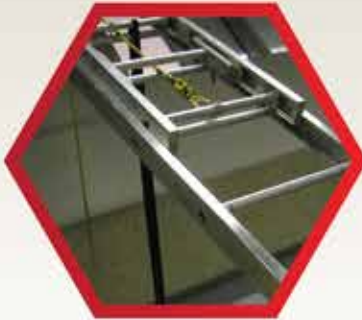




FIREFIGHTER

PHYSICAL FITNESS MAINTENANCE PROGRAM

OPERATIONS MANUAL



FF PFMP

3rd EDITION

February 2015



Firefighter Physical Fitness Maintenance Program

Operations Manual

Third Edition

FORWARD

1. The 3rd edition of this Operations Manual has been prepared to provide instructions and guidance for conducting the Firefighter Physical Fitness Maintenance Program (FF PFMP). The FF PFMP consists of a task-based evaluation, exercise prescription and counselling components based on the evaluation results.
2. The FF PFMP 3rd Edition was developed for the Canadian Forces Fire Marshal (CFFM) under the supervision of the Canadian Forces Morale and Welfare Services (CFMWS), Directorate of Fitness (DFit). The Work Physiology Laboratory Faculty of Physical Education and Recreation of the University of Alberta carried out the research to review the time standard, from 2011-2013, under the scientific authority of CFMWS/DFit.
3. The FF PFMP is designed to ensure that National Defence Fire Service firefighters (NDFS FF) are physically capable of carrying out their duties and complies with the Canadian Human Rights Act (1985). The evaluation portion meets the bona fide occupational requirements (BFORs) described in Section 15 of that Act.
4. As of April 1st, 2014, this manual will supersede all previous FF PFMP Ops Manual in their entirety. Modifications to this manual can be made by DFit from time to time and will be forwarded to you accordingly.
5. It is essential that the evaluation protocols and instructions provided in this manual be strictly adhered to in order to ensure valid and reliable evaluation results. Evaluators must ensure that the evaluation is conducted in the safest manner and environment possible.

Daryl Allard

Director, Fitness, Sports & Health Promotion
Director General Morale and Welfare Services



TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION5

 BACKGROUND 5

 GENERAL 5

 COMPONENTS OF THE FIREFIGHTER PHYSICAL FITNESS MAINTENANCE PROGRAM 5

 REFERENCES 6

 REQUIREMENTS AND RESPONSIBILITY 6

CHAPTER 2

PREPARING FOR THE FF PFMP EVALUATION 7

PART I – PRE-EVALUATION ADMINISTRATION 7

 EVALUATION SCHEDULE 7

 PRE-EVALUATION INSTRUCTIONS FOR FIREFIGHTERS 7

 EVALUATOR RESPONSIBILITIES 7

 EMERGENCY PROCEDURES 8

PART II – EVALUATION ADMINISTRATION 8

 THE FF PFMP EVALUATION FORM (DND 2205) 9

 SERVICE PARTICULARS 9

 DND 2205 SECTION A – INFORMATION 9

 DND 2205 SECTION B – HEALTH APPRAISAL 9

 BLOOD PRESSURE 10

 REFERRAL TO A HEALTH CARE PROVIDER 11

 MEDICAL ACTION 11

 MEDICAL EXCUSALS 12

PART III – EVALUATION SET-UP AND CALIBRATION 12

 EVALUATION SET-UP 13

CHAPTER 3

EVALUATION PROCEDURES 23

PART I - GENERAL 23

PART II – BLOOD PRESSURE 23

 AUTOMATIC BP PROCEDURES: 24

TABLE OF CONTENTS



PART III – FITNESS ASSESSMENT	25
INFORMATION BRIEFING	25
MANDATORY WARM-UP.....	26
EVALUATION PROCEDURES.....	27
TASK #1: ONE-ARM HOSE CARRY	27
TASK #2: 3.6 M (12 FT) LADDER RAISE	29
TASK #3: CHARGED HOSE ADVANCE	29
TASK #4: FIRST LADDER CLIMB	30
TASK #5: WEIGHTED SLED PULL	31
TASK #6: FORCIBLE ENTRY	32
TASK #7: VICTIM RESCUE	34
TASK #8: SECOND LADDER CLIMB	35
TASK #9: 3.6 M (12 FT) LADDER LOWER	36
TASK #10: EQUIPMENT CARRY (36.4 KG / 80 LB)	37
END OF EVALUATION	38
COOL DOWN	38
PART IV – EVALUATION SUMMARY	38
DND 2205 SECTION C – PERFORMANCE	38
DND 2205 SECTION D – RESULTS.....	39
NEXT EVALUATION.....	39
DND 2205 SECTIONS E AND F – EXERCISE PRESCRIPTION AND CERTIFICATION OF EVALUATION AND PRESCRIPTION.....	40
DND 2205 SECTION G – CERTIFICATION OF UNDERSTANDING	40
PENSION IMPLICATIONS	41
DND 2205 SECTION H – PROGRAM APPROVAL	41
DISTRIBUTION OF THE DND 2205	41
DISTRIBUTION OF THE DND 2205 AND ACTION ON POSTING OF CAF FIREFIGHTERS	42

