most dwellings or small businesses. To form the end, use a vise or a power spreader to pinch the tip of the pipe. The tip is then cut at a 55° angle.

Approximately twenty 1/8" holes should be drilled in the tip. This nozzle can

be used to pierce through drywall or plaster.

Speaking points:

- Coordinated ventilation efforts with interior attack
 - Initial application of water between unburned and burned
 - Structural stability
 - Overhead hazards (Air handling equipment)
 - Tools necessary to effect a proficient attic firefight
 - Many applications of a piercing nozzle. (Attics, vehicles, rubbish, etc.)
 - Applying foam through a piercing nozzle
-

SECTION 18

BASEMENT ATTACK EXERCISE

The opportunity to fight a basement fire during a FC 3A course is extremely valuable. While most fire departments carry a cellar nozzle, fire fighters rarely see it used properly. A FC 3A course is an opportunity to do so. A piercing nozzle may be used in this exercise also as many departments are carrying these as well. When a building with a basement is obtained, planning should include the use of it in the course.

The basement exercise usually comes after the interior attack phase is completed. A thorough inspection of the basement area must be made prior to including it as an exercise. Observe how fire will travel, how solid the construction is, what kind of entry there is into the basement, and how many exercises can be conducted.

Note: If the basement exercise is done prior to interior firefighting, particular safeguards must be in place to prevent personnel from falling through ventilation holes cut for the basement work.

The objective of this instruction is to build the fire fighter's confidence in attacking basement fires. All doors to the basement must be in proper working order. All door locking hardware shall be removed. The stairs should be strong enough to support several fire fighters in full protective gear, with charged hose lines. If a railing is used, make sure it is in safe condition. If the stairs and railing, or passage way into the basement, are not in safe order and cannot be repaired. **DO NOT ATTEMPT THIS EXERCISE.**

The basement must be thoroughly cleaned out so the only thing that will burn is what you've put there. Surprises can be dangerous. Cut a hole over the point where the fire will be located, and cover it with wood. The hole should only be large enough for a cellar or piercing nozzle. The wood covering should not be nailed down. If possible, cut a ventilation hole approximately 3' x 3' near a window on the leeward side of the building. Use wood to cover and do not nail it down.

Take only enough material into the basement to create the desired effect. This would include wood, paper, and straw. The wood might be in the form of pallets limited to 1 or 2. Place the material directly under the nozzle hole. The straw should be moist to develop a smoky fire, but not a hot fire. (See Illustration #10 on Page 45)

Take the students into the basement to become familiar with its configuration. Explain the exercise, and then have them practice moving in

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and out with full protective gear and charged hose lines.

If it is deemed unsafe to start a fire in the basement, performing the crew movement within the exercise can still help build their experience.

Three of the crews will be in SCBA. One crew will be the basement attack crew. They will be in full protective gear and have a charged 1 ½" or 1 ¾" line with a 95 gpm or larger nozzle. Safety line(s) shall be in place. (Staffed by Instructors)

Another crew operates the cellar or piercing nozzle. They also will be in full protective gear.

A third crew will be a back-up crew with full protective gear and will be set up the same as the cellar attack crew.

The fourth crew will be the ventilation crew. They will be in full protective clothing and have SCBA readily available. Their equipment will be two or more ventilation fans and a pulling tool, an appropriate length for basement ceiling height.

To start the exercise, position each crew. The Ignition Officer lights the crib. All personnel leave the basement. Make sure the fire has an adequate air supply or you may have a backdraft. It is recommended to leave the basement entry open. When the fire has reached the desired effect, use the cellar or piercing nozzle to knock the fire down. This operation should almost completely extinguish the fire. Leave the cellar or piercing nozzle flowing and have the attack crew enter the basement. At the same time, start the ventilation process.

NOTE: The use of a cellar or piercing nozzle while the attack crew is in the basement should be done at the discretion of the instructor as maintenance of a thermal layer can be a concern.

