

V. Medical Standards for Municipal Fire Fighters

(1) Medical Evaluation²: Each municipal fire department shall establish and implement a pre-placement medical evaluation for candidates. During the medical evaluation, the physician shall evaluate each individual to ascertain the presence of any medical conditions listed in these standards, or any medical conditions not listed which would prevent the individual from performing the essential job functions without posing significant risk. It is our intent to encourage the use of professional judgment regarding medical conditions which are not specifically listed. A candidate shall not be certified as meeting the medical requirements of these standards if the physician determines that the candidate has any Category A medical condition specified in these standards. Furthermore, a candidate shall not be certified as meeting the medical requirements of these standards if the physician determines that the candidate has a Category B medical condition that is of sufficient severity to prevent the candidate from performing the essential functions of a fire fighter without posing a significant risk to the safety and health of him/herself or others.

(2) The medical evaluation shall minimally include the following:

- (a) a comprehensive medical history
- a baseline (pre-placement) occupational history, including significant past exposures and training and experience with personal protection equipment
- (b) height and weight
- (c) vital signs: pulse, respiration, blood pressure, and, if indicated, temperature
- (d) dermatological system
- (e) ears, eyes, nose, mouth, throat
- (f) cardiovascular system
- (g) respiratory system
- (h) gastrointestinal system
- (i) genitourinary system
- (j) endocrine and metabolic systems
- (k) musculoskeletal system
- (l) neurological system
- (m) mental status evaluation. Based on the severity, diagnosis, and impairment of any identified behavior or condition, the initial examiner is encouraged to consider referral of the applicant to a doctoral level mental health professional for further evaluation. In general, the current or recent use of psychotropic medications shall be reviewed by a Board certified psychiatrist.
- (n) audiometry. Audiograms should be performed in an ANSI approved "soundproof" booth (ANSI S3.1-1977) with equipment calibrated to ANSI standards (ANSI S3.6-1973). If a booth is unavailable, the test room sound pressure levels should not exceed those specified in the Federal OSHA noise regulations (29 CFR 1910.25),
- (o) visual acuity and peripheral vision testing

² Physicians are also advised to ascertain the presence of any medical conditions listed in the National Fire Protection Association's (NFPA) 1582, *Medical Requirements for Fire Fighters*, which would prevent the individual from performing the essential job functions without posing a significant risk.

- (p) pulmonary function testing. A baseline test should be administered by an experienced individual. Only a spirogram that is technically acceptable and demonstrates the best efforts by an individual should be used to calculate the Forced Vital Capacity (FVC) and Forced Expiratory Volume in one second (FEV1.0),
- (q) review of hepatitis B immunization status including hepatitis B surface antibody titer if immunized, offer of hepatitis B vaccine if not fully immunized or HbgAb titer less than 10 and documentation of declination if vaccination refused by examinee,
- (r) a Purified Protein Derivative (PPD) test for tuberculosis, based on individual departmental infection control plans, and,
- (s) other diagnostic testing where indicated.

(3) The medical evaluation process should also include:

- (a) a review of tetanus immunization status.

(4) All medical information collected as part of a medical evaluation shall be considered confidential medical information, and shall be released by the physician only with the specific written consent of the candidate. The physician shall report the results of the medical evaluation to the candidate, including any medical condition(s) disclosed during the medical evaluation, and the recommendation whether the candidate is medically certified to perform as a fire fighter. The physician shall inform the fire department only whether or not the candidate is medically certified to perform as a fire fighter. The specific written consent of the candidate shall be required to release confidential medical information to the fire department, following guidelines set forth under the Americans With Disabilities Act (ADA) and other relevant policies.

(5) Category A and Category B Medical Conditions:

- (a) A Category A Medical Condition is a medical condition that would preclude an individual from performing the essential job functions of a municipal fire fighter in a training or emergency operational environment, or present a significant risk to the safety and health of that individual or others.
- (b) A Category B Medical Condition is a medical condition that, based on its severity or degree, may or may not preclude an individual from performing the essential job functions of a municipal fire fighter in a training or emergency operational environment, or present a significant risk to the safety and health of that individual or others.

(6) The Commonwealth of Massachusetts Human Resources Division (HRD) has adopted the National Fire Protection Association (NFPA) 1582, Standard on Medical Requirements for Firefighters as the medical standards for municipal firefighters.

The current NFPA firefighter medical standards Chapter 6 Medical Evaluations of Candidates is as follows. All content shown within NFPA 1582 remains the property of the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, and shall not be reproduced without the written consent of the NFPA. By making the content of NFPA 1582 available for this document, the NFPA does not waive any rights in the copyright of NFPA 1582.

The following shall be components of the Initial Medical Standards for Firefighters NFPA 1582, Chapter 6 Medical Evaluations of Candidates:

6.1 Medical Evaluation. A medical evaluation of a candidate shall be conducted prior to the candidate being placed in training programs or fire department emergency response activities.

6.1.1 The medical evaluation of a candidate shall include a medical history, examination, and any laboratory tests required to detect physical or medical conditions(s) that could adversely affect his/her ability to safely perform the essential job tasks outlined in 5.1.1.

6.1.2 The standard shall provide specific requirements for candidates based on medical conditions that can affect a candidate's ability to safely perform the essential job tasks of a firefighter.

6.2 Medical Conditions Affecting ability to Safely Perform Essential Job Tasks.

6.2.1 Medical conditions that can affect a candidate's ability to safely perform essential job tasks shall be designated either Category A or Category B.

6.2.2 Candidates with Category A medical conditions shall not be certified as meeting the medical requirements of this standard.

6.2.3 Candidates with Category B medical conditions shall be certified as meeting the medical requirements of this standard only if they can perform the essential job tasks without posing a significant safety and health risk to themselves, members, or civilians.

6.3 Head and Neck.

6.3.1 Head

6.3.1.1 Category A medical conditions shall include the following:

- (1) Defect of skull preventing helmet use or leaving underlying brain unprotected from trauma.
- (2) Any skull or facial deformity that would not allow for a successful fit test for respirators used by that department.
- (3) Any head condition that results in the candidate not being able to safely perform one or more of the essential job tasks.
- (4)

6.3.1.2 Category B medical conditions shall include the following:

- (1) Deformities to the skull such as depressions or exostoses
- (2) Deformities of the skull associated with evidence of disease of the brain, spinal cord, or peripheral nerves
- (3) Loss or congenital absence of the bony substance of the skull.

6.3.2 Neck

6.3.2.1 Category A medical conditions shall include any neck condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

6.3.2.2 Category B medical conditions shall include the following;

- (1) Thoracic outlet syndrome
- (2) Congenital cysts, chronic draining fistulas, or similar lesions
- (3) Contraction of neck muscles

6.4 Eyes and Vision

6.4.1 Category A medical conditions shall include the following;

- (1) Far visual acuity less than 20/40 binocular, corrected with contact lenses or spectacles, or far visual acuity less than 20/100 binocular for wearers of hard contacts or spectacles, uncorrected
- (2) Color perception – monochromatic vision resulting in inability to use imaging devices such as thermal imaging cameras
- (3) Monocular vision
- (4) Any eye condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

6.4.2 Category B medical conditions shall include the following:

- (1) Diseases of the eye such as retinal detachment, progressive retinopathy, or optic neuritis
- (2) Ophthalmological procedures such as radial keratotomy, Lasik procedure, or repair of retinal detachment
- (3) Peripheral vision in the horizontal meridian of less than 110 degrees in the better eye or any condition that significantly affects peripheral vision in *both* eyes

6.5 Ears and Hearing.

6.5.1 Category A medical conditions shall include the following:

- (1) Chronic vertigo or impaired balance as demonstrated by the inability to tandem gait walk
- (2) On audiometric testing, average hearing loss in the unaided better ear greater than 40 decibels (dB) at 500 Hz, 1000 Hz, 2000 Hz, and 3000 Hz when the audiometric device is calibrated to ANSI A24.5, *Audiometric Device Testing*
- (3) Any ear condition (or hearing impairment) that results in the candidate not being able to safely perform one or more of the essential job task.
- (4) Hearing aid or cochlear implant

6.5.2 Category B medical conditions shall include the following:

- (1) Unequal hearing loss
- (2) Average uncorrected hearing deficit at the test frequencies 500 Hz, 1000 Hz, 2000 Hz, and 3000 Hz greater than 40 dB in either ear
- (3) Atresia, stenosis, or tumor of the auditory canal
- (4) External otitis, recurrent
- (5) Agenesis or traumatic deformity of the auricle
- (6) Mastoiditis or surgical deformity of the mastoid
- (7) Meniere's syndrome, labyrinthitis, or tinnitus
- (8) Otitis media, recurrent
- (9) Surgical procedures to correct or improve hearing or other conditions of the ear

6.6 Dental

6.6.1 Category A medical conditions shall include any dental condition that results in inability to safely perform one or more of the essential job tasks.