CHAPTER 4

EXERCISE PRESCRIPTION 43

GENERAL	43
FEEDBACK TO FIREFIGHTERS	43
SUPERVISION OF EXERCISE PROGRAMS	43
PSP DELIVERED EXERCISE PRESCRIPTION	44



CHAPTER 1 - INTRODUCTION

WARM-UP.....	44
COOL-DOWN	45
AEROBIC FITNESS PROGRAMS	45
HEART RATE MONITORING	46
MUSCULAR STRENGTH AND ENDURANCE	47
RATE OF PROGRESSION – ALL FITNESS PROGRAMS	48
UNIT TRAINING ON THE CIRCUIT	48
TABLE 1.....	48
PRESCRIPTION MATERIALS.....	49
SPORT AND RECREATION ACTIVITIES	49

CHAPTER 5

HEALTH RELATED FITNESS.....51

GENERAL51

LIFESTYLE ASSESSMENT.....	51
STRENGTHENING THE FORCES HEALTH PROMOTION PROGRAM.....	51

REFERENCES.....53

ANNEX A

FIREFIGHTER PHYSICAL FITNESS MAINTENANCE PROGRAM (DND 2205).....56

ANNEX B

DND MEDICAL CHIT (CF 2018).....57

ANNEX C

PRE-EVALUATION INSTRUCTIONS FOR FIREFIGHTERS.....58

ANNEX D

ALCO FORCIBLE ENTRY DEVICE – USER INSTRUCTIONS.....59

MOUNTING THE FORCIBLE ENTRY DEVICE.....	59
USING THE FORCIBLE ENTRY DEVICE.....	61
RESETTING THE FORCIBLE ENTRY DEVICE.....	61
CALIBRATING THE FORCIBLE ENTRY DEVICE.....	61
TO INCREASE SPRING TENSION.....	62
TO REDUCE SPRING TENSION	63
INCONSISTENT PRESSURE	63

TABLE OF CONTENTS



MAINTENANCE SCHEDULE 64
DAY TO DAY 64
MONTHLY 64
SPECIFICATIONS FOR FORCIBLE ENTRY DEVICE STAND AND FOOT PLATE 65

ANNEX E

HEART RATE AND RATE OF PERCEIVE EXERTION (RPE) MONITORING 66

ANNEX F

FF PFMP CIRCUIT DESCRIPTION 67

ANNEX G

FF PFMP SCRIPT 69
CRITERIA FOR TERMINATION 70

ANNEX H

**BORG SCALE FOR RATINGS OF
PERCEIVED EXERTION (RPE) SCALE RATING 75**

ANNEX I

WARM-UP 76

ANNEX J

BACK INJURY PREVENTION 79
THE 4 RULES OF SAFE LIFTING 79
SAFE LIFTING CORRECTIONS 82

ANNEX K

**OPERATIONS MANUAL FOR THE PERFECT DESCENT
CLIMBING SYSTEMS, INDOOR MODEL 91**

CHAPTER 1

INTRODUCTION

BACKGROUND

1. The original evaluation and standard for the Canadian Forces Firefighter Physical Fitness Maintenance Evaluation (FF PFME) were established by the Ergonomics Research Group (ERG) at Queen's University in 1996 (Deakin et al., 1996).
2. The 2011-2013 revision performed by the Work Physiology Laboratory Faculty of Physical Education and Recreation of the University of Alberta was to establish a defensible process of setting a minimum physical employment standard that would be universal and applicable to all firefighters regardless of age or gender. As part of this process the currency of the equipment used and the validity of the tasks included in the original FF PFME were reviewed.
3. Research will be performed by DFit to ensure that the FF PFME captures the demands of Universality of Service as mandated by DAOD 5023-2 Physical Fitness Programs. This process involves both a theoretical task and movement analysis of the demands of both the FF PFME and FORCE Evaluation, and field validation trials of NDFS FF performing both tasks.

GENERAL

4. This manual provides guidance and direction on how to administer the Firefighter Physical Fitness Maintenance Program (FF PFMP). The program is in line with DAOD 4007-4, and will be adhered to by all CFMWS/PSP Staff involved in the FF PFMP.
5. The FF PFME is a scientifically validated physical employment standard that is based on the demands of common CAF firefighter duties performed at a minimally acceptable, safe and efficient pace of work.
6. This evaluation and standard verify the minimum physical abilities and capabilities required for efficient and effective job performance.

COMPONENTS OF THE FIREFIGHTER PHYSICAL FITNESS MAINTENANCE PROGRAM

7. The three components of the FF PFMP are:

Evaluation: Consists of a 10-task circuit based on occupational requirements.

Exercise prescription: Includes fitness programs created by qualified PSP Fitness staff, or fitness programs generated from the www.DFit.ca website that are designed to prepare firefighters for the physical rigours of operations.