Speaking Points

- Piercing nozzles
- Cellar nozzles
- Ventilation for basement fires
- Stairwell safety
- Accessing basement fires
- Coordinated fire attack
- Thermal balance

SECTION 18

SECTION 18

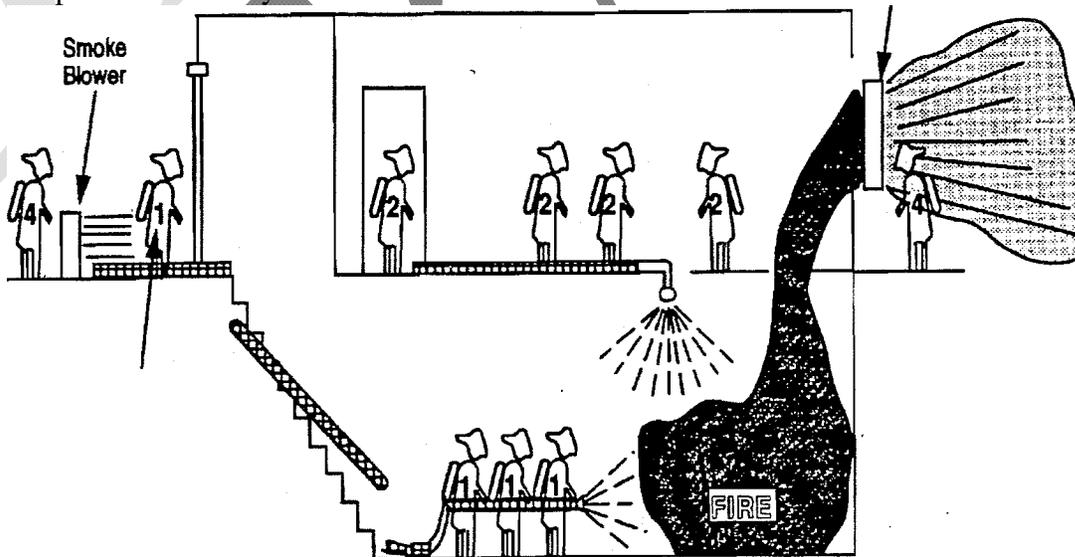


Pallets or wood with paper and wet and dry straw.



Smoke Blower

Entry firefighter should remain clear of the door to allow the smoke blower to operate effectively.



SECTION 19

FIRE CAUSE AND ORIGIN EXERCISE

Another exercise that may be included is the cause and origin exercise. A local investigator may be used as a speaker for this module. If this is done, support will be necessary to accommodate the speaker's preparation and possibly presentation of the course.

To prepare for this exercise, the building or room to be used must be free of all rubbish and debris. Ideally, the rooms used for cause and origin should be furnished as they would be if the structure were inhabited. If this is not possible for whatever reason, the class can still be effectively taught with good lecture and demonstrations in the burn rooms. Furniture to be used for this purpose can be obtained from several sources. Goodwill, the Salvation Army, and the local landfill are good sources.

If possible, each fire, when started, should be video taped. After the students have made a determination as to cause, show them the tape.

The fires should be set as both arson and accidental, i.e., frayed wires under the carpet versus flammable liquids splashed around the room. Utilize local arson investigators as speakers or for recommendations for this section. Five to seven different types of fire sets are preferred.

The fires should be set the day prior to the exercise. Someone should stay at each scene until the students arrive. When setting the fires, proper equipment and personnel should be available to assist the arson personnel.

The cause and origin exercise for firefighters can be conducted as follows. An arson instructor lets the students view each room without disturbing the scene. The students make decisions on how the fire started and spread. At this point, if resources allow, the instructor will take the students to another room set up with a monitor, video player, and chalk/white board.

Each scene is discussed and students can share their thoughts on what they think started the fires. The video is then shown of the actual causes of the fires. After viewing the video, the students are taken back to the fire scenes and the instructor takes them through the incident. Student groups should be kept small, usually 15 to 20 students.

If only one room of a structure is available for this section, more than one set can be utilized in the same room. The instructor can then walk students through and show indicators and patterns on the various sets in the same

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room.

Depending on the experience level of the students, it may be appropriate to just walk through the area of your sets and point out indicators and evidence of fire cause. This too can be done by a professional investigator.

Speaking Points:

- Ignition sources
 - Incendiary devices
 - Evidence preservation
 - Indicators
 - Burn patterns
 - Accelerants
 - Documentation
-

SECTION 20

EXTERIOR ATTACK EXERCISE

The final exercise conducted during a FC 3A course is the exterior attack exercise that will finally destroy the building. This is an all hands exercise utilizing all students from the day's training. Several considerations are necessary to prepare for this exercise. These considerations begin during the early planning stages, when determining if the structure is a viable candidate for a FC 3A course.

Exposures are the first consideration of the final burn. If they are too close, and of high value, they may pose a concern. In some cases the decision must be made not to burn the remainder of the building at all; Risk vs. Gain.

Exposure considerations include but are not limited to:

- Adjacent structures (outbuildings, garages, next door properties, etc...)
- Power lines
- Vegetation (wildland or residential)
- Traffic Hazards (freeways, highways, etc...)
- Downwind influences (hospitals, schools, airports or air traffic, Convalescent homes, sensitive commercial occupancies, etc...)

Weather can also be cause for concern before and during the final burn. Continually monitor the wind speed and direction, humidity, and temperature for changes that can negatively influence fire behavior and exposure potential.

When identifying exposures, consider location and type. Make sure there is enough water to supply the streams needed. Clear all burnable materials and debris from around the structure. This includes overhanging tree limbs. In wildland interface areas, fire breaks should be positioned prior to the day's activity as well.

Prior to ignition of the final burn, the Primary Instructor shall brief all other instructors on the final burn plan. This will include but not be limited to the following:

- Location of the fire load.
 - Line placement
 - Assignment of instructors to student crews.
 - Instructions for the application of water to the final burn and teaching tips specific to the structure.
 - Site specific hazards and or exposures.
-

- Communications.

Utilize the students to fire load the building. The amount of fuel load used and placement will vary based upon the acquired structure and should always be done based upon the final burn plan. Explain to the students what the final burn plan is. This will help them to understand the load placement and water application to accommodate the plan. Use available materials as much as possible. Kitchen cabinets, doors, and unused building materials from the day's evolutions will add more realism to the final burn. Consult AQMD for guidance as to the use of furnishings for fire load. Use caution not to over-load the structure, this could cause a rapid and unexpected build up of excessive heat as well as deprive the students an opportunity to witness actual fire behavior during the build up phase of the fire.

DO NOT USE ACCELERANTS. THE USE OF FLAMMABLE/COMBUSTIBLE MATERIALS DURING LIVE FIRE TRAINING IS STRICTLY FORBIDDEN.

Place instructional staff with students crews during the final burn. This is an opportunity for students to watch a fire start and spread, and to witness how long it takes to become well involved. It is also a valuable time for the instructors to answer questions about the build up, growth, and spread of fire. This is the perfect opportunity for instructors to predict fire behavior as it occurs in the presence of the students.

The final burn is a point in the instruction to show the effectiveness of various streams, including master streams. Adequate amounts of hose streams for all four sides of the fire and any exposures must be available. There should be a system of control to coordinate all hose streams.

Advance attack lines, knock down the fire, and back out. As the fire builds each time, demonstrate various attack methods. These include direct, indirect, combination, and the blitz attack utilizing a 2 ½" or master stream. The instructor should verbalize the desired effect prior to the application of water through the various attack methods so the students may also look for this effect as they advance lines and apply water. Examples of cooling eves to prevent molten tar from running down onto the firefighter during a window attack should be given. Take the time to discuss the effects of stream management and its effect of the fires behavior at this point. Examples include a fog patterns ability to push fire, the reach of a straight stream and deflection methods, controlling steam production and thermal balance etc...Line size should be discussed at this time as well as applications to different scenarios be given. Continue instruction during the exterior attack exercise until all training value has been utilized to its fullest.

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Coach the students to control the fire. Do not allow them to completely extinguish it. This will only create unnecessary delay in the exercise. Take advantage of the opportunity to critique each attack while waiting for the fire to rebuild. When exterior attacks have been completed and the building is being consumed by fire, keep hoselines in place. Water should be directed on the outside walls with a low gallonage setting. This will help the walls fold in as they are burned from the inside out.