6.6.2 Category B medical conditions shall include the following:

- (1) Diseases of the jaws or associated tissues
- (2) Orthodontic appliances
- (3) Oral tissues, extensive loss
- (4) Relationship between the mandible and maxilla that interferes with satisfactory postorthodontic replacement or ability to use protective equipment

6.7 Nose, Oropharynx, Trachea, Esophagus, and Larynx.

6.7.1 Category A medical conditions shall include the following:

- (1) Tracheostomy
- (2) Aphonia
- (3) Any nasal, oropharyngeal, tracheal, esophageal, or laryngeal conditions that results in inability to safely perform one or more of the essential job tasks including fit testing for respirators such as N-95 for medical response, P-100 for particulates and certain vapors, and SCBA for fire and hazmat operations

6.7.2 Category B medical conditions shall include the following:

- (1) Congenital or acquired deformity
- (2) Allergic rhinitis
- (3) Epistaxis, recurrent
- (4) Sinusitis, recurrent
- (5) Dysphonia
- (6) Anosmia
- (7) Tracheal stenosis
- (8) Nasopharyngeal polyposis
- (9) Obstructive apneas (e.g. sleep apnea) if unresponsive to treatment

6.8. Lungs and Chest Wall

6.8.1 Category A medical conditions shall include the following:

- (1) Active hemoptysis
- (2) Current empyema
- (3) Pulmonary hypertension
- (4) Active tuberculosis
- (5) A forced vital capacity (FVC) or forced expiratory volume in 1 second (FEV 1) less than 70 percent predicted even independent of disease
- (6) Obstructive lung diseases (e.g., emphysema, chronic bronchitis, asthma) with an absolute FEV1/FVC less than 0.70 and with either the FEV1 below normal or both the FEV1 and the FVC below normal (less than 0.80) (see references in F.2)
- (7) Hypoxemia – oxygen saturation less than 90 percent at rest or exercise desaturation by 4 percent or to less than 90 percent (exercise testing indicated when resting oxygen is less than 94 percent but greater than 90 percent)
- (8) Asthma – reactive airways disease requiring bronchodilator or corticosteroid therapy for 2 or more consecutive months in the previous 2 years, unless the candidate can meet the requirement in 6.8.1.1
- (9) Any pulmonary conditions that results in the candidate not being able to safely perform one or more of the essential job tasks
- (10) Lung transplant

6.8.1.1 A candidate who has in the past required bronchodilator, corticosteroid, or anti-inflammatory therapy (e.g., leukotriene receptor antagonists, such as Montelukast) for asthma but who does not believe he/she has asthma shall be evaluated by a pulmonologist or other expert in asthmatic lung diseases, such as an allergist, to determine if the candidate meets all the following:

- (1) Asthma has resolved without symptoms off medications for 2 years.
- (2) Allergen avoidance or desensitization has been successful.
- (3) Spirometry demonstrates adequate reserve (FVC and FEV1 greater than or equal to 90 percent) and no bronchodilator response measured off all bronchodilators on the day of testing.

- (4) Normal or negative response to provocative challenge testing (e.g., cold air, exercise (12 METs) methacholine, histamine, mannitol, or hypertonic saline) or negative response to exercise challenge.

6.8.1.1.1 Challenge testing shall be performed off all anti-inflammatory medications (e.g., inhaled or oral steroids, leukotriene receptor antagonists) for 4 weeks preceding the test, off all antihistamines (e.g., oral allergy medications) for 1 week, and off all bronchodilators on the day of testing.

6.8.2 Category B medical conditions shall include the following:

- (1) Pulmonary resectional surgery, chest wall surgery, and pneumothorax
- (2) Pleural effusion
- (3) Fibrothorax, chest wall deformity, and diaphragm abnormalities
- (4) Interstitial lung diseases
- (5) Pulmonary vascular diseases or history of pulmonary embolism
- (6) Bronchiectasis, if abnormal pulmonary function or recurrent infections
- (7) Infectious diseases of the lung or pleural space
- (8) Cystic fibrosis
- (9) Central or obstructive apnea (e.g., sleep apnea) if unresponsive to treatment

6.9 Aerobic Capacity.

6.9.1 Category A medical conditions shall include an aerobic capacity less than 12 metabolic equivalents (METs) (12 METs = 42 mL O₂/kg/min).

6.10 Heart and Vascular System.

6.9.1 Heart

6.10.1.1 Category A medical conditions shall include the following:

- (1) Coronary artery disease, including history of myocardial infarction, angina pectoris, coronary artery bypass surgery, coronary angioplasty, and similar procedures
- (2) Cardiomyopathy or congestive heart failure, including signs or symptoms of compromised left or right ventricular function or rhythm, including dyspnea, S3 gallop, peripheral edema, enlarged ventricle, abnormal ejection fraction, and/or inability to increase cardiac output with exercise
- (3) Acute pericarditis, endocarditis, or myocarditis
- (4) Syncope, recurrent
- (5) A medical condition requiring an automatic implantable cardiac defibrillator or history of ventricular tachycardia or ventricular fibrillation due to ischemic or valvular heart disease, or cardiomyopathy
- (6) Third-degree atrioventricular block
- (7) Cardiac pacemaker
- (8) Hypertrophic cardiomyopathy, including idiopathic hypertrophic subaortic stenosis
- (9) Any cardiac condition that results in the candidate not being able to safely perform one or more of the essential job tasks
- (10) Heart transplant

6.10.1.2 Category B medical conditions shall include the following:

- (1) Valvular lesions of the heart, including prosthetic valves
- (2) Recurrent supraventricular or atrial tachycardia, flutter, or fibrillation
- (3) Left bundle branch block
- (4) Second-degree atrioventricular block in the absence of structural heart disease
- (5) Sinus pause more than 3 seconds

- (6) Ventricular arrhythmia (history or presence of multifocal PVCs or nonsustained ventricular tachycardia on resting EKG with or without symptoms; history or presence of sustained ventricular tachycardia with or without symptoms)
- (7) Cardiac hypertrophy or hypertrophic cardiomyopathy
- (8) History of a congenital abnormality
- (9) Chronic pericarditis, endocarditis, or myocarditis

6.10.2 Vascular System.

6.10.2.1 Category A medical conditions shall include the following;

- (1) Hypertension
 - a. Uncontrolled or poorly controlled hypertension
 - b. Hypertension with evidence of end organ damage
- (2) Thoracic or abdominal aortic aneurysm
- (3) Carotid artery stenosis or obstruction resulting in greater than or equal to 50 percent reduction in blood flow
- (4) Peripheral vascular disease resulting in symptomatic claudication
- (5) Any other vascular condition that results in inability to safely perform one or more of the essential job tasks

6.10.2.2 Category B medical conditions shall include the following:

- (1) Vasospastic phenomena such as Raynaud's phenomenon
- (2) Thrombophlebitis, thrombosis, or varicosities
- (3) Chronic lymphedema due to lymphadenopathy or venous valvular incompetency
- (4) Congenital or acquired lesions of the aorta or major vessels
- (5) Circulatory instability as indicated by orthostatic hypotension, persistent tachycardia, and peripheral vasomotor disturbances
- (6) History of surgical repair of aneurysm of the heart or major vessel

6.11 Abdominal Organs and Gastrointestinal System.

6.11.1 Category A medical conditions shall include the following:

- (1) Presence of uncorrected inguinal/femoral hernia regardless of symptoms
- (2) Any gastrointestinal condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.11.2 Category B medical conditions shall include the following:

- (1) Cholecystitis
- (2) Gastritis
- (3) GI bleeding
- (4) Acute hepatitis
- (5) Hernia including the following:
 - a. Uncorrected umbilical, ventral, or incisional hernia if significant risk exists for infection or strangulation
 - b. Significant symptomatic hiatal if associated with asthma, recurrent pneumonia, chronic pain, or chronic ulcers
 - c. Surgically corrected hernia more than 3 months after surgical correction
- (6) Inflammatory bowel disease or irritable bowel syndrome
- (7) Intestinal obstruction
- (8) Pancreatitis

- (9) Diverticulitis
- (10) History of gastrointestinal surgery
- (11) Peptic or duodenal ulcer or Zollinger-Ellison syndrome
- (12) Asplenia
- (13) Cirrhosis, hepatic or biliary
- (14) Chronic active hepatitis

6.12 Metabolic Syndrome.

6.12.1 Category A medical conditions shall include metabolic syndrome with aerobic capacity less than 12 METs.

6.12.2 Category B medical conditions shall include metabolic syndrome with aerobic capacity 12 METs or greater.

6.13 Reproductive System. See B.1.2.1

6.13.1 Category A medical conditions shall include any genital condition that results in inability to safely perform one or more of the essential job tasks.

6.13.2 Category B medical conditions shall include the following:

- (1) Pregnancy, for its duration
- (2) Dysmenorrhea
- (3) Endometriosis, ovarian cysts, or other gynecologic conditions
- (4) Testicular or epididymal mass

6.14 Urinary System.

6.14.1 Category A medical conditions shall include the following:

- (1) Renal failure or insufficiency requiring continuous ambulatory peritoneal dialysis (CAPD) or hemodialysis
- (2) Any urinary condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.14.2 Category B medical conditions shall include the following:

- (1) Diseases of the kidney
- (2) Diseases of the ureter, bladder, or prostate

6.15 Spine and Axial Skeleton.

6.15.1 Category A medical conditions shall include the following:

- (1) Scoliosis of thoracic or lumbar spine with angle greater than or equal to 40 degrees
- (2) History of spinal surgery with rods that are still in place
- (3) Any spinal or skeletal condition producing sensory or motor deficit(s) or pain due to radiculopathy or nerve root compression
- (4) Any spinal or skeletal condition causing pain that frequently or recurrently requires narcotic analgesic medication
- (5) Cervical vertebral fractures with multiple vertebral body compression greater than 25 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (partial, moderate, severe), abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery

- (6) Thoracic vertebral fractures with vertebral body compression greater than 50 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (severe – with or without surgery), abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery
- (7) Lumbosacral vertebral fractures with vertebral body compression greater than 50 percent; evidence of posterior element involvement, nerve root damage, disc involvement, dislocation (partial, moderate, severe), fragmentation, abnormal exam, ligament instability, symptomatic, and/or less than 6 months post injury or less than 1 year since surgery
- (8) Any spinal or skeletal condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.15.2 Category B medical conditions shall include the following:

- (1) Congenital or developmental malformations of the back, particularly those that can cause instability, neurological deficits, pain or limit flexibility
- (2) Scoliosis with angle less than 40 degrees
- (3) Arthritis or the cervical, thoracic, or lumbosacral spine
- (4) Facet atrophism, high lumbosacral angle, hyperlordosis. Schmorl's nodes, Scheuermann's disease, spina bifida occulta, spondylolisthesis, spondylolysis, or transitional vertebrae
- (5) History of infections or infarcts in the spinal cord, epidural space, vertebrae, or axial skeletal joints
- (6) History of discectomy or laminectomy or vertebral fractures
- (7) History of spine fusion that results in instability; reduced mobility, strength, or range of motion; or persistent pain.

6.16 Extremities

6.16.1 Category A medical conditions shall include the following:

- (1) Joint replacement, unless all the following conditions are met:
 - a. Normal range of motion without history of dislocations post-replacement
 - b. Repetitive and prolonged pulling, bending, rotations, kneeling, crawling, and climbing without pain or impairment
 - c. No limiting pain
 - d. Evaluation by an orthopedic specialist who concurs that the candidate can complete all essential job tasks listed in Chapter 5
- (2) Amputation or congenital absence of upper-extremity limb (hand or higher)
- (3) Amputation of either thumb proximal to the mid-proximal phalanx
- (4) Amputation or congenital absence of lower-extremity limb (foot or above) unless the candidate meets all of the following conditions:
 - a. Stable, unilateral below-the-knee (BKA) amputation with at least the proximal third of the tibia present for a strong and stable attachment point with the prosthesis
 - b. Fitted with a prosthesis that will tolerate the conditions present in structural firefighting when worn in conjunction with standard fire fighting PPE
 - c. At least 6 months of prosthetic use in a variety of activities with no functional difficulties
 - d. Amputee limb healed with no significant inflammation, persistent pain, necrosis, or indications of instability at the amputee limb attachment point
 - e. No significant psychosocial issues pertaining to the loss of limb or use of prosthesis
 - f. Evaluated by a prosthetic or orthopedic specialist with expertise in the fitting and function of prosthetic limbs who concurs that the candidate can complete all essential job tasks listed in Chapter 5, including wearing personal protective ensembles and SCBA while climbing ladders, operating from heights, and walking or crawling in the dark along narrow and uneven surfaces that may be wet or icy
 - g. Has passed the department's applicant physical ability test as a condition of appointment without accommodations or modification of the protocol

- (5) Chronic nonhealing or recent bone grafts
- (6) History of more than one dislocation of shoulder without surgical repair or with history of recurrent shoulder disorders within the last 5 years with pain or loss of motion, and with or without radiographic deviations from normal
- (7) Any extremity condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.16.2 Category B medical conditions shall include the following:

- (1) History of shoulder dislocation with surgical repair
- (2) Significant limitation of function of shoulder, elbow, wrist, hand, or finger due to weakness, reduced range of motion, atrophy, unequal length, absence, or partial amputation
- (3) Significant lack of full function of hip, knee, ankle, foot, or toes due to weakness, reduced range of motion, atrophy, unequal length, absence, or partial amputation
- (4) History of meniscectomy or ligamentous repair of knee
- (5) History of intra-articular, malunited, or nonunion of upper or lower extremity fracture
- (6) History of osteomyelitis, septic, or rheumatoid arthritis
- (7) Bone hardware such as metal plates or rods supporting body during healing

6.17 Neurological Disorders

6.17.1 Category A medical conditions shall include the following:

- (1) Ataxias of heredo-degenerative type
- (2) Cerebral arteriosclerosis as evidenced by a history of transient ischemic attack, reversible ischemic neurological deficit, or ischemic stroke
- (3) Hemiparalysis or paralysis of a limb
- (4) Multiple sclerosis with activity or evidence of progression within previous 3 years
- (5) Myasthenia gravis with activity or evidence of progression within previous 3 years
- (6) Progressive muscular dystrophy or atrophy
- (7) Uncorrected cerebral aneurysm
- (8) All single unprovoked seizures and epileptic conditions, including simple partial, complex partial, generalized, and psychomotor seizure disorders other than as allowed in 6.17.1.1
- (9) Dementia (Alzheimer's and other neurodegenerative diseases) with symptomatic loss of function or cognitive impairment (e.g., less than or equal to 28 on Mimi-Mental Status Exam)
- (10) Parkinson's disease and other movement disorders resulting in uncontrolled movements, bradykinesia, or cognitive impairment (e.g., less than or equal to 28 on Mini-Mental Status Exam)
- (11) Any neurological conditions that results in the candidate not being able to safely perform one or more of the essential job tasks

6.17.1.1 To be medically qualified a candidate shall meet all of the following:

- (1) No seizures for 1 year off all anti-epileptic medications or 5 years seizure free on a stable medical regimen
- (2) Neurologic examination is normal
- (3) Imaging (CAT or MRI scan) studies are normal
- (4) Awake and asleep EEG studies with photic stimulation and hyperventilation are normal
- (5) A definitive statement from a qualified neurological specialist that the candidate meets the criteria specified in 6.17.1.1(1) through 6.17.1.1(4) and that the candidate is neurologically cleared for fire-fighting training and the performance of a fire fighter's essential job tasks

6.17.2 Category B medical conditions shall include the following:

- (1) Congenital malformations

- (2) Migraine
- (3) Clinical disorders with paresis, dyscoordination, deformity, abnormal motor activity, abnormality of sensation, or complaint of pain
- (4) History of subarachnoid or intraparenchymal hemorrhage
- (5) Abnormalities from recent head injury such as severe cerebral contusion or concussion

6.18 Skin

6.18.1 Category A medical conditions shall include the following:

- (1) Metastatic or locally extensive basal or squamous cell carcinoma or melanoma
- (2) Any dermatologic condition that would not allow for a successful fit test for any respirator required by the fire department
- (3) Any dermatologic condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.18.2 Category B medical conditions shall include the following:

- (1) Skin conditions of a chronic or recurrent nature (eczema, cystic acne, psoriasis) that cause skin openings or inflammation or irritation of the skin surface
- (2) Surgery or skin grafting
- (3) Mycosis fungoides
- (4) Cutaneous lupus erythematosus
- (5) Raynaud's phenomenon
- (6) Scleroderma (skin)
- (7) Vasculitic skin lesions
- (8) Atopic dermatitis/eczema
- (9) Contact or seborrheic dermatitis
- (10) Stasis dermatitis
- (11) Albinism, Darier's disease, ichthyosis, Marfan syndrome, neurofibromatosis, and other genetic conditions
- (12) Folliculitis, pseudo-folliculitis, miliaria, keloid folliculitis
- (13) Hidradenitis suppurativa, furuncles, carbuncles, or Grade IV acne (cystic)
- (14) Mechano-bullous disorders (epidermolysis bullosa, Hailey pemphigus, porphyria, pemphigoid)
- (15) Urticaria or angioedema

6.19 Blood and Blood-Forming Organs

6.19.1 Category A medical conditions shall include the following:

- (1) Hemorrhagic states requiring replacement therapy
- (2) Sickle cell disease (homozygous)
- (3) Clotting disorders
- (4) Any hematological conditions that results in inability of safely perform one or more of the essential job tasks

6.19.2 Category B medical conditions shall include the following:

- (1) Anemia
- (2) Leukopenia
- (3) Polycythemia vera
- (4) Splenomegaly
- (5) History of thromboembolic disease
- (6) Any other hematological condition that results in inability to safely perform essential job tasks

6.20. Endocrine and Metabolic Disorders

6.20.1 Category A medical conditions shall include the following:

- (1) Type 1 diabetes mellitus, unless a candidate meets all of the following criteria:
 - a. Is maintained by a physician knowledgeable in current management of diabetes mellitus on a basal/bolus (can include subcutaneous insulin infusion pump) regimen using insulin analogs
 - b. Has demonstrated over a period of at least 6 months the motivation and understanding required to closely monitor and control capillary blood glucose levels through nutritional therapy and insulin administration. Assessment of this shall take into consideration the erratic meal schedules, sleep disruption, and high aerobic and anaerobic workloads intrinsic to fire fighting
 - c. Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microaneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale
 - d. Has normal renal function based on a calculated creatinine clearance greater than 60 mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft-Gault or similar formula. Proteinuria is defined as 24-hour urine excretion of greater than or equal to 300 mg protein or greater than or equal to 300 mg of albumin per gram of creatinine in a random sample.)
 - e. Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy might be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability).
 - f. Has normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 MET) by ECG and cardiac imaging.
 - g. Has a signed statement and medical records from an endocrinologist or a physician with demonstrated knowledge in the current management of diabetes mellitus as well as knowledge of the essential job tasks and hazards of fire fighting as described in 5.1.1, allowing the fire department physician to determine whether the candidate meets the following criteria:
 - i. Is being successfully maintained on a regimen consistent with 6.20.1(1)(a) and 6.20.1(1)(b).
 - ii. Has had hemoglobin A1C measured at least four times a year (intervals of 2 or 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8 percent or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
 - iii. Does not have an increased risk of hypoglycemia due to alcohol use or other predisposing factors
 - iv. Has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding 1 year with no more than two episodes of severe hypoglycemia in the preceding 3 years.
 - v. Is certified not to have a medical contraindication to fire-fighting training and operations.
- (2) Insulin-requiring Type 2 diabetes mellitus, unless a candidate meets all of the following criteria:
 - a. Is maintained by a physician knowledgeable in current management of diabetes mellitus
 - b. Has demonstrated over a period of at least 3 months the motivation and understanding required to closely monitor and control capillary blood glucose levels through nutritional therapy and insulin administration. Assessment of this shall take into consideration the erratic meal schedules, sleep disruption, and high aerobic and anaerobic workloads intrinsic to fire fighting.

- c. Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale.
- d. Has normal renal function based on a calculated creatinine clearance greater than 60mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft_Gault or similar formula. Proteinuria is defined as 24hour urine excretion of greater than or equal to 300mg protein or greater than or equal to 300 mg of albumin per gram of creatinine in a random sample.)
- e. Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy can be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability.)
- f. Has normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 METS) by ECG and cardiac imaging.
- g. Has a signed statement and medical records from an endocrinologist or a physician with demonstrated knowledge in the current management of diabetes mellitus as well as knowledge of the essential job tasks and hazards of fire fighting as described in 5.1.1. allowing the fire department physician to determine whether the candidate meets the following criteria:
 - i. Is maintained on a stable insulin regimen and has demonstrated over a period of at least 3 months the motivation and understanding required to closely monitor and control capillary blood glucose levels despite varied activity schedules through nutritional therapy and insulin administration.
 - ii. Has had hemoglobin A1C measured at least four times a year (intervals of 2 or 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8 percent or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
 - iii. Does not have an increased risk of hypoglycemia due to alcohol use or other predisposing factors
 - iv. Has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding 1 years with no more than two episodes of severe hypoglycemia in the preceding 3 years.
 - v. Is certified not to have a medical contraindication to fire-fighting training and operations.
- (3) Any endocrine or metabolic conditions that results in the candidate not being able to safely perform one or more of the essential job tasks

6.20.2 Category B medical conditions shall include the following:

- (1) Diseases of the adrenal gland, pituitary gland, parathyroid gland, or thyroid gland of clinical significance
- (2) Nutritional deficiency diseases of other metabolic disorders
- (3) Diabetes mellitus, not on insulin therapy, but controlled by diet, exercise, and/or oral hypoglycemic agents unless all of the following are met:
 - a. Has had hemoglobin A1C measured at least four time a year (intervals of 2 to 3 months) over the last 12 months prior to evaluation if the diagnosis of diabetes has been present over 1 year. A hemoglobin A1C reading of 8 percent or greater shall trigger a medical evaluation to determine if a condition exists in addition to diabetes that is responsible for the hemoglobin A1C not accurately reflecting average glucose levels. This shall include evidence of a set schedule for blood glucose monitoring and a thorough review of data from such monitoring.
 - b. If on oral hypoglycemic agents, has had no episodes of severe hypoglycemia (defined as requiring assistance of another) in the preceding years.

- c. Has a dilated retinal exam by a qualified ophthalmologist or optometrist that shows no higher grade of diabetic retinopathy than microaneurysms, as indicated on the International Clinical Diabetic Retinopathy Disease Severity Scale.
- d. Has normal renal function based on a calculated creatinine clearance greater than 60 mL/min and absence of proteinuria. (Creatinine clearance can be calculated by use of the Cockcroft-Gault or similar formula. Proteinuria is defined as 24-hour urine excretion of greater than or equal to 300 mg protein or greater than or equal to 300 mg of albumin per gram of creatinine in a random sample.)
- e. Has no autonomic or peripheral neuropathy. (Peripheral neuropathy is determined by diminished ability to feel the vibration of a 128 cps tuning fork or the light touch of a 10-gram monofilament on the dorsum of the great toe proximal to the nail. Autonomic neuropathy might be determined by evidence of gastroparesis, postural hypotension, or abnormal tests of heart rate variability).
- f. Has normal cardiac function without evidence of myocardial ischemia on cardiac stress testing (to at least 12 MET) by ECG and cardiac imaging.

6.21 Systemic Diseases and Miscellaneous Conditions

6.21.1 Category A medical conditions shall include any systemic condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

6.21.2 Category B medical conditions shall include the following:

- (1) Connective tissue disease, such as dermatomyositis, systemic lupus erythematosus, scleroderma, and rheumatoid arthritis
- (2) History of thermal, chemical, or electrical burn injury with residual functional deficit
- (3) Documented evidence of a predisposition to recurrent heat stress rhabdomyolysis, metabolic acidosis, or exertion-related incapacitation

6.22 Tumors and Malignant Diseases

6.22.1 Category A medical conditions shall include the following:

- (1) Malignant disease that is newly diagnosed, untreated, or currently being treated, or under active surveillance due to the increased risk for reoccurrence
- (2) Any tumor or similar condition that results in the candidate not being able to safely perform one or more of the essential job tasks

6.22.2 Category B medical conditions shall be evaluated on the basis of an individual's current physical condition and on the staging and prognosis of the malignancy (i.e., likelihood that the disease will recur or progress), and include the following:

- (1) Benign tumors
- (2) History of CNS tumor or malignancy
- (3) History of head or neck malignancy
- (4) History of lung cancer
- (5) History of GI or GU malignancy
- (6) History of bone or soft tissue tumors or malignancies
- (7) History of hematological malignancy

6.23 Psychiatric Conditions

6.23.1 Category A medical conditions shall include any psychiatric condition that results in the candidate not being able to safely perform one or more of the essential job tasks.

6.23.2 Category B medical conditions shall include the following:

- (1) A history of psychiatric conditions or substance abuse problem
- (2) Requirement for medications that increase an individual's risk of heat stress, or other interference with the ability to safely perform essential job tasks

6.24 Chemicals, Drugs, and Medications

6.24.1 Category A medical conditions shall include those that require chronic or frequent treatment with any of the following medications or classes of medications:

- (1) Narcotics, including methadone
- (2) Sedative-hypnotics
- (3) Full-dose or low-dose anticoagulation medications or any drugs that prolong prothrombin time (PT), partial thromboplastin time (PPT), or international normalized ratio (INR)
- (4) Beta-adrenergic blocking agents at doses that prevent a normal cardiac rate response to exercise, high-dose diuretics, or central acting antihypertensive agents (e.g., clonidine)
- (5) Respiratory medications: inhaled bronchodilators, inhaled corticosteroids, systemic corticosteroids, theophylline, and leukotriene receptor antagonists (e.g., Montelukast)
- (6) High-dose corticosteroids for chronic disease
- (7) Anabolic steroids
- (8) Any chemical, drug, or medication that results in the candidate not being able to safely perform one or more of the essential job tasks

6.24.1.1 Tobacco use shall be a Category A medical condition (where allowed by law).

6.24.1.2 Evidence of illegal drug use detected through testing, conducted in accordance with Substance Abuse and Mental Health Service Administration (SAMHSA), shall be a Category A medical condition.

6.24.1.3 Evidence of clinical intoxication or a measured blood alcohol level that exceeds the legal definition of intoxication according to the AHJ at the time of medical evaluation shall be a Category A medical condition.

6.24.2 Category B medical conditions shall include the use of the following:

- (1) Cardiovascular agents
- (2) Stimulants
- (3) Psychiatric medications
- (4) Other than high-dose systemic corticosteroids
- (5) Antihistamines
- (6) Muscle relaxants
- (7) Leukotriene receptor antagonists (e.g., Montelukast) used for allergies that do not affect the lower respiratory system

VII. MUNICIPAL FIREFIGHTER ESSENTIAL FUNCTIONS

I. EMERGENCY SCENE RESPONSE: HANDS ON
A. INITIAL RESPONSE TO INCIDENTS
Tasks occurring between the receipt of an alarm and initial firefighting or emergency scene activities.
Don protective turnout gear and equipment before and at emergency scenes.
Proceed to assigned apparatus upon receipt of call for service.
Make preliminary evaluation of incident based on alarm information received (e.g., alarm type, structure type, etc.).
B. WATCH DUTIES
Stand watch to receive incoming alarms and information, answers phones, and monitors access to the station house.
Provide alarm communiqué to equipment operators/officers.
Test alarms and dispatch equipment.
Notify station personnel (over public address or through use of signals) of incoming alarms and required response (e.g., everybody goes, truck only, engine only, etc.).
Receive notification of multiple alarms, downtown alarms, and other significant emergencies through the Fire Alarm Office.
Record administrative and general information messages that come in over the computer dispatch.
Answer department and outside phone.
Open and closes fire house doors to allow apparatus or Chief's car to depart/return to house.
C. DRIVING
Drive apparatus to and from, and positions apparatus at, emergency scene.
Drive apparatus safely to designated place.
Select most direct and expeditious route to alarm site.
Maneuver and positions apparatus at incident scene.
Obtain knowledge of most direct and expeditious routes and studies them prior to incident response.
Obtain knowledge of traffic laws and street conditions in order to operate the apparatus safely and expeditiously.
Plan route and position based on anticipated actions (e.g., arrival routes) of other companies when driving to multiple alarm calls.
D. PUMP OPERATIONS
Connect or hooks up apparatus to fire hydrant and operates pumps to supply water in appropriate pressure and volume – using hydrant wrenches, couplings, hoses, spanner wrenches, and other tools.
Engage pumps.
Fill hose with water by hydrant pressure.
Connect and lays feeder line to supply water to fire.
Pump sprinkler system and wet or dry standpipe systems.
Connect suction hose between hydrant and engine.
Monitor control panel (e.g., water temperature, oil pressure gauge, fuel gauge, hydrant pressure).
Pump pre-connect hose-line.
Pump master stream (e.g., aerial ladders).

Hook up to ladder pipe to supply water during aerial ladder operations.
Notify officer of any problems which occur while pumping.
Adjust water pressure (by rule-of-thumb, according to pressure chart, and/or Rules and Regulations) in response to calls for more or less pressure.
Pump using specialty nozzles (e.g. drive-in, cellar distributor).
Implement cold weather procedures (e.g., tank circulation) when necessary.
Maintain pressure by adjusting pressure relief valve or automatic pressure governor.
Transfer from pressure stage to volume stage.
Pump booster lines.
Open and flush hydrant to ensure it is functional.
Shut down pump when ordered to by officer.
Check hydrant for proper drainage.
E. HOSE (AND EXTINGUISHER) OPERATIONS
Stretch line or use extinguisher to deliver water, foam and other extinguishing agents to emergency scene.
Operate nozzle at front of hose line and spray water, foam or other agent onto fire or other hazard, or into involved structure, to extinguish, contain and/or control incident.
Locate seat of fire or other hazard (e.g., gas leak) by observing, smelling or listening for smoke, sound, flames, gas, vapors, etc.
Advance or assist in advancing hose to seat of fire or other hazard.
Disconnect hose from bed and attach to discharge gate.
Determine type (size) and number of lengths of hose needed for operation.
Connect to standpipe during high rise incident command.
Connect hose lines to nozzle(s).
Use extinguisher to extinguish, contain and/or control incident.
Select type of extinguisher (e.g., foam, dry-chemical, etc.) needed for incident.
Feed hose line to other fire personnel.
Determine proper nozzle and nozzle setting.
Operate stang on tower ladder to apply water to structures on fire.
Pull hose off hose bed.
Flake out or dekind hose line prior to charging or during extinguishment to ensure proper operation.
F. MECHANICAL LADDER OPERATIONS
Stabilize ladder truck and elevate and operate aerial ladders and platforms in order to rescue victims, provide access for ventilation, operate master stream devices, etc.
Climb mechanical ladders to perform search, rescue and other operations.
Operate ladder from ground controls or from platform controls, while watching for power lines, trees and other overhead obstructions.
Elevate, rotate and extend aerial or tower ladder for supported and unsupported operation, while watching for power lines, trees and other overhead obstructions.
Stabilize elevating apparatus using wheel chocks, stabilizing pads, stabilizing jacks and outriggers.
Operate and direct ladder pipe to supply water during aerial ladder operations.
G. MANUAL LADDER OPERATIONS
Carry, raise, extends and climbs manual ladders to perform search, rescue and other operations.
Extend manual (extension) ladders to reach victims.
Climb manual ladder to perform search, rescue, and other operations.
Determine proper placement of manual ladder at scene.
Determine manual ladder type and size needed at incident scene.
Anchor and secure manual ladder (i.e., tying off) at scene.

Raise and position manual ladder at incident scene.
Carry manual ladder from apparatus to incident scene.
Return manual ladder to apparatus.
H. FORCIBLE ENTRY
Pry open, cut, or break down doors, or otherwise enters structures, vehicles, aircraft and other entrapments in order to search for and rescue victims and provide access to the emergency scene – using axes, halligan tools, etc.
Gain entry into structures using axes, sledge hammers, battering rams, halligan tool and other forcible entry tools.
Cut through surfaces using power saws and other power tools.
Determine best location for forcible entry.
Pry open doors in structures using pry bars, halligan tools, bolt cutters and other tools.
Remove locks or hinges from doors using sledgehammers, battering rams, axes or other forcible entry tools.
Break holes in wooden, brick and masonry walls using sledge hammers, battering rams, axes and other tools.
I. VENTILATION
Open or break windows, chop or cut holes in roofs, breaches walls or doors, and hangs fans in windows or doors to remove heat, smoke and/or gas from structures or entrapments.
Determine best location for venting structure based on location of hazard and fire personnel, roof type, and building construction.
Break windows and other points of entry using axes, ladders and other tools, to ventilate structure.
Cut open walls, roof and other structures to ventilate structure.
Open windows and other points of entry manually or by using pry bars, halligan tools, and other tools, to ventilate structure.
Hang fans from ladders and in doors, windows, and holes in roofs or walls.
Use fans for positive pressure.
J. SEARCH
Search assigned area in order to locate victims and to obtain further information about incident, following standard search procedures.
Search floor or area of fire, or other hazard, for conscious and unconscious victims, sweeping assigned search area with arms, legs or tools.
Search floors above and below fire, or other hazard, including stairwells and bulkheads, for inhabitants who need to be moved or rescued.
View perimeter of the building to determine if there are victims needing assistance at windows, on ledges, or who have jumped.
Identify hazardous conditions in course of search and informs others of the problem.
Determine search procedure or strategy needed to accomplish objectives.
Search structures for seat of fire, or other hazard, and extensions.
K. RESCUE
Assist, hoist, carry or drag victims from emergency area by means of interior access (stairs, hallways, etc.) or, if necessary, by ladders, fire escapes, platforms, or other means of escape – using rescue harnesses, ropes, etc.
Rescue drowning victims using life-saving techniques.
Conduct water rescues (i.e., river rescue, using boats) in accordance with established guidelines.
Evacuate persons from incident scene due to risk of fire, explosion, exposure to hazardous chemicals, etc.
Move heavy objects and obstructions in order to free or gain access to trapped victims or

bodies, using air bags, chains and hoists, jacks, shoring materials, hurst tools and other hydraulic tools.
Drag or carries victims from emergency scenes.
Hoist or lowers victims or fire personnel using ropes, knots and rescue harnesses.
Pry, break or cut structures, vehicles, and/or aircraft to free victims involved in accidents, cave-ins, collapsed buildings or other entrapments -- using door openers, jaws, axes and other manual and mechanical equipment.
Instruct persons on upper floors as to appropriate actions (e.g., staying put, ascending to upper floors, descending to lower floors via fire escapes, etc.).
Dig to free victims trapped in tunnels, pipes, excavations, cave-ins or other entrapments using shovels, picks, spades and other equipment.
Place victims onto stretchers, backboards, stokes, etc.
L. SALVAGE
Move and cover furniture, appliances, merchandise and other property; covers holes in structures; stabilizes damaged structural components; and redirects or cleans up water in order to minimize damage -- using plastic and canvas covers, etc.
Tear down or shore up weak and dangerous structural components (e.g, floors, walls, roofs, overhangs and stairs) using hooks, axes, saws and other tools.
Spread salvage covers over property.
Protect the integrity of the incident scene, while performing salvage operations, in case of suspected arson.
Move furniture and other objects to protect from water or other damage.
Remove water from floors using brooms, squeegees, mops, water chutes, catchalls and pumps.
M. OVERHAUL
Open up walls and ceilings, cuts or pulls up floors and moves or turns over debris, in order to check for hidden fires which could rekindle or spread using hooks, axes, saws and pitchforks.
Open ceilings, walls, etc., to expose hot spots and other hazardous conditions with axes, pike poles, etc.
Search for and extinguish any hidden fires by looking, feeling or smelling for fire and smoke.
Check and search open areas, walls, open structures for fire extension.
Remove and neutralize or dispose of flammable or hazardous materials from buildings.
Remove and extinguish burned or smoldering debris from buildings.
Determine whether a smoke detector was present and functional.
N. CLEAN-UP/PICK UP
Pick up, clean and return equipment to vehicle and rolls or folds hose, so that the company can go back in service.
Control and clean up the Fire Department's medical waste products.
Clean and return all tools, equipment, supplies and property in usable condition to appropriate vehicles.
Shut down and drain lines at pumps.
Determine that all hoses used during response to incident are present and accounted for.
Clean hoses using hose washers or brooms and brushes.
Back lines out of structures.
Roll and fold hoses after use and returns them to appropriate vehicle.
Clean the apparatus.
O. FIRST AID
Provide direct medical assistance to persons requiring emergency attention or assists others in providing medical assistance.

Administer CPR if necessary.
Determine priority of emergency medical treatment for victims.
Administer first aid other than CPR.
Operate oxygen and other medical equipment.
Assist EMS personnel in administering medical treatment.
II. STATION DUTIES AND MAINTENANCE
P. EQUIPMENT MAINTENANCE
Check, clean, and maintain personal gear and equipment to ensure proper and safe operation.
Check Self Contained Breathing Apparatus for proper operation and adequate air pressure.
Check medical equipment.
Check turnout gear for safety and structural integrity.
Check the condition of generators, blowers, lights, cords and fans.
Check and maintains power equipment.
Place turnout gear on or near apparatus.
Check extension ladders.
Check hose on apparatus (proper bedding and amount).
Check and perform ordinary maintenance on other portable equipment (e.g., checks oil levels, greases, etc.).
Clean, reload, and test hoses.
Recommend that officer call for repairs on equipment.
Perform annual hose tests.
Inventory and perform regular maintenance on hand tools (e.g., paints, oils or stencils hand tools).
Change over equipment and supplies from one apparatus to another.
Paint other equipment as needed.
Q. APPARATUS MAINTENANCE
Check, clean, and maintain apparatus to ensure proper and safe operation.
Check ability of engine to pump water.
Check engine pumper pressure.
Check the aerial ladder sections, outriggers.
Recommend to officer that apparatus be kept out of service due to mechanical problems.
Perform normal daily apparatus check (e.g., oil, fuel & water levels; proper pressures and lubrications; batteries; lights; sirens; brakes; tires; etc.).
Recommend that officer call for repairs on apparatus.
Perform normal weekly apparatus check (e.g., hydraulic fluid levels).
Equip apparatus with traction devices (e.g., chains) as necessary.
Notify officer of electrical or mechanical problems on apparatus.
Check with Equipment Operator coming off duty regarding condition of apparatus.
Perform annual pump test.
Clean motor and pump on apparatus.
R. FACILITY MAINTENANCE
Check, clean, and maintain house facilities. This includes the performance, or assignment, of routine housekeeping chores.
III. FIRE PREVENTION AND INVESTIGATION
S. INSPECTION OF BUILDINGS & FIRE PROTECTION DEVICES
Inspect buildings for fire prevention/hazardous materials code violations or hazards on a periodic basis or during the course of their activities. Inspects alarms, hydrants, sprinkler systems, etc.
Recognize code violations (e.g., blocked exits, improper storage of chemicals, etc.).

Inspect buildings for code compliance.
Conduct inspections of schools.
Inspect buildings upon request of occupants/owners.
Conduct on-site inspections of fire protection devices (e.g., hydrants, alarms, sprinkler systems, etc.).
T. PRE-FIRE PLANNING
Review or prepare plans in order to provide information regarding hydrant locations, exposures, hazardous materials and other areas or situations of high risk.
Conduct site surveys in district.
Tour buildings in order to identify or verify the presence of an unusual fire hazard or situation.
Recognize a target hazard (e.g., a new high-rise or a building with hazardous materials) that may warrant the development of a pre-fire plan.
Conduct familiarity inspections in district.
Familiarize self with layout of first and second alarm districts.
U. INVESTIGATIONS
Examine incident scene, conducts interviews, collects and preserves evidence, and reviews forms and reports to help determine the cause of a fire or other emergency.
Respond to incidents of suspicious or undetermined origin.
Observe fireground conditions to detect possible arson.
IV. PUBLIC AND COMMUNITY RELATIONS
V. PUBLIC RELATIONS
Engage in activities which have an impact on the department's image in the community. Such activities include providing information to the media, providing assistance and support to civilians seeking help or information, etc.
Deal with distressed individuals at emergency scene.
Meet civilians in the fire station, conducts tours and provides information.
Make public presentations and conducts demonstrations of apparatus and equipment on behalf of the Fire Department.
W. PUBLIC TRAINING & EDUCATION
Oversee, develop, conduct and/or evaluate fire prevention and other educational programs for members of the public.
X. AUDIO-VISUAL PRODUCTION
Operate audio-visual equipment and develop and produce audio-visual materials for internal use or for public broadcasting.
V. PROFESSIONAL DEVELOPMENT
Participate in training drills and classes to enhance job-related skills and abilities. Reads internal memos and bulletins to keep apprised of new developments in departmental operations and procedures.
Maintain knowledge of chemicals and other hazardous materials.
Maintain knowledge of building structures related to fire control.
Attend specialized training sessions (e.g., CPR certification, special schools (e.g., Foam, ICS), etc.).
Attend routine training drills and sessions.
Maintain knowledge of latest firefighting equipment and techniques.
Attend "live-incident" training drills.
Attend external seminars/workshops and college courses to be aware of current developments in the fire service.
Observe training videotapes.
Participate in external agencies and societies (e.g., NFPA).
Act as a superior officer.

Receive training in superior's work activities.
Review internal Massachusetts Fire Department bulletins, memos, etc., to remain aware of departmental updates.
Read professional journals and publications (e.g., Fire Command) to be aware of current developments in the fire service.
Z. OTHER DUTIES
Carry hose, tools and other equipment to and from emergency scenes.
Operate generator to supply electricity to the emergency scene.
Set up electrical cords and lights.
Serve on special project committees to which he/she is assigned (e.g., Awards Committee, Hydrant Inspection, etc.).

Linkage of PAT Events with Underlying Physiological Requirements

Fire Fighter Events

Physical Abilities Test

Event 1: Stair Climb

Physiological demands are placed on the cardiovascular and respiratory systems. These demands include:

- increased demand on the lungs to facilitate a greater respiratory rate
- increased exchange of oxygen and carbon dioxide between the blood and alveoli in the lung
- increased transport of oxygen and carbon dioxide in the blood
- more blood pumped through the body from the heart to the lungs and skeletal muscles
- increased exchange of oxygen and carbon dioxide from the blood to the active skeletal musculature
- increased generation of energy in the form of adenosine triphosphate (ATP) in the muscle cells
- greater demand for removal and buffering of hydrogen ions generated during the production and utilization of energy in the muscle
- greater need to maintain thermal balance through decreased vasoconstriction and increased vasodilation of sweat glands in the skin resulting in an increased sweating rate

Activation of the skeletal system to generate muscular strength and endurance, which requires:

- contraction of the abdominal muscles (rectus abdominous, external obliques, internal obliques, serratus and erector spinae)
- contraction of the lower body and leg muscles (adductor longus, rectus femoris, vastus lateralis, vastus medialis, soleus, gastrocnemius, semitendinosus, semimembranosus, biceps femoris, gluteus maximus, gluteus medius)
- generation of ATP to facilitate muscle contraction and force generation
- removal and buffering of hydrogen ions generated during the production and utilization of energy in the contracting muscle

Event 2: Ladder Event

Physiological demands are placed on the cardiovascular and respiratory systems, which include:

- increased demand on the lungs to facilitate a greater respiratory rate
- increased exchange of oxygen and carbon dioxide between the blood and alveoli in the lung
- increased transport of oxygen and carbon dioxide in the blood
- more blood pumped through the body from the heart to the lungs and skeletal muscles
- increased exchange of oxygen and carbon dioxide from the blood to the active skeletal musculature
- increased generation of energy in the form of ATP in the muscle cells
- greater demand for removal and buffering of hydrogen ions generated during the production and utilization of energy in the muscle
- greater need to maintain thermal balance through decreased vasoconstriction and increased vasodilation of sweat glands in the skin resulting in an increased sweating

rate

Physiological requirements also include muscular strength, anaerobic power and flexibility, which require:

- primarily contraction of the lower body and leg muscles (adductor longus, rectus femoris, vastus lateralis, vastus medialis, soleus, gastrocnemius, semitendinosus, semimembranosus, biceps femoris, gluteus maximus, gluteus medius)
- generation of ATP to facilitate muscle contraction and force generation
- buffering and removal of hydrogen ions generated during the production and utilization of energy in the contracting muscle
- ability of joints and muscles of the legs, back, and trunk to complete the required range of motion

Event 3: Hose Advance

Physiological requirements include muscular strength, anaerobic power, muscular endurance and flexibility, which require:

- the muscle cells to respond to neural impulses in the form of action potentials that signal the proteins in the muscle cell to interact and generate force
- requires the muscle cells to generate energy for contraction from stored ATP and phosphocreatine and through conversion of glycogen to lactate in the muscle cell
- requires the muscles and blood to buffer the increased acidity (lactic acid and hydrogen ions) resulting from muscle work
- requires the joints and muscles of the legs, back, and trunk to complete the required range of motion

Event 4. Forcible Entry

Physiological requirements primarily include muscular strength and coordination and require:

- the muscle cells to respond to neural impulses in the form of action potentials that signal the proteins in the muscle cell to interact and generate force
- the muscle cells to generate energy for contraction from stored ATP and phosphocreatine and through conversion of glycogen to lactate in the muscle cell
- the muscles and blood to buffer the increased acidity (lactic acid and hydrogen ions) resulting from muscle work
- the muscles of the chest, back, and arms (deltoid, pectoralis major, supraspinatus, latissimus dorsi, teres major, biceps brachii, brachialis, triceps brachii and brachioradialis) to generate force
- sensory input from the cerebellum and upper brain to coordinate the physical action and neural generation of a signal for muscle contraction.