CHAPTER 1 - INTRODUCTION



Exercise participation: Includes approved unit physical fitness programs or programs led by PSP Fitness staff.

REFERENCES

The following orders and directives are associated with the FF PFMP:

- DAOD 5025-2, Physical Fitness Program
- DAOD 4007-4 Firefighter Physical Fitness Maintenance Program

If additional orders or directives are created they can be found at www.CFMWS.com.

REQUIREMENTS AND RESPONSIBILITY

8. Effective 13 Jan, 2002, the FF PFMP became the official Wellness program for the National Defence Fire Service.
9. As directed in DAOD 4007-4, firefighters are required to meet the FF PFME standard on an annual basis. We recommend that the physical fitness training prescribed under the FF PFMP be conducted during normal working hours. This physical training will be considered as fulfilling the requirement for participation in the FF PFMP even when conducted outside normal working hours.
10. Leadership is fundamental to the program's success and therefore the primary responsibility rests with the Chain of Command to ensure that all firefighters actively participate in a regular exercise program. CFMWS/DFit acts as primary advisor on all matters pertaining to Canadian Forces physical fitness.
11. Fire Chiefs (FCs) are responsible for programs conducted in accordance with CFFM policy and Command direction. PSP Fitness staff are responsible to their Manager, Fitness & Sports and Senior Manager, PSP, who are responsive to the needs of the Commanding Officers and the Fire Chiefs for planning, organizing, conducting, instructing, and evaluating the FF PFMP. Manager, Fitness & Sports or equivalents are ultimately responsible for monitoring the quality control of the FF PFME and exercise prescription.
12. At all levels, there is a requirement for Health Care Providers to advise the Chain of Command on the medical aspects of physical training, including the capability of firefighters to participate in the FF PFMP. In particular, a Health Care Provider's input will be required for medical referrals and investigations related to reporting of injuries or death arising from programs conducted under the auspices of the FF PFMP.

CHAPTER 2

PREPARING FOR THE FF PFMP EVALUATION

PART I – PRE-EVALUATION ADMINISTRATION

EVALUATION SCHEDULE

1. Evaluation schedules and booking procedures will vary from fire hall to fire hall depending on local needs and procedures.

PRE-EVALUATION INSTRUCTIONS FOR FIREFIGHTERS

2. A minimum of 48 hours prior to the FF FPME, inform firefighters of the following guidelines:
 - a. Firefighters should not:
 - Exercise six hours prior to the evaluation.
 - Consume alcohol for at least six hours prior to the evaluation.
 - Eat, smoke, or take stimulants (tea, coffee, energy drinks, pharmaceuticals, etc.) at least two hours prior to the evaluation.
 - b. Non-compliance with the above instructions does not necessarily mean postponement; however, inform participants that it can have a negative effect on their results.
 - c. The dress requirement for the warm-up is standard PT kit. The dress requirement for the FF FPME is full turnout gear consisting of firefighter's boots, gloves, flash-hood, helmet and visor, bunker pants and jacket, as well as a positive-pressure self-contained breathing apparatus (SCBA), complete with mask.

EVALUATOR RESPONSIBILITIES

3. PSP Fitness and Sports evaluator can lead the FF PFME if they have:
 - a. Current CSEP CPT or CSEP CEP qualification.
 - b. Successfully completed the PSP Fitness and Sports Level 2 course or previous equivalency to this course.
4. PSP Fitness Leaders can assist as long as they have:
 - a. Successfully completed the PSP Fitness and Sports Level I course.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



NOTE: Fitness Leaders cannot:

- lead the FF FPM Evaluation
- sign the FF PFMP Evaluation form
- provide an exercise prescription

5. Firefighters who are appropriately qualified as Basic Fitness Training Assistants (BFTAs) or Advanced Fitness Training Assistants (AFTAs) can assist in the training of firefighter personnel under this program, but are not authorized to lead the evaluation or provide exercise prescription components of the program.
6. The evaluator is responsible for the completion and accuracy of each DND 2205.
7. Firefighters will be evaluated one at a time.

EMERGENCY PROCEDURES

8. When the FF FPME is properly administered, there are minimal risks to the firefighter. Nevertheless, an appropriate emergency protocol will be developed in conjunction with the Emergency Response Team. Manager, Fitness & Sports will ensure that:
 - All Evaluators are First Aid and CPR trained.
 - The location of the closest available AED has been identified.
 - Evaluators have briefed all firefighters on safety requirements and emergency procedures prior to the start of the fitness evaluation.
 - Should the firefighter be unable to complete the circuit, remove the air hose from the mask and immediately assist them in removing their helmet and MSA mask. This will permit them to breathe the fresh air. Turn off their air tank to prevent wasting oxygen.

PART II – EVALUATION ADMINISTRATION

9. FF PFME: All firefighters will complete the FF PFME annually, except in the following circumstances:
 - a. Medical excusal or
 - b. Release




CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

THE FF PFMP EVALUATION FