THE IMPLEMENTATION OF A STATEWIDE FIREFIGHTER PHYSICAL ABILITY TEST FOR THE NEW HAMPSHIRE FIRE SERVICE

EXECUTIVE DEVELOPMENT

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ABSTRACT

Fire departments in New Hampshire must hire firefighters who are physically able to perform the duties expected of the job. The Division of Fire Standards and Training offers a service each year of providing a physical ability test as a pre-hire requirement for the career fire departments in the state. The problem was that the Fire Standards and Training Commission adopted the Candidate Physical Ability Test (CPAT) from the International Association of Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) joint labor management wellness/fitness program with no plan to implement this test. The purpose of this applied research project was to determine the modifications necessary to implement the CPAT and gather information on how other training agencies in the Northeast area of the United States and other parts of the U.S. administer this test.

Descriptive research methods were used to answer the following questions:

1. How is the Candidate Physical Ability Test different from the current Physical Ability Test administered by the New Hampshire Division of Fire Standards and Training?
2. How is the Candidate Physical Ability Test being administered in the Northeast area of the United States and in other parts of the U.S. by training agencies?
3. Why is a test validated and is it necessary to validate a test?
4. What steps are required to implement and administer the Candidate Physical Ability Test?

A review of the literature available on the CPAT answered the questions of the differences between the current PAT and the CPAT, the importance and necessity of a valid test, and the implementation steps necessary to implement the CPAT. Informal feedback forms were electronically mailed to training agencies nationwide, and telephone conversations took place with Connecticut, New York, and Mississippi for information on how training agencies administer the CPAT.

It was the recommendation of this applied research project to adopt the CPAT in its entirety, accept the 31-step implementation plan developed by the author, and purchase the equipment necessary to administer the test. It was also recommended that the license required by the IAFF and IAFC initiative to legally administer the CPAT be secured.

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INTRODUCTION

> If you are a structural firefighter or officer and you're not familiar with the Candidate Physical Ability Test (CPAT), it's time to learn more. This joint project of the International Association of Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) is moving like a snow ball down hill, picking up speed and enthusiasts as it travels. It is "Coming Soon" to a fire department near you. (Berkman, 2001, p.1).

The State of New Hampshire Administrative Rules for firefighter entry level hiring state that each firefighter candidate must pass the Physical Ability Test (PAT) as prescribed in the rules. The New Hampshire Division of Fire Standards and Training (Division) provides an annual PAT for the purpose of hiring firefighters as a service to the career fulltime fire departments within the state. The PAT currently used was researched and established in 1992 by Deputy Chief Richard Martel of the Manchester Fire Department as part of his Advanced Research Project for the Executive Fire Officer Program. This test was adopted by the New Hampshire Fire Standards and Training Commission (Commission) to fulfill the pre-hire requirement as set forth in the administrative rules. This PAT has not been validated recently, and concerns have been expressed by members of the New Hampshire fire service as to its validity. This has become an issue, as test validation is costly and difficult to perform on a local level.

A search for a valid PAT then took place with little success, as any locally developed test was in the same predicament of cost and difficulties of validation. "A recent settlement to several years of litigation over the St. Paul Fire Department's entry-level test is now also being used to boost the CPAT (Floren, 1994, p.1)." With this in mind, the International Association or Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) initiative of the

Candidate Physical Ability Test (CPAT), that was validated by the U.S. Department of Justice, was then considered by the Commission as the direction to take in replacing the existing test.

The problem is the Commission has now adopted the CPAT without any plan to implement the test. Therefore the purpose of this applied research project is to determine the modifications necessary to implement the CPAT and gather information on how other training agencies in the Northeast area of the United States and other parts of the U.S. administer this test. Descriptive research methods were used to answer the following questions:

1. How is the Candidate Physical Ability test different from the current Physical Ability Test administered by the New Hampshire Division of Fire Standards and Training?
2. How is the Candidate Physical Ability Test being administered in the Northeast area of the United States and in other parts of the U.S. by other training agencies?
3. Why is a test validated and is it necessary to validate a test?
4. What steps are required to implement and administer the Candidate Physical Ability Test?

By researching the elements required to perform and administer the current PAT as compared to the CPAT, this research will consider the differences between these tests for the purposes of implementing the CPAT by the Division. Additionally, this study will examine the procedures necessary to implement and administer the CPAT by comparable fire service agencies in the Northeast area of the United States.

BACKGROUND AND SIGNIFICANCE

The New Hampshire Division Fire Standards and Training services the firefighters of New Hampshire as the fire training and certification agency. This is established by legislation, (RFP: 125P-12) as the only entity to legally provide training and certification in the state. This Legislation also establishes a commission to provide for curriculum review and acceptance, certification, and hiring standards for the fire service of New Hampshire. The two agencies are the Fire Standards and Training Commission (Commission), and the Division of Fire Standards and Training (Division).

The Commission's responsibility it to evaluate and approve curriculum for firefighter training that meets the National Fire Protection Association standards, certify firefighters to the curriculum and standards, and establish pre-hire requirements for entry level firefighters in the state. The Division's responsibility is to certify and hire instructors, deliver the curriculum through training courses, test candidates for certification, and provide the facilities and equipment for training. One other aspect of the Division is to provide customer service to the fire service of New Hampshire by administering the physical ability test, as set forth in the Administrative Rules of New Hampshire through the Commission for firefighter entry level pre-hire requirements.

The physical ability test has been a pre-hire requirement for firefighters since the mid 1980's. The original test was not validated nor did it provide any measurable reliability that firefighters were physically fit to enter the fire service. This situation led a fire officer from a career fire department and fire instructor for the Division to research and formulate a physical ability test that would be a measurable instrument as part of his Executive Fire Officer Program Applied Research Project (Martel, 1992, p.1).

> "Therefore neither a national nor local valid physical ability test for firefighter candidates was available to New Hampshire Fire Departments. (Martel, 1992, p.1)."

Martel did a study of existing task-based tests from three municipalities and documentation on existing physical ability tests. Martel also developed a survey to collect information from the New Hampshire fire service on valid and fair task based physical ability tests that could be duplicated anywhere in the state by most fire departments. The test was conducted on three separate dates with 251 individuals on both firefighter candidates and career firefighters, to validate the process. This physical ability test was then submitted to the Commission in October of 1992 for approval as the firefighter entrance exam, as it seemed to be reliable and somewhat valid. The Commission adopted the test on October 5, 1992 and until the present it was the test used for pre-hire requirements. The onset of lawsuits over physical ability tests, including the

one conducted by the St. Paul Minnesota Fire Department caused, the Commission to question the validity of the current test administered by the Division. The Commission then began a search for a test that would be "a fair and valid evaluation system in the selection of firefighters to ensure that all firefighter candidates posses the physical ability to complete critical tasks effectively and safely (IAFF, 1999)."

In its search the Commission learned of the International Association of Fire Fighters (IAFF) and the International Association of Fire Chiefs (IAFC) initiative of the Candidate Physical Ability Test (CPAT), an exam which was validated by the United States Department of Justice. After researching this initiative, the Commission adopted the CPAT as its new entrance exam for the pre-hire requirement. However, there is no plan at this time to implement the CPAT. Research of the literature available will examine the CPAT implementation requirements of the IAFF/IAFC initiative by the author of this Applied Research Project as well as the reasons and importance of test validation.

This research project was developed to satisfy the Executive Fire Officer Program Applied Research Project requirement and is associated with the Executive Development course at the National Fire Academy. This research project is relevant to the module, Unit 11 Legal issues p. SM 11-3, recruitment and performance standards, and the United States Fire Administration operational objective, "To promote within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization." This project is important to the author, as the physical ability entrance exam is an integral part of the organization in both customer service and assuring qualified firefighters for the fire service in New Hampshire.

LITERATURE REVIEW

The purpose of this literature review is to formulate a plan to implement the CPAT, compare the differences between the current physical ability test and the CPAT, and understand the importance of a valid exam, and how the CPAT is being administered in the Northeast area of the United States.

Research began with a comparison between the existing physical ability test that was adopted by the Commission in 1992 from a Applied Research Project for the Executive Fire Officer Program by Richard Martel, a Deputy Fire Chief in the Manchester New Hampshire Fire Department, (Martel, 1992). The current exam consists of nine events that must be completed in 11 minutes and 30 seconds to be successful. The candidate wears a turnout coat, helmet, a self contained breathing apparatus, long pants, sneakers with a two and one half pound weight strapped to each ankle, and gloves. A total of 2,275 feet in distance is required for the candidate to travel with penalties of five seconds given for each infraction if an event is not completed correctly. A non-completion or time beyond 11 minutes 30 seconds constitutes an unsuccessful completion (Appendix A). Although Martel validated the existing test using 251 firefighter candidates and career firefighters on timed task-based physical ability tests with information collected from several municipalities; there was no other outside entity to confirm the validation of this test. This is a concern as of late due to the possibility of lawsuits, such as the one with the ST. Paul Fire Department (Floren, 1994, p.1). With this in mind, the Commission decided to move forward with a validated test, the CPAT.

The CPAT consists of eight separate events (Appendix B). The test is a pass/fail based on a validated maximum total time of 10 minutes 20 seconds (Lindsey, 2000, p.4). Lindsey continues, “The candidate wears a 50 pound vest to simulate the protective gear a firefighter wears when combating a fire.” There is to be 85 feet between each event and each event must be placed in sequence required to best simulate their use in a fire scene (IAFF, 1999, p.22).”

Validation

> "For a test to be valid, it must do what it was designed to do (Westgaard, 1993, p. 340)."

Physical ability testing should be related to on-the job performance skills. "Research showed it to be a valid and reliable test, suitable for use at work sites (Sykes, 1995, p.28)." Dr. Kevin Sykes continues with, "This test has recently been introduced as an annual job-related test, conducted on all stations by trained fire personnel (Sykes, 1995, p.28)." Dr. Paul Davis, a well known authority on the subject of firefighter fitness and fire service physical ability testing states, "Validation, the process of systematically documenting critical, essential, and arduous tasks, is the touch stone for any meaningful program. Tasks should be selected based on the job task analysis and reflect the underlying capacities rather than the learned behaviors of skills that are later required on the job (Davis, 1998, p. 24-25)."

Continuing with test validation, Mathew D. Banks states, "Physical agility tests must accurately reflect the requirements of the job and cannot be arbitrarily discriminatory (Banks, 2001, p.2)." It is apparent to this researcher that a test must be validated before adopting and administering for any purpose, especially when involved with employment implications.

Physical Ability Tests Administered Nationally and in the Northeast

Research continued with a feedback form sent through electronic mail to fire training agencies across the United States as part of the National Association of Fire Training Directors (NAFTD), and personal conversations with training agencies who currently use the CPAT. This was a preliminary investigation to assist in the formulation of an implementation plan. Of the possible 50 requests sent over electronic mail of the NAFTD there were only 15 returns. Of the 15 returns, only three state training entities provide a CPAT as a service to the fire departments in their states. These were Connecticut, New York, and Mississippi. That information will be used as part of this research by the author in implementing the CPAT in New Hampshire.

"Regional testing not only appears to save the fire departments money, it can also save the firefighter candidates time and money. Instead of travelling to each community to take separate exams, firefighter candidates take one test and the results are forwarded to all participating departments to which that candidate has applied (Marohl, 2001, p.24)."

Implementation

> "The need for consistent test administration is essential to implementing a test that is fair to all candidates. Consistent test administration is achieved using well-defined administrative steps. These steps must follow the candidate from the time a test date is assigned to the completion of the CPAT (IAFF, 1999, p.17)."

> "All components of the CPAT must be fully implemented. The requisite components include: recruitment, mentoring, pre-test orientation with candidate preparation guide, training and education, transportability study, administration (proctor training, evaluation and data collection) and CPAT test (Elliot, 2001, p.3)."

There are other components necessary to consider in implementing the test. These are: licensing from the IAFF to administer the CPAT, logistical and environmental factors, site selection, prop positioning, scheduling, and proctoring. Outside of the research necessary to know and understand the CPAT initiative, implementation begins with licensing. The IAFF has recently launched a new licensing program to all holders and prospective holders of the CPAT license. "The new license continues to allow fire departments to administer the CPAT through joint regional testing venues but it makes it clear that the administration is the departments' responsibility. Licenses will now only be granted to those entities that actually administer the CPAT (Runnels, 2002, p.4)." The new procedure was initiated by the IAFF/IAFC Fire Service Joint Management Wellness-Fitness Task Force to protect the integrity of the CPAT program by ensuring that the program is implemented properly and as intended.

Logistical and environmental factors can have a significant effect on a candidate's test performance (IAFF, 1999 p.17). Site selection is equally important. The proper temperatures, flooring, and atmosphere are essential in order to optimize the candidate's safety and consistency in administration of the test. Equally important is positioning of the test props. It is imperative that props be located in an area providing sufficient space for candidates to maneuver their bodies and manipulate the props (IAFF, 1999, p.18).

All the components come together only when administration, scheduling, and proctoring are concise and consistent. Proper scheduling of candidates, given adequate information regarding the test and time to prepare physically, is essential to the impact on the candidate's performance. "Proctors are responsible for processing candidates through the CPAT and monitoring test events (IAFF, 1999, p.19)." " At least 15 proctors are involved for each test to monitor stations, reset props and escort candidates throughout the testing circuit (Piskura, 2001, p.10)." There are two types of proctors, lead proctors who give instruction and escort the candidate, and event proctors who are stationed at each event to ensure the prop is in place and the candidate performs the events as prescribed. Prior to conducting the test, administrators and proctors must be trained in the execution of their duties (IAFF, 1999, Appendix 4-1)."

Literature Review Summary

In summary, the findings of the reviewed literature have influenced this Applied Research Project by showing the need for a validated physical ability test, that other agencies using the CPAT must and do administer it as prescribed by the IAFF/IAFC initiative, the differences of the current test as compared to the CPAT, and the necessary requirements to properly implement the CPAT. The literature obtained and reviewed will be used to assist in the implementation and administration of the CPAT in New Hampshire. It is a process that must be fully implemented and if adopted, adopted in its entirety.

PROCEDURES

The desired outcome of this research project was to investigate the CPAT initiative by the IAFF and the IAFC in order to implement this test adopted by the New Hampshire Fire Standards and Training Commission. A literature review was conducted to review available materials necessary to understand the need for a valid test, identify the procedures needed to implement the CPAT, and research what others wrote about the CPAT. Descriptive research was used to gather information from literature and feedback forms that requested information of other agencies both nationally and in the northeast area of the United States. This was conducted for an understanding of how they administer the CPAT and any problems associated with conducting the test (Appendix C). Personal interviews over the phone were conducted with John Kowlski, CPAT coordinator for Connecticut, Donald Fischer, CPAT coordinator for New York, and Bill Warren, Fire Training Director for Mississippi, for information about how these agencies have implemented and administer the CPAT.

Research began with gathering literature from the New Hampshire Fire Academy, the State Library, and the Learning Resource Center of the National Fire Academy to review information about the CPAT. Articles from fire service trade magazines, previous Executive Fire Officer Applied Research Projects, texts on testing, IAFF/IAFC literature, and the CPAT manual were used to obtain information pertaining to this applied research project. Using this information this researcher then developed a single informal feedback form to obtain more information from other agencies that administer the CPAT.

Feedback forms (Appendix C) were electronically mailed to the National Association of Fire Training Directors (NAFTD) for a quick response to the questions for the information needed for the implementation of the CPAT. Questions relating to maintaining hire lists and databases, transportability studies, reciprocity, spare equipment, and implementation obstacles were necessary to provide for this research project.

Telephone interviews with Connecticut, New York, and Mississippi provided surprisingly similar responses. Discussions were related not only to the feedback form but also how the CPAT is administered in their state (Appendix D). The answers received confirmed that the CPAT is administered similarly from one entity to the next, as prescribed by the IAFF and the IAFC CPAT manual. Two of the three agencies administer the test outdoors, use it for hiring purposes, and adhere to the policies and procedures of the CPAT initiative.

Armed with the information received from the literature, feedback forms, and telephone interviews, meetings were held with the program coordinator for the Division's physical ability test. The implementation steps for the CPAT that the Division will now utilize were determined. The Division included the following steps in the CPAT implementation process.

1. Meet with the Professional Fire Fighters of New Hampshire / IAFF to discuss necessary implementing steps as required by the IAFF/IAFC and obtain the CPAT manual.
2. Secure the license necessary to administer the test.
3. Purchase equipment and props as per CPAT requirements. (CPAT Distributors Inc. Morovia, CA $52,857.24).
4. Secure sites to run CPAT around the state. Possibly National Guard Armories.
5. Transportability study statewide.
6. Choose and train proctors. Use existing proctors and retrain.
7. Discuss with fire departments the procedures and requirements of CPAT.
8. Develop candidate preparatory guide and orientation program guide. (Secure from IAFF).
9. Develop new application packet.
10. Develop successful completion card valid for one year.
11. CPAT coordinator for the Division and fulltime staff to administer test and provide orientation.

12. Develop and organize new written exam administration and non-continuous test necessary to qualify to take the CPAT.
13. Organize candidate test schedule and practice sessions.
14. Send CPAT chapter two and five to all career fire departments in the state.
15. Utilize existing administration plan on candidate check in and application process to verify candidate identification, proper clothing, medical history, complete paperwork, verify department hire list, and orientation completion.
16. Develop and send proctor orientation packet.
17. Hold proctor training and orientation.
18. Set up props and verify prop and proctor familiarization.
19. Order food and drinks for proctors on test days.
20. Order drinks and cups for candidates.
21. Set up administration assignments for staff members. Written test results, CPAT test results, grading exams, check in process, recording results and data entry, and runners to distribute results, proctor support, and EMT/Paramedic service.
22. Catalog candidate preparation and orientation guide along with videos in the New Hampshire Fire Academy library for loan.
23. Schedule test dates and sites.
24. Acquire test site for first test.
25. Advertise test date and location.
26. Schedule first candidate orientation, eight weeks prior to actual test date.
27. Hire proctors for test.
28. Do dry run with proctors and test candidates from career fire departments.
29. Double check list and run test.
30. Record results and notify participating fire departments.

31. Plan follow up meeting to review test and implementation changes if necessary.

Limitations

The feedback form was a preliminary investigation to assist in the formulation of an implementation plan. Due to time and cost constraints it was limited to training agencies that administer the CPAT for a more equivelant study and results. Of the possible 50 requests sent over the electronic mail of the NAFTD there were 15 returns. Of the 15 returns, only three state training agencies provide the CPAT as a service to the fire departments in their state. Because this research project is based on a state agency providing this type of service, no attempt was made to determine what local fire departments have done with their implementation plans nationally. Information from Connecticut, New York, and Mississippi was considered and used in this plan.

Definition of Terms

CPAT – Candidate Physical Ability Test, a valid physical ability test developed by the International Association of Fire Fighters and the International Association of Fire Chiefs joint initiative.

PAT – Physical Ability Test, a test to examine the physical preparedness of a firefighter candidate for entry into the fire service.

Candidate – An individual who is applying for an entry-level position in a full time career fire department.

SCBA – Self-contained Breathing Apparatus, used by a firefighter while fighting fires to prevent breathing toxic and hazardous smoke.

Turnout coat – A coat worn by a firefighter while fighting fires as a protective barrier.

Props – Equipment used by the candidate to perform a physical function.

NAFTD – National Association of Fire Training Directors, an association of all Fire Training Directors across the United States to allow for information exchange and assistance.

Transportability Study – The ability of a test to accurately measure skills and abilities of individuals in a jurisdiction other than the one in which it was created and validated.

Venue – A site where the floor surface must not give any candidate an unfair advantage or disadvantage, a surface with friction values similar to that of an unpolished concrete floor large enough to perform the events as required.

RESULTS

During the research process, the research questions provided the direction necessary for this applied research project. Implementation being the purpose of this project, each question was essential to the outcome of the plan.

The first question to be addressed was: How is the CPAT different from the current physical ability test administered by the New Hampshire Division of Fire Standards and Training? Research of the current physical ability test showed that a local fire officer and instructor for the Division had researched and developed the test as part of his Executive Fire Officer Program Applied Research Project (Martel, 1992). The test was validated by using 251 firefighter candidates and career firefighters in New Hampshire on three separate dates and through discussions with the three major fire departments in the state.

The test consists of nine events that must be completed in 11 minutes 30 seconds to be successful. The candidate wears a turnout coat, helmet, a self contained breathing apparatus, long pants, sneakers with a two and one half pound weight strapped to each ankle, and gloves. A total of 2,275 feet in distance is required for the candidate to travel with penalties of five seconds given for each infraction if an event is not completed correctly. A non-completion or time taken beyond 11 minute 30 seconds constitutes an unsuccessful completion. Although this

test was validated within the state, there was no outside agency utilized to confirm the validation of the test.

It was found that some of the events were similar to the CPAT. These included the ladder raise, ladder extension, dummy drag, and hose line advance. Distances between events varied, and the candidate had the option of walking or running. The current test has a longer time allowance and distance traveled as compared to the CPAT.

The CPAT consists of eight events that include a stair climb, hose drag, equipment carry, ladder raise and extension, forcible entry simulator, search, rescue, and ceiling breach and pull. The test must be completed in 10 minutes 20 seconds with 85 feet between each event and the candidate must only walk. Total travel distance including the events is 970 feet is a pass/fail test with no penalties given, you either do it correctly or you are finished. Both tests examine the physical ability of a candidate and are strenuous and demanding. The CPAT, however, is validated by the Department of Justice through the IAFF and IAFC joint collaborative initiative.

The second question to be addressed was: How is the CPAT being administered in the Northeast region of the United States and nationally by other training agencies? An informal feedback form was electronically mailed to all 50 states through the National Association of Fire Training Directors to gather information about who as a training agency administers the CPAT and how they do it. The Northeast was particularly used in this study, since the Division operates similarly to these other training agencies and offers the CPAT as a service to the fire service within the state.

Of the 50 requests sent, there were 15 responses. Of the 15 responses only 3 utilize the test as a training agency, the rest rely on local fire departments to administer the test. The three respondents were, Connecticut, New York, and Mississippi. The remainder of the Northeast state training agencies do not provide this service but rely on local authorities to administer their own tests.

Through telephone conversations with John Kowlski of Connecticut, Donald Fischer of New York, and Bill Warren of Mississippi, the author found that these state agencies provide the CPAT as a service to fire departments in their respective states. Connecticut and Mississippi test in one place or have a test site that the candidate must travel to. New York will travel around the state upon request. All three agencies mentioned the difficulties of maintaining proper floor surface, temperature, and atmosphere to maintain the desired venue required by the CPAT requirements.

The following were answers to the feedback form.

1. Do you use the CPAT for hiring purposes? 3 yes, 12 no.
2. How often do you administer the CPAT, and how many candidates do you process at each exam? Of the agencies queried most will administer the test on demand, though some schedule it periodically. The maximum number of candidates were 75 per test period to allow for ease of testing and fairness.
3. Do you use a central list for hiring purposes? 2 yes, 13 no. Connecticut and Mississippi utilize candidate lists for from which local departments hire. New York provides the test for departments.
4. Did you use an outside agency, or do your own test for the transportability study? 0 outside, 3 own, 12 NA.
5. Do you maintain a database of candidates who have taken the CPAT? 2 yes, 13 no. Connecticut and Mississippi maintain databases.
6. What are some of the obstacles you have encountered while implementing the CPAT? None were reported.
7. Do you administer the CPAT for other agencies beside your own? 0 yes, 15 no. Connecticut has agreed to reciprocity.

8. If yes to question #7, do you have an expiration date of when the CPAT results are no longer valid for hiring purposes? No answers were given.
9. Do you or will you accept reciprocity from other departments or states for those who have successfully completed the CPAT? 1 yes, 2 no , 13 NA. Connecticut is willing to be reciprocal with New Hampshire. New York and Mississippi are willing to allow outside candidates to come in and take the test.
10. Do you have spare equipment, (stair master, etc.) on standby? 0 yes, 15 no. Most do not have due to cost but are considering in the future.

It seems that once the test equipment has been purchased and implementation is in place, the process is straightforward if the CPAT guidelines are followed.

The third question addressed was: Why is a test validated and is it necessary? “For a test to be valid, it must do what it was designed to do (Westgaard, 1993, p.340).” Research showed that validation of tests is necessary to accurately reflect the requirements of the job and to show that the test is not arbitrarily discriminatory. For a test to be valid it must reflect what is being tested to an actual on-the-job performance skills. “Validation, the process of systematically documenting critical, essential, and arduous tasks, is the touch stone for any meaningful program. Tasks should be selected on the job task analysis and reflect the underlying capacities rather than the learned behaviors of skills that are later required on the job (Davis, 1998, p.24-25).” A test without validation is open to scrutiny and lawsuits, never mind the true test of a candidate being physically fit to do the job.

The final question to be addressed was: What steps are required to implement and administer the CPAT? With the information received from the literature, feedback form, and telephone interviews, meetings were held with the program coordinator for the physical ability test for the Division. The implementation steps for the CPAT that the Division will now utilize were determined. The Division included the following steps in the CPAT implementation process.

1. Meet with the Professional Fire Fighters of New Hampshire / IAFF to discuss necessary implementing steps as required by the IAFF/IAFC and obtain the CPAT manual.
2. Secure the license necessary to administer the test.
3. Purchase equipment and props as per CPAT requirements, (CPAT Distributors Inc. Morovia, CA $52,857.24).
4. Secure sites to run CPAT around the state. Possibly National Guard Armories.
5. Transportability study statewide.
6. Choose and train proctors. Use existing proctors and retrain.
7. Discuss with fire departments the procedures and requirements of CPAT.
8. Develop candidate preparatory guide and orientation program guide. (Secure from IAFF).
9. Develop new application packet.
10. Develop successful completion card valid for one year.
11. CPAT coordinator for the Division and fulltime staff to administer test and provide orientation.
12. Develop and organize new written exam administration and non-continuous test necessary to qualify to take the CPAT.
13. Organize candidate test schedule and practice sessions.
14. Send CPAT chapters two and five to all career fire departments in the state.
15. Utilize existing administration plan on candidate check in and application process to verify candidate identification, proper clothing, medical history, complete paperwork, verify fire department hire list, and orientation completion.
16. Develop and send proctor orientation packet
17. Hold proctor training orientation
18. Set up props and verify prop and proctor familiarization.
19. Order food and drinks for proctors on test days.

20. Order drinks and cups for candidates.
21. Set up administration assignments for staff members. Written test results, CPAT test results, grading exams, check in process, recording results and data entry, and runners to distribute results, proctor support, and EMT/Paramedic service.
22. Catalog preparation and orientation guide with videos in the New Hampshire Fire Academy library for loan.
23. Schedule test dates and test sites.
24. Acquire test site for first test.
25. Advertise test date and location.
26. Schedule first candidate orientation, eight weeks prior to actual test date.
27. Hire proctors for test.
28. Do dry run with proctors and test candidates from career fire departments.
29. Double check list and run test.
30. Record results and notify participating fire departments.
31. Plan follow up meeting to review test and implementation changes if necessary.

DISCUSSION

> "Using CPAT and the Connecticut Fire Academy to administer physical ability evaluations removes those concerns and distances the municipality from the test. This concept saves municipalities tens of thousands of dollars previously expended in conducting agility tests. Instead, the person is responsible for qualifying as a firefighter candidate. This also considerably limits municipal and fire department exposure to litigation resulting from real or perceived unfair testing administration (Piskura, 2001, p.9)."

Findings through literature review of implementing the CPAT identified various considerations about why and how to administer this test. The problem presented of not having an implementation plan once the Commission adopted the CPAT prompted the author to research and develop a plan necessary to implement this physical ability test. “While surveying the other departments, several of the agencies identified an interest in adopting the CPAT. All of the tasks within this test clearly meet the department’s job description for Firefighter and the test received overwhelming support from the staff (Anderson, 2001, p.18).”

When comparing the current physical ability test to the CPAT, there were many similarities in the types of events included. The allotted time for completion and total distance traveled were different. The current test has nine events that must be completed in 11 minutes 30 seconds, with a distance of 2,275 feet traveled during the event, with penalties of five seconds given for each infraction if an event, is not completed correctly, and various distances between each event. The CPAT has eight events that must be completed in 10 minutes 20 seconds with 85 feet between each station, with no penalties given. Either you do the event correctly or you are finished.

Research showed the CPAT was validated by the United States Department of Justice in cooperation with the International Association of Fire Fighters and International Association of Fire Chiefs and is becoming nationally accepted as the physical ability test used for pre-hire requirements. “The test needs professional validation. If a department chooses a “canned” or prepared test, transportability studies must be done to assure that the test is valid for the department (Marohl, 2001).” The current physical ability test being used by the Division was validated by the originator of the test using 251 firefighter candidates and career firefighters over three test dates with discussions among the major career fire departments in the state, in 1992. Career firefighters were used to see if there was any deviation between the two groups. The make up of the validating group was 213 firefighter candidates and 38 career firefighters. The career firefighters finished an average of 15 seconds slower than the firefighter candidates

(Martel, 1992, p.20). The issue with the physical ability test in New Hampshire is that no other outside agency was used to validate the test, and that leaves room for legal scrutiny. In the author's opinion this is critical in today's society, assuring a valid test for pre-hire requirements providing the best possible realistic test that concerns people and their potential career choice.

Informal feedback forms used for the purpose of determining what other training agencies use for a physical ability test yielded a small return. Most state training agencies leave the issue to local authorities (fire departments) to determine how they will test for pre-hire physical ability requirements. The three responding agencies Connecticut, New York, and Mississippi offer the CPAT. For the most part Connecticut and Mississippi administer the CPAT in much the same way as a service to the fire departments in the state, providing a list for hire as a service. This is done in a central location where firefighter candidates must travel in order to take the test. New York will travel around the state as requested. New Hampshire is willing at this point to travel to regional areas in the state at scheduled times to administer the CPAT as well as to offer it at the Fire Academy.

Test administration procedures are pre-determined by the IAFF/IAFC CPAT manual and cannot deviate from the process. Proctors must be trained, equipment and props have been ordered, candidate preparation and orientation guides will be developed, and checklists produced for organized administration. The Commission and Division at this point will have a valid, organized, and true to life physical ability test to offer for firefighter candidates and fire departments in New Hampshire as the pre-hire requirement test.

RECOMMENDATIONS

The problem, as previously stated, is that the Commission has now adopted the CPAT without a plan to implement the test. The purpose of this applied research project is to determine the modifications necessary to implement the CPAT and gather information on how other

training agencies in the Northeast area of the United States and other parts of the U.S. administer this test.

Based on the research in this applied research project, it is recommended that the Commission and Division also adopt the IAFF and IAFC license agreement and the 31-step plan developed by the author in implementing the CPAT as the pre-hire requirement. Armed with the information from the literature review, feedback form, and telephone conversations, it is necessary to adopt the test as developed with no changes, to complete a transportability study for the fire departments in the state who subscribe to the test, to train proctors, and to prepare candidate preparation and orientation guides. Candidates must have an orientation to the test a minimum of eight weeks prior to their scheduled testing time, with information on how to prepare for the test, and what is expected of them while performing during the CPAT.

Based on the research results, even though the current physical ability test and the CPAT are both demanding tests based on job tasks, validation is necessary to provide a fair and reliable test to prospective firefighters seeking employment in the fire service. The CPAT is versatile in that it can be administered in one location only, or given at various locations as long as the venue has been met, as reported by the author. It would be advantageous for New Hampshire to hold its CPAT in regional areas of the state. The purchase of additional equipment as a back up should there be equipment failure would be advisable, and performance of periodic transportability studies to maintain validity of the test is essential.

It would be beneficial to document and advertise the results of the data collected to encourage others to adopt a valid test and provide a solid base for the participating fire departments to rely on for the hiring list. Periodic meetings of the Division to improve the delivery and administration of the CPAT would be advantageous for future testing and assurance of qualified candidates.

If the CPAT is adopted and implemented, it is necessary to contact the International Association of Fire Fighters to secure a copy of the CPAT manual, obtain the license to administer the test and acquire permission to utilize printed material for use in the candidate preparation and orientation guides. The Division must be prepared to adopt the test in its entirety, purchase the equipment and props required, and provide the venue necessary.

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APPENDIX A

13 Point Test Component Sheet

The following test will be performed while wearing a protective coat, helmet, gloves, SCBA, and two 2½-pound ankle weights.

1. Ladder raise: Raise a 24-foot extension ladder weighing at least 70 pounds and no more than 100 pounds.

2. Ladder extension: Extend the top section of a 35-foot extension ladder and safely lower it completely by using the attached rope.

3. Dummy drag: Drag a 140-pound dummy for a distance of 120 feet.

4. Simulated roof ventilation: Complete 50 impacts with an 8-pound sledgehammer.

5. Hose hoist: Hoist a 2½-inch hose 50 feet using a pulley system.

6. Ladder handling: Remove a 24-foot ladder weighing at least 70 pounds and not more than 100 pounds from a rack at least 48 inches high and not more than 60 inches above the ground; carry it for 40 feet and replace it on the rack.

7. Hose line advance: Extend 150 feet of 2½-inch hose on a grass or dirt surface.

8. Attic crawl: Crawl across a simulated attic floor made of wood joists spaced 24 inches apart and 10 feet in length.

9. Equipment carry: Carry a rolled 50-foot length of 2½-inch hose that weighs approximately 42 pounds for a distance of 1,500 feet.

10. Continuity of physical ability test: The preceding test sections 1 through 9 will be performed continuously and completed in less than 11½ minutes.

11. Claustrophobia test: A test in which the candidate shall wear a completely-obscured self-contained breathing apparatus face mask, and shall negotiate a room or confined space by following the walls while crawling for a distance of 35 feet without standing up or removing the face mask.

12. Acrophobia test: Climb up and down an aerial ladder for a distance of 60 feet at an angle of at least 65 degrees but not greater than 75 degrees, without stopping for more than 30 seconds.

13. Balance test: Carry a coil of fire hose weighing at least 20 pounds across a beam three to four inches wide without falling off***.***

This is ITEM **B.**

NEW HAMPSHIRE DEPARTMENT OF SAFETY
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NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES
PART FIRE 702
PHYSICAL ABILITY TESTS REQUIREMENTS

PART Fire 702 PHYSICAL ABILITY TESTS REQUIREMENTS

Fire 702.01 Ladder Raise Test. A ladder raise shall require the candidate to raise a 24-foot extension ladder weighing at least 70 pounds and no more than 100 pounds. The ladder shall be placed 3 feet from the building, with the base placed against a block to limit movement. The candidate shall approach the end of the ladder farthest from the building, bend at the knees, grasp and lift the ladder and raise it past vertical. Ladder rungs or sides may be used to raise the ladder. (*effective. 10/21/93)*

Fire 702.02 Ladder Extension Test. Ladder extension shall require the candidate to fully extend the top section of a 35-foot extension ladder and safely lower it completely by using the attached rope. The candidate shall use the hand-over-hand method. If the halyard slips and the top section falls a distance of 3 or more rungs, a 15-second penalty shall be assessed. The candidate's feet shall remain flat on the ground at all times while raising and lowering the ladder. (*effective. 10/21/93)*

Fire 702.03 Dummy Drag Test. Dummy drag shall require the candidate to drag a 140-pound dummy 120 feet. The dummy shall be grasped under the armpits and the candidate shall walk backwards. (*effective. 10/21/93)*

Fire 702.04 Simulated Roof Ventilation Test. Simulated roof ventilation shall require the candidate to complete 50 impacts with an 8-pound sledgehammer. The hammer shall be raised at least 24 inches for every strike. (*effective. 10/21/93)*

Fire 702.05 Hose Hoist Test. Hose hoist shall require the candidate to hoist a 2½-inch hose 50 feet. A length of ½-inch rope shall be tied to the female end of a 50-foot 2½-inch hose. The rope shall be run through a pulley 50 feet above the ground and then to the ground to a second pulley. The candidate shall grasp the rope and pull, using the hand-over-hand method until the hose reaches the pulley. (*effective. 10/21/93)*

Fire 702.06 Ladder Handling Test. Ladder handling shall require the candidate to remove a 24-foot ladder that weighs at least 70 pounds but not more than 100 pounds from a rack, mounted at least 48 inches and not more than 60 inches above the ground, carry it 40 feet, and replace it on the rack. (*effective. 10/21/93)*

Fire 702.07 Hose Line Advance Test. Hose line advance shall require the candidate to extend 150 feet of 2½ -inch fire hose on a grass or dirt surface. The hose shall be in an extended accordion fold and shall have a 2½-inch play pipe nozzle. The nozzle shall be grasped by the candidate, held on the chest with the hose draped over a shoulder. The candidate shall move forward until the entire hose is stretched out. (*effective. 10/21/93)*

Fire 702.08 Attic Crawl Test. Attic crawl shall require the candidate to crawl across an attic floor made of wood joists 24 inches apart, 10 feet in length. (*effective. 10/21/93)*

Fire 702.09 Equipment Carry Test. Equipment carry shall require the candidate to carry a rolled 50-foot length of 2½ -inch hose that weighs approximately 42 pounds, 1,500 feet. The candidate shall use no additional equipment such as ropes or slings. (*effective. 10/21/93)*

Fire 702.10 Continuity of Physical Ability Tests. The physical ability tests described in Fire 702.01 through Fire 702.09 is a continuous test. Stops between stations shall only be allowed in a designated rehabilitation area. Candidates shall not be required to stop. (*effective. 10/21/93)*

Fire 702.11 Claustrophobia Test. A claustrophobia test in which the candidate shall wear a completely-obscured self-contained breathing apparatus face mask, and shall negotiate a room or confined space by following the walls while crawling for a distance of at least 35 feet without standing up or removing the face mask. (*effective. 10/21/93)*

Fire 702.12 Acrophobia Test. An acrophobia test, in which the candidate, without stopping for more than 30 seconds, shall climb up and down an unsupported aerial ladder at an angle of at least 65 degrees but not more than 75 degrees for a distance of 60 feet as measured from the tip of the ladder to the ground. (*effective. 10/21/93)*

Fire 702.13 Balance Test. A balance test in which the candidate is given a beam on a level floor, the beam shall measure 20 feet long by three to four inches wide, and shall be given a coil of fire hose weighing at least 20 pounds, and shall walk the beam carrying the length of hose without falling or stepping off the beam. The candidate may have 2 tries. (*effective. 10/21/93) (formerly Fire 702.14)*

APPENDIX B

Fire Service
Joint Labor Management
Wellness/Fitness Initiative
Candidate Physical Ability Test©
Orientation Guide

This candidate physical ability test (CPAT) consists of eight separate events. The CPAT is a sequence of events requiring you to progress along a predetermined path from event to event in a continuous manner. This test was developed to allow fire departments to obtain pools of trainable candidates who are physically able to perform essential job tasks at fire scenes.

This is a pass/fail test based on a validated maximum total time of 10 minutes and 20 seconds.

In these events, you wear a 5O-pound (22.68-kg) vest to simulate the weight of self-contained breathing apparatus (SCBA) and fire fighter protective clothing. An additional 25 pounds (11.34 kg), using two 12.5-pound (5.67-kg) weights that simulate a high-rise pack (hose bundle), is added to vour shoulders for the stair climb event.

Throughout all events, you must wear long pants, a hard hat with chin strap, work gloves and footwear with no open heel or toe. Watches and loose or restrictive jewelry are not permitted.

All props were designed to obtain the necessary information regarding your physical ability. The tools and equipment were chosen to provide the highest level of consistency, safety and validity in measuring your physical abilities. A schematic drawing of the CPAT is included in this orientation material; however, the course layout may vary in order to conform to the fire department's test area. The events and distances between events are always the same.

The events are placed in a sequence that best simulates fire scene events while allowing an 85-foot (25.91-m) walk between events. To ensure the highest level of safety and to prevent exhaustion, no running is allowed between events. This walk allows you approximately 20 seconds to recover and regroup before each event.

To ensure scoring accuracy by eliminating timer failure, two stopwatches are used to time the CPAT. One stopwatch is designated as the official test time stopwatch, the second is the backup stopwatch. If mechanical failure occurs, the time on the backup stopwatch is used. The

stopwatches are set to the pass/fail time and count down from 10 minutes and 20 seconds. If time elapses prior to the completion of the test, the test is concluded and you fail the test.

Event 1 Stair Climb

Equipment

This event uses a Step Mill stair climbing machine. The machine is positioned with one side up against a wall and an elevated proctor platform on the side opposite the wall. A single handrail on the wall side is available for you to grasp while mounting and dismounting the Step Mill. Additional steps are placed at the base of the Step Mill to assist you in mounting the Step Mill.

Purpose of Evaluation

This event is designed to simulate the critical tasks of climbing stairs in full protective clothing while carrying a high-rise pack (hose bundle) and climbing stairs in full protective clothing carrying fire fighter equipment. This event challenges your aerobic capacity, lower body muscular endurance and ability to balance. This event affects your aerobic energy system as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, and lower back stabilizers.

Event

For this event, you must wear two 12.5-pound (5.67-kg) weights on your shoulders to simulate the weight of a high-rise pack. Prior to the initiation of the timed CPAT, there is a 20-second warm-up on the Step Mill at a set stepping rate of 50 steps per minute. During this warm up period, you are permitted to dismount, grasp the rail or hold the wall to establish balance and cadence. If you fall or dismount the Step Mill during the 20-second warm-up period, you must remount the Step Mill and restart the entire 20-second warm-up period. You are allowed to restart the warm-up period twice. The timing of the test begins at the end of this warm-up period when the proctor who calls the word "START." There is no break in time between the warm-up period and the actual timing of the test. For the test, you must walk on the Step Mill at a set stepping rate of 60 steps per minute for 3 minutes. This concludes the event. The two 12.5-pound (5.67-kg) weights are removed from your shoulders. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

If you fall or dismount the Step Mill three times during the warm-up period, you fail the test. If you fall, grasp any of the test equipment or dismount the Step Mill after the timed CPAT begins, the test is concluded and you fail the test. During the test, you are permitted to touch the wall or handrail for balance only momentarily. However, if the wall or handrail is grasped or touched for an extended period of time, or if the wall or handrail is used for weight bearing, you are warned. Only two warnings are given. The third infraction constitutes a failure, the test time is concluded and you fail the test.

Event 2 Hose Drag

Equipment

This event uses an uncharged fire hose with a hoseline nozzle. The hoseline is marked at 8 feet (2.24 m) past the coupling at the nozzle to indicate the maximum amount of hose you are permitted to drape across your shoulder or chest. The hoseline is also marked at 50 feet (15.24 m) past the coupling at the nozzle to indicate the amount of hoseline that you must pull into a marked boundary box before completing the test.

Purpose of Evaluation

This event is designed to simulate the critical tasks of dragging an uncharged hoseline from the fire apparatus to the fire occupancy and pulling an uncharged hoseline around obstacles while remaining stationary. This event challenges your aerobic capacity, lower body muscular strength and endurance, upper back muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects your aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, lower back stabilizers, biceps, deltoids, upper back, and muscles of the forearm and hand (grip).

Event

For this event, you must grasp a hoseline nozzle attached to 200 feet (60 m) of 1 3/4-inch (44-mm) hose. Place the hoseline over your shoulder or across your chest, not exceeding the 8-foot (2.24-m) mark. You are permitted to run during the hose drag. Drag the hose 75 feet (22.86 m) to a pre-positioned drum, make a 90° turn around the drum, and continue an additional 25 feet (7.62 m). Stop within the marked 5 foot x 7 foot (1.52 m x 2.13 m) box, drop to at least one knee and pull the hoseline until the hoseline's 50-foot (15.24-m) mark crosses the finish line. During the hose pull, you must keep at least one knee in contact with the ground and knee(s) must remain within the marked boundary lines. This concludes the event. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

During the hose drag, if you fail to go around the drum or go outside of the marked path (cones), the test time is concluded and you fail the test. During the hose pull, you are warned if at least one knee is not kept in contact with the ground. The second infraction constitutes a failure, the test time is concluded and you fail the test. During hose pull, you are warned if your knees go outside the marked boundary line. The second infraction constitutes a failure, the test time is concluded and you fail the test.

Event 3 Equipment Carry

Equipment

This event uses two saws and a tool cabinet replicating a storage cabinet on a fire truck.

Purpose of Evaluation

This event is designed to simulate the critical tasks of removing power tools from a fire apparatus, carrying them to the emergency scene and returning the equipment to the fire apparatus. This event challenges your aerobic capacity, upper body muscular strength and endurance, lower body muscular endurance, grip endurance, and balance. This event affects your aerobic energy system as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

Event

For this event, you must remove the two saws from the tool cabinet, one at a time, and place them on the ground. Pick up both saws, one in each hand, and carry them while walking 75 feet (22.86 m) around the drum, then back to the starting point. You are permitted to place the saw(s) on the ground and adjust your grip. Upon return to the tool cabinet, place the saws on the ground, pick up each saw one at a time, and replace the saw in the designated space in the cabinet. This concludes the event. Walk 85 feet (25.91- m) within the established walkway to the next event.

Failures

If you drop either saw on the ground during the carry, the test time is concluded and you fail the test. You receive one warning for running. The second infraction constitutes a failure, the test time is concluded and you fail the test.

Event 4 Ladder Raise and Extension

Equipment

This event uses two 24-foot (7.32-m) fire department ladders. For your safety, a retractable lanyard is attached to the ladder that you raise.

Purpose of Evaluation

This event is designed to simulate the critical tasks of placing a ground ladder at a fire structure and extending the ladder to the roof or window. This event challenges your aerobic capacity, upper body muscular strength, lower body muscular strength, balance,

grip strength, and anaerobic endurance. This event affects your aerobic and anaerobic energy systems as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

Event

For this event, you must walk to the top rung of the 24-foot (7.32-m) aluminum extension ladder, lift the unhinged end from the ground, and walk it up until it is stationary against the wall. This must be done in a hand over hand fashion, using each rung until the ladder is stationary against the wall. You must not use the ladder rails to raise the ladder. Immediately proceed to the pre-positioned and secured 24-foot (7.32-m) aluminum extension ladder, stand with both feet within the marked box of 36 inches x 36 inches (91.44 cm x 91.44 cm), and extend the fly section hand over hand until it hits the stop. Then, lower the fly section hand over hand in a controlled fashion to the starting position. This concludes the event. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

If you miss any rung during the raise, one warning is given. The second infraction constitutes a failure, the test time is concluded and you fail the test. If you allow the ladder to fall to the ground or the safety lanyard is activated because you released your grip on the ladder, the test time is concluded and you fail the test. If during the ladder extension, your feet do not remain within marked boundary lines, one warning is given. The second infraction constitutes a failure, the test time is concluded and you fail the test. If you do not maintain control of the ladder in a hand over hand manner, or let the rope halyard slip in an uncontrolled manner, your test time is concluded and you fail the test.

Event 5 Forcible Entry

Equipment

This event uses a mechanized device located 39 inches (1 m) off the ground that measures cumulative force and a 10-pound (4.54-kg) sledgehammer.

Purpose of Evaluation

This event is designed to simulate the critical tasks of using force to open a locked door or to breach a wall. This event challenges your aerobic capacity, upper body muscular strength and endurance, lower body muscular strength and endurance, balance, grip strength and endurance, and anaerobic endurance. This event affects your aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, glutes, triceps, upper back, trapezius, and muscles of the forearm and hand (grip).

Event

For this event, you must use a 10-pound (4.54-kg) sledgehammer to strike the measuring device in the target area until the buzzer is activated. During this event, you must keep your feet outside the toe-box at all times. After the buzzer is activated, place the sledgehammer on the ground. This concludes the event. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

If you do not maintain control of the sledgehammer and release it from both hands while swinging, it constitutes a failure, the test time is concluded and you fail the test. If you step inside the toe-box, one warning is given. The second infraction constitutes a failure, the test time is concluded and you fail the test.

Event 6 Search

Equipment

This event uses an enclosed search maze that has obstacles and narrowed spaces.

Purpose of Evaluation

This event is designed to simulate the critical task of searching for a fire victim with limited visibility in an unpredictable area. This event challenges your aerobic capacity, upper body muscular strength and endurance, agility, balance, anaerobic endurance, and kinesthetic awareness. This event affects your aerobic and anaerobic energy systems as well as the following muscle groups: muscles of the chest, shoulder, triceps, quadriceps, abdominals, and lower back.

Event

For this event, you must crawl through a tunnel maze that is approximately 3 feet (91.44 cm) high, 4 feet (121.92 cm) wide and 64 feet (19.51 m) in length with two 90° turns. At a number of locations in the tunnel, you must navigate around, over and under obstacles. In addition, at two locations, you must crawl through a narrowed space where the dimensions of the tunnel are reduced. Your movement is monitored through the maze. If for any reason, you choose to end the event, call out or rap sharply on the wall or ceiling and you will be assisted out of the maze. Upon exit from the maze, the event is concluded. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

A request for assistance that requires the opening of the escape hatch or opening of the entrance/exit covers constitutes a failure, the test time is concluded and you fail the test.

Event 7 Rescue

Equipment

This event uses a weighted mannequin equipped with a harness with shoulder handles.

Purpose of Evaluation

This event is designed to simulate the critical task of removing a victim or injured partner from a fire scene. This event challenges your aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects your

aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, trapezius, deltoids, latissimus dorsi, biceps, and muscles of the forearm and hand (grip).

Event

For this event, you must grasp a 165-pound (74.84-kg) mannequin by the handle(s) on the shoulder(s) of the harness (either one or both handles are permitted), drag it 35 feet (10.67- m) to a pre-positioned drum, make a 180° turn around the drum, and continue an additional 35 feet (10.67 m) to the finish line. You are not permitted to grasp or rest on the drum. It is permissible for the mannequin to touch the drum. You are permitted to drop and release the mannequin and adjust your grip. The entire mannequin must be dragged until it crosses the marked finish line. This concludes the event. Walk 85 feet (25.91 m) within the established walkway to the next event.

Failures

If you grasp or rest on the drum at any time, one warning is given. The second infraction constitutes a failure, the test time is concluded and you fail the test.

Event 8 Ceiling Breach and Pull

Equipment

This event uses a mechanized device that measures overhead push and pull forces and a pike pole. The pike pole is a commonly used piece of equipment that consists of a 6-foot long pole with a hook and point attached to one end.

Purpose of Evaluation

This event is designed to simulate the critical task of breaching and pulling down a ceiling to check for fire extension. This event challenges your aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects your aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).

Event

For this event, you must remove the pike pole from the bracket, stand within the boundary established by the equipment frame, and place the tip of the pole on the painted area of the hinged door in the ceiling. Fully push up the 60-pound hinged door in the ceiling with the pike pole three times. Then, hook the pike pole to the 80-pound ceiling device and pull the pole down five times. Each set consists of three pushes and five pulls. Repeat the set four times. You are permitted to stop and, if needed, adjust your grip. Releasing your grip or allowing the pike pole handle to slip, without the pike pole falling to the ground, does not result in a warning or constitute a failure. You are permitted to re-establish your grip and resume the event. If you do not successfully complete a repetition, the proctor calls out "MISS" and you must push or pull

the apparatus again to complete the repetition. This event and the total test time ends when you complete the final pull stroke repetition as indicated by a proctor who calls out "TIME."

Failures

One warning is given if you drop the pike pole to the ground. If you drop the pike pole, you must pick it up without proctor assistance and resume the event. The second infraction constitutes a failure, the test time is concluded and you fail the test. If your feet do not remain within the marked boundary lines, one warning is given. The second infraction constitutes a failure, the test time is concluded and you fail the test.

Test Forms

You must present valid identification and sign a number of forms before taking the CPAT. Prior to the start of the CPAT you must complete the Sign-in Form. You are provided an opportunity to review a video detailing the CPAT and the failure points. It is your responsibility to ask questions if you do not understand any parts of the test events or procedures. You are required to complete the Waiver and Release Form. At the conclusion of the CPAT, you must sign the CPAT Evaluation Form. Additionally, prior to leaving the rehabilitation area, you must complete and sign the Rehabilitation Form. If you fail to complete and sign any of these forms you fail the CPAT.

Preparation Guide for the Candidate Physical Ability Test

The job of a fire fighter is one of the most physically demanding jobs in North America. It requires high levels of cardiopulmonary endurance, muscular strength and muscular endurance. The Candidate Physical Ability Test consists of eight critical physical tasks that simulate actual job duties on the fireground. This test is physically demanding and requires that you be physically fit to be successful. This guide was developed to assist you with physically preparing yourself for the test.

What is physical fitness in the Fire Service?

Physical fitness is the ability to perform physical activities, such as job tasks, with enough reserve for emergency situations and to enjoy normal activities when off duty.

What are the major areas of fitness?

The major areas of physical fitness include:

- flexibility
- cardiopulmonary endurance
- muscular strength
- muscular endurance

Body composition is also considered an area of physical fitness. It should be noted that excess body fat increases the workload placed upon the body and decreases the body's ability to dissipate heat.

A proper physical fitness program should be specific for the job of a fire fighter. It should include all of the major areas of physical fitness mentioned above and be a total body program. Although this is best accomplished at a gym with an array of equipment, this guide also includes exercises that require little or no equipment.

Hydration

Proper hydration is critical. All candidates should drink water before exercise, during exercise and after
exercise. Additionally, you should drink at least one liter qf water one hour before your CPAT.

Warm-up & Flexibility

A warm-up serves several functions, including:

- increased blood flow to working muscles and joints
- decreased likelihood of injury
- decrease in pre-event tension
- possible improved performance
- improved flexibility

A proper warm-up should begin with a few of minutes of the same type of activity you are about to do at a very light exertion level. For example, if you are preparing to go running you should run in place or for a short distance at a very easy pace.

The next step is to stretch to improve flexibility and further your warm-up. There are two phases of stretching. The first phase is the easy stretch. In this phase, you should hold the stretch for 10 seconds in a range of motion that produces only mild tension. This prepares you for the second phase, the developmental stretch. In this phase, you should move slightly farther to the point where you feel a little more tension. This should be held for another 10 seconds.

New CPAT Licenses Issued

It has now been over five years since we joined together to form the IAFF/IAFC Fire Service Joint Labor Management Wellness-Fitness Task Force. The Task Force has dedicated itself to developing a holistic, positive rehabilitating and educational approach to wellness and fitness programs in the fire service. One of our major initiatives was the Candidate Physical Ability Test Program (CPAT). Since its release in 1999, many jurisdictions have successfully implemented this valuable program. In our ongoing effort to ensure that the CPAT is being used properly and only as intended, we have recently enacted a new licensing policy that will affect the way in which this program can legally be used. This procedure was instituted by the Task Force to protect the integrity of the CPAT Program and the interests of the members of the IAFF and the IAFC by ensuring that the program is implemented properly and as intended.

Under the new policy, authorization to use the CPAT will only be granted to fire departments and other entities that will actually be administering the CPAT Program. This policy is necessary because we have found that many entities, including IAFF local affiliates who obtained CPAT licenses, are not actually administering the program, but rather have transferred their license to administer the program to their employer or other testing entities. Such a transfer technically violates the express terms of the licensing agreement, and has effectively eroded our ability to ensure that the test is being utilized in the prescribed manner. Limiting the granting of licenses to only those entities that actually administer the program will enable us to better ensure that the CPAT is only being administered in strict compliance with the licensing agreement. Third party testing organizations that merely administer the physical testing portion of the CPAT will not be issued licenses. These organizations must operate under the license of the jurisdiction that is responsible for administering the overall CPAT Program. In addition, a fire department that uses another fire department's resources and facilities to test candidates must apply for a license of their own. Another primary objective of our new policy is to maintain more comprehensive records about how the CPAT is being used by parties to whom licenses have been granted.

Pursuant to this policy, we will revoke any license that was previously granted to use the CPAT program on April 14, 2002. Please understand that this is not intended to deprive any fire department of the benefits of this initiative, and it will not have that effect if you follow the following procedure. If you are currently utilizing the CPAT under a licensing agreement, or are contemplating use of the CPAT, you need to indicate the same by completing the application found at www.iaff.org/safe/cpatlicense. This is true even if you have previously received a license from the IAFF, since the new policy dictates revocation of any license issued prior to February 15, 2002. Over 2,000 letters have been sent to fire departments and IAFF local unions regarding the licensing procedure.

If you are requesting a reissued license based upon existing use of the CPAT within the limits set forth in the previous licensing agreement, it will generally be granted promptly, and issuance of the new license agreement should not interrupt on-going utilization of the CPAT. Again, since all previously granted licenses will be revoked on April 14th, you need to apply for a new license as soon as possible.

As soon as an acceptable application for a new CPAT license is completed and received by us, setting forth the terms and conditions that you will be required to follow in your utilization of the test, a new license will be forwarded to you.

http://www.iaff.org/safe/content/wellness/CPATLicensestory.htm

CPAT License Application

Welcome to the electronic version of the CPAT License Application Form. Please complete ALL the applicable sections below regarding your use of the IAFF/IAFC Fire Service Joint Labor Management Wellness-Fitness Initiative's Candidate Physical Ability Test (CPAT) Program and SUBMIT. The application will be reviewed, and if approved, a license sent to the one individual so selected on this form.

1. Fire Department or Agency:

2. Fire Chief or Agency Administrator:

   Name:
   Title:
   Address:
   Address:
   Address:
   Telephone:
   FAX:
   E-mail:

____ Please send the CPAT License to this individual at this address.

3. Individual Responsible for CPAT Program Recruiting:

   Name:
   Title:
   Address:
   Address:
   Address:
   Telephone:
   FAX:
   E-mail:

____ Please send the CPAT License to this individual at this address.

4. Individual Responsible for CPAT Program Mentoring:

   Name:
   Title:
   Address:
   Address:
   Address:
   Telephone:
   FAX:
   E-mail:

____ Please send the CPAT License to this individual at this address.

5. Individual Responsible for CPAT Program Testing:

Name:
Title:
Address:
Address:
Address:
Telephone:
FAX:
E-mail:

____ Please send the CPAT License to this individual at this address.

6. Have you implemented the CPAT Program for recruiting, mentoring and testing fire department candidates?

Yes No

a. If yes, was the CPAT Program implemented in full accordance with the terms and conditions set forth in the CPAT Manual?

Yes No

b. If yes, how many tests have been performed to date

_____ Tests

c. If your jurisdiction has not implemented the CPAT program, will you be implementing it within:

___ Next three months ___ During Calendar Year 2002 ___ In 2003 or later

7. Has the CPAT Equipment been purchased through the CPAT established vendors, specified in the CPAT Manual?

Yes No

a. If yes, was the Equipment purchased:

___ As a package through CPAT Distribution

___ Though individual vendors, specified in the CPAT Manual?

b. If other vendors were utilized, please provide their names(s) and address(es):
Name:
Equipment Item:
Address:
Address:
Address:

Name:
Equipment Item:
Address:

Address:
Address

Name:
Equipment Item:
Address:
Address:
Address:

8. Has the CPAT course been arranged in accordance with the guidelines for test equipment and design as found in Appendix 5 of the CPAT Manual?

Yes No

9. Has the CPAT Test been conducted directly by your employer or was an external source (e.g. consultant, other fire department, state/provincial fire academy, university/college) used to conduct the CPAT Test?

___ Internally, by jurisdiction ___Externally, by outside organization

a. If completed externally, please provide the name and address of the organization:

Name:
Address:
Address:
Address:

10. Was a transportability study completed?

Yes No

a. If yes, was the study completed:

___ Internally, by employer ___ Externally, by outside vendor/consultant

b. If completed externally, please provide the name and address of the vendor/consultant:

Name:
Address:
Address:
Address:

c. Were incumbent fire fighters involved in the transportability study?

Yes No

11. What did your recruiting efforts consist of (check all that apply):

___ Newspaper Notice/Advertisement

___ Radio Notice/Advertisement
___ Television Notice/Advertisement
___ Website Notice/Advertisement
___ School/College Recruitment Drive
___ Minority/Women's Organizations
___ Community Outreach
___ Job Fairs
___ Other (briefly describe):

12. How many weeks were the candidates given to prepare for the test from the time of their orientation?

_____ Weeks

13. Were the candidates given the opportunity to handle and practice with the CPAT equipment during the preparatory period?

Yes No

Was a mentoring program established?

Yes No

a. If yes, were incumbent fire fighters involved in the mentoring process?

Yes No

14. Was a physical fitness training program established for potential recruits?

Yes No

15. Is your CPAT Test conducted:

___ Outdoors ___ Indoors

a. If outdoors, are environmental considerations factored in the decision to test?

Yes No

16. Were the proctors trained prior to testing in accordance with appendix 4-1 of the CPAT manual?

Yes No

17. Are you using the pass/fail cutoff time as prescribed in the CPAT Manual?

Yes No

18. Have you collected data on the number of male, female and minority applicants and the pass/fail rates of each?

Yes No

a. If yes, would you be willing to share your data with the IAFF and IAFC?

Yes No

By completing and submitting this application, the applicant agrees to only use the CPAT in whole, in complete accordance with the CPAT Manual and only for the purpose of candidate recruiting, mentoring and testing.

Name of individual who completed form:

Revised: 02/12/02.

APPENDIX C

State of New Hampshire
Department of Safety
Division of Fire Standards and Training
New Hampshire Fire Academy

Executive Fire Officer Program
Candidate Physical Ability Test Feedback Instrument

This feedback instrument was prepared as part of an implementation plan of the International Association of Fire Fighters and International Association of Fire Chiefs Candidate Physical Ability Test (CPAT) for the New Hampshire Fire Academy, and an Executive Fire Officer Program applied research project by the author. The purpose of this tool is to identify the procedures, and obstacles to implementing the CPAT throughout the United States. Thank you for assisting me by completing this short questionnaire.

1. Do you use the CPAT for hiring purposes? _3_ Yes 12__ No

2. How often do you administer the CPAT, and how many candidates do you process at each exam? New York 10 –15 annually , up to 75 candidates per test date, Mississippi monthly varies candidates, Connecticut periodically 75 candidates.

3. Do you use a central list for hiring purposes? _2_ Yes _13_ No

4. Did you use an outside agency, or do your own test for the Transportability study? __ Outside agency _3_ own 12 NA

5. Do you maintain a database of candidates who have taken the CPAT? _2_ Yes _13_ No

6. What are some of the obstacles you have encountered while implementing the CPAT? New York Moving the equipment around. All Weather, venue, place to hold the test. Not many obstacles.

7. Do you administer the CPAT for other agencies beside your own? __ Yes _3_ No 12 NA

8. If yes to question #7, do you have an expiration date of when the CPAT results are no longer valid for hiring purposes? __ Yes __ No _____ How long

9. Do you or will you accept reciprocity from other departments or states for those who have successfully completed the CPAT? _1_ Yes _2_ No 13 NA

10. Do you have spare equipment, (stair master, etc.) on standby? _1_ Yes _14_ No

APPENDIX D

Personal Telephone Conversation Questionnaire
With Connecticut, New York, & Mississippi
In Respect to Implementation of CPAT

1. Do you provide CPAT as a service to your departments?

   Connecticut: Yes, run on a periodic basis.

   New York: Yes, Administered on demand from departments.

   Mississippi: Yes, run periodically.

2. Do you maintain a hiring list?

   Connecticut: Yes kept for fire departments.

   New York: No

   Mississippi: Yes

3. Where do you administer the CPAT?

   Connecticut: At Meriden a central location outside.

   New York: Move around the state as department's request, indoors, usually at Armories.

   Mississippi: One location at training facility outdoors.

4. Are you reciprocal with other states?

   Connecticut: Willing to be reciprocal with New Hampshire, non others at the moment.

   New York: Have never had a request.

   Mississippi: No, will allow other states to come and take the test.

5. Do you have spare equipment?

   Connecticut: Yes

   New York: Yes

   Mississippi: No

6. What obstacle have you encountered with CPAT?

   Connecticut: Maintaining the equipment, Weather, Scheduling.

New York: The biggest obstacle is physically moving the equipment.

Mississippi: Maintaining equipment, Weather, Floor surface.

7. Did you do a transportability study?

Connecticut: Did our own

New York: Did our own

Mississippi: Did our own

8. How often do you administer the CPAT?

Connecticut: Periodically spring to fall.

New York: Whenever requested by department, weather permitting.

Mississippi: Once a month weather permitting.

9. Do you maintain a database of candidates?

Connecticut: Yes

New York: No

Mississippi: Yes