Event 5: Search

Physiological requirements include muscle flexibility, proprioception and kinesthetic sense, which require:

- the joints and muscles of the legs, back, and trunk to complete the required range of motion
- requires input from the motor cortex, corticospinal tract and brain stem to control reticular and vestibular movement

Event 6: Rescue

Physiological requirements include muscular strength, anaerobic power, muscular endurance and flexibility, which require:

- the muscle cells to respond to neural impulses in the form of action potentials that signal the proteins in the muscle cell to interact and generate force
- the muscle cells to generate energy for contraction from stored ATP and phosphocreatine and through conversion of glycogen to lactate in the muscle cell
- the muscles and blood to buffer the increased acidity (lactic acid and hydrogen ions) resulting from muscle work
- the joints and muscles of the legs, back, and trunk to complete the required range of motion

Event 7: Ceiling Hook (Pike Pole)

Physiological requirements include muscular strength, anaerobic power, muscular endurance and flexibility, which require:

- the muscle cells to generate energy for contraction through stored ATP and phosphocreatine and through conversion of glycogen to lactate in the muscle cell
- the muscles and blood to buffer the increased acidity (lactic acid and hydrogen ions) resulting from muscle work
- the joints and muscles of the legs, back, arms, hands and trunk to complete the required range of motion

Linkage of PAT Events with Essential Tasks from the Job Task Analysis

Fire Fighter Events

Physical Abilities Test

Event 1: Stair Climb

Essential Job Functions (from surveys):

Lays feeder line

Advances or assists in advancing hose to seat of fire or other hazard

Carries hose to and from emergency scenes

Searches (multi-floor) structure for seat of fire, or other hazards

Searches floors above and below fire, or other hazard, including stairwells and bulkheads, for inhabitants who need to be moved or rescued

Event 2: Ladder Event

Essential Job Functions (from surveys):

Extends manual extension ladders to reach victims

Places ladder at scene

Raises and positions manual ladder at scene

Carries manual ladder from apparatus to incident scene

Returns manual ladder to apparatus

Event 3: Hose Advance

Essential Job Functions (from surveys):

Lays feeder line from supply water to fire

Advances or assists in advancing hose to seat of fire or other hazard

Pulls hose off hose bed

Carries hose to and from emergency scenes

Event 4. Forcible Entry

Essential Job Functions (from surveys):

Gains entry into structures using axes, sledge hammers, etc.

Breaks holes in wooden, brick, and masonry walls using sledge hammers

Event 5: Search

Essential Job Functions (from surveys):

Searches floor or area of fire for victims

Searches floors above and below fire for inhabitants who need to be moved

Event 6: Rescue

Essential Job Functions (from surveys):

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Evacuates persons from incident scene due to risk
Drags or carries victims from emergency scenes

Event 7: Ceiling Hook (Pike Pole)

Essential Job Functions (from surveys):

Tears down weak and dangerous structural components
Opens ceilings, walls, etc. to expose hot spots and other hazardous conditions

X. Physical Fitness Standards Test Course for Fire Fighters/ Physical Ability Test (PAT) Events

(1) General Description The Physical Fitness Standards Test for Fire Fighter consists of 7 events that require each candidate to perform simulations of activities that are part of the fire fighter's job. These events require cardiovascular fitness, muscle strength, muscular endurance and flexibility. Each event will be timed. During all events, the candidate will wear a weighted vest which approximates the weight of the clothing, equipment and breathing apparatus that a fire fighter normally wears during these types of activities. The events are described below. They will be performed in the order listed.

(a) Stair Climb This event simulates continuous stair climbing, an activity that fire fighters may perform when getting to a fire at an incident scene. For this event, the candidate will be required to step on a rotating stair case (also known as a stepmill) at a pre-determined stepping pace for a specific period of time. There is a five minute rest period after the stair climb event.

(b) Ladder Event This event simulates various activities related to using extension ladders. The candidate will be required to remove a ladder from a rack, carry it some distance, raise a weight of approximately 45 lbs. attached to a rope that simulates the raising of an extension ladder, lower that weight and return the ladder to the rack from which it was taken. The event ends when the ladder is back in the rack. This event will be timed.

(c) Hose Advance This event simulates the actions necessary to manipulate a fully charged fire hose. The candidate will be required to pull 50 feet of hose through a U-shaped course with several turns. There will be a ceiling on the U-shaped course to prevent the candidate from standing upright. This event will be timed.

(d) Forcible Entry This event simulates breaking down a door to gain entry to a burning structure or an incident scene. For this event the candidate will be required to strike a rubber pad mounted on a moveable post. The candidate will use a 12 lb. sledge hammer to move the post a set distance. The post and structure are weighted to simulate the force one would need to exert on a door in order to gain entrance. The candidate's score will be based on the time it takes to move the post the required distance.

(e) Search This event simulates the actions necessary to enter and search a smoke-filled structure. Candidates crawl through a dark wooden tunnel with obstructions and turns. The tunnel is approximately 65 feet long. The tunnel is 4 feet high and 4 feet wide. At one location in the tunnel there is an obstacle on the floor and at one location there is an obstacle from the ceiling. In addition, at two locations, the tunnel is reduced from 4 feet to 3 feet in width. This event will be timed.

(f) Rescue Through a Doorway This event simulates the actions necessary to drag an unconscious victim through a doorway to get the victim to safety. Individuals drag a 125 pound dummy approximately 60 feet along a zigzag course to a designated area at the end of the course. In this event, there is a low ceiling over the course to prevent candidates from standing upright. This event will be timed.

(g) Ceiling Hook (Pike Pole) This event simulates the use of a pike pole or ceiling hook. A pike pole or ceiling hook is a fire fighting tool used to tear down ceilings or open walls while looking for hidden fires. This event requires the candidate to take a pike pole, tipped with an industrial hammer head, and thrust it upward at a metal plate in an 8 foot ceiling. The metal plate weighs approximately 60 lbs. and must be lifted six inches in order for the strike to count. The candidate then steps over to the next part of the event, where a pike pole handle is suspended from a ceiling height. The pole is attached to a counter balance that weighs approximately 80 lbs. The candidate must pull the pole down six inches in order for the pull to count. The candidate must perform one push and five pulls in

a sequence. The event will require the candidate to perform four one-minute periods of work, in which he/she will try to do as many push-pull sequences as possible. Only completed sequences will count in the scoring of this event. Each work period will be followed by a 30 second rest period.

(2) Specifications for these test events are on file at HRD.

Scoring of the Physical Fitness Standards Test Course for Fire Fighters

(1) The scoring will be as follows:

TABLE OF CUT SCORES	
Stepmill	200 seconds
Ladder	35.56 seconds
Hose Advance	20 seconds
Forcible Entry	13.91 seconds
Search	39 seconds
Rescue	36 seconds
Ceiling Hook	25 repetitions

(2) In order to pass the Physical Fitness Standards Test successfully, a candidate must pass every sub-test by achieving at least the passing score indicated on the above chart. If upon examination, a candidate does not pass the test, then that candidate will be required to retake the entire test (all the sub-tests) during the re-examination.