Make certain that any masonry chimney, if present, has been undercut. Undercutting chimneys, breaking the corners of stucco walls, specific loading to address water tank towers, etc... should be done prior to the final burn as well. Have a good burn plan and execute according to that plan. Chimneys should not be allowed to stand freely following the burn. They can topple at a later time and cause damage or injury.

After the building is collapsed allow the fire to continue to consume as much flammable/combustible materials as possible prior to extinguishment. This will make overhaul much easier. Keep one or two charged hose lines available until the fire is completely out. Use this time to pick up equipment and critique the days events. Allow input from all assistant instructors. Reaffirm what the students have learned from the day's exercises.

Before turning the structure over to the property owner take the time to secure all hazards or flag them to assure safety. Secure the area with "FIRE LINE" flagging so as to have no passer-bys or children wander into the area. Masonry walls and/or chimneys that may not have fallen during the burn must be secured or made safe by knocking them down. It may be necessary to make prior arrangements with the property owner to secure heavy equipment to render safe the remains of the structure upon completion of the burn.

Note: A blanket of Class A foam over the burned area will quicken the overhaul.

Speaking Points

- Fire spread and behavior
 - Exterior attack for various fire locations
 - Straight stream and fog patterns
 - Construction and its influence on fire behavior
 - Flashover
 - Exposure protection
 - Various methods of exterior attack
-

SECTION 21

BURN SITE SECURITY

Site security starts when the buildings have been turned over to the agency conducting the training exercise. Vandals and other people are looking for salvageable items such as fixtures, doors, windows. These individuals have destroyed buildings so they were rendered useless for training.

If the class operates for more than one day, it may be necessary to have someone stay on the site until it is finished. These personnel should patrol for rekindle and possible theft. Make sure they have adequate equipment in case they have a problem, i.e., a quick attack unit, reserve engine, etc.

Request assistance from the local law enforcement agency, especially while the training is in progress. Traffic and crowd control, potential road closures, and security for firefighters and apparatus may be necessary.

A site security plan may have to be developed by the planning section. It may be a valuable asset to the course.

SECTION 22

SUPPLEMENTAL TOOLS AND ADDITIONAL INFORMATION

Hand Pump Fire Extinguisher

Several years ago, the fire service used a very handy tool called the hand pump or pump can. It is still used in several large cities as a mop-up or attack tool. It is the forerunner of the pressurized water extinguisher. These have been very useful for FC 3A courses.

These pump cans come in three sizes – 2.5, 3, and 5 gallons. The preferred size is the 2.5 gallon size. Most of these extinguishers have a short hose as standard equipment. It is recommended you change the hose to a six foot length. This will give you more flexibility to reach those areas that are not easily accessible. These extinguishers can be purchased from various fire equipment dealers.

Hand pump extinguishers can be used for mop up and overhaul, knocking down a small fire that was not planned, stand by after hose lines have been removed, and for night team patrol.

It is recommended that all FC 3A courses have at least one hand pump extinguisher at the burn site. The addition of this tool will make instruction of interior attack much easier. A method of refilling these units should also be available.

Thermal Imaging Camera (TIC)

Another tool that can prove quite valuable is a heat sensing device. There are many on the market and most fire departments use them. The agency sponsoring the burn will probably have one for the course. If not, contact one of the manufacturers of these items and they will probably have a demo for loan.

Bresnan Distributor Nozzle

This nozzle can be used for effective application of water for basement, and attic fires. Use of this nozzle is subject to its availability.

Piercing Nozzle

This nozzle may be used during a FC 3A class during attic and basement exercises. Lecture may include the use of this nozzle for vehicle and dumpster fires as well. It should be kept in service and nearby for the interior attack exercise to rapidly apply water to the attic areas in the instance of fire extension as it will not compromise the ceiling surface other than a small hole.

Construction tools and materials

SECTION 22

When conducting the planning session, it would be ideal to identify any other tools and equipment you might need. Supplies that should be kept available should include; dry wall (sheetrock), particle board, plywood, nails, screws, cleaning supplies for SCBA masks, tables and chairs. Tools that may be necessary include; hammers, saws, drills and screw guns, and a portable generator.

A tool of major consideration for a successful FC 3A course is some sort of ignition device. Matches, Lighters, or fusee's will serve this purpose very well.

Burn Fuels

Wood fuels in the form of lumber, or pallets, excelsior, or hollow core feed hay (HCFH) may be used for training in acquired structures and permanent burn building props found at training facilities. When using hay, the best type is hollow core feed hay (HCFH) since feed hay does not have chemicals present. When purchasing the hay, be sure to specifically ask for feed hay.

There is a problem that occurs in burn buildings, both live fire and in a burn training prop, called thermal shock. This occurs when the temperature in the fire room reaches temperatures above 600°F then is cooled rapidly by an advancing nozzle. The temperature can curve as much as 500°F in a matter of seconds. In a live fire building, this can cause damage to walls and ceilings and destroy the room for future use. In a burn building prop, this sudden shock can cause major damage to the room. It makes sense then, to use less fire load and have a fire that looks real but does not have heat extending throughout the training facility.

Note: Each pallet is capable of producing as much as 450,000 BTU's. This is based on the fact that 1 pound of wood can produce as much as 9000 BTU's. Therefore a fuel crib consisting of 3 pallets can produce as much as 1,350,000 BTU's. This is much more heat than is necessary to instruct in Fire Control 3A or 3B given the variables of room size and rate of heat production.

The purpose of this course is to demonstrate various methods of controlling fire. The instructor must be able to effectively anticipate and demonstrate fire control in a variety of construction types prior to presenting this course to the student.

We have heard instructors say, "I want them (the students), to feel the heat". If this is heard at a FC 3A /3B course, the instructor's qualifications should be questioned, as well as the instructor you hear say, "I don't feel it is a good burn unless I melt a few helmets or burn a few students". The Senior Instructor should remove these instructors from the class immediately and tell them why.

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Important Note: **DO NOT USE RICE STRAW.** The shaft of this type of straw contains a minute spore which is not destroyed during combustion. In fact the spore becomes airborne and can cause damage to the lungs much the same as "valley fever."

HCFH will last for several minutes and makes a crackling sound that adds realism to the situation. HCFH can also be moistened on the top layers to produce a very smoky atmosphere. One of the best tools to use for wetting the hay is the hand pump fire extinguisher. †

There are several methods that can be used with this system to achieve various effects.

Fuel Cribs

On several occasions, the use of shopping carts containing fuels for various exercises has been mentioned. These carts can be used for smoke training or interior attack and is a very effective method for developing a fuel crib. Obtaining shopping carts can be accomplished by asking a local supermarket. Other items to consider for use as a fuel crib include a military bed spring and frame, 55 gallon drum, or any device that will allow adequate air flow into the crib.

**NEVER USE FLAMMABLE OR COMBUSTIBLE LIQUIDS WHEN
CONDUCTING ANY FIRE CONTROL 3 COURSE!**

If you have any questions on how to use the above information please contact State Fire Training for further assistance.

(INSERT THE LATEST EDITION OF NFPA 1403)

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APPENDIX B

BLANK ICS FORMS

INCIDENT OBJECTIVES	1. Incident Name	2. Date	3. Time
4. Operational Period			
5. General Control Objectives for the Incident (include alternatives)			
6. Weather Forecast for Period			
7. General Safety Message			
8. Attachments (mark if attached)			
<input type="checkbox"/> Organization List - ICS 203	<input type="checkbox"/> Medical Plan - ICS 206	<input type="checkbox"/> (Other)	
<input type="checkbox"/> Div. Assignment Lists - ICS 204	<input type="checkbox"/> Incident Map	<input type="checkbox"/>	
<input type="checkbox"/> Communications Plan - ICS 205	<input type="checkbox"/> Traffic Plan	<input type="checkbox"/>	

9. Prepared by (Planning Section Chief)	10. Approved by (Incident Commander)
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APPENDIX B

BLANK ICS FORMS

Prepared by (Resource Unit Ldr.)	Approved by (Planning Sect. Ch.)	Date	Time
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ICS 204

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ICS 205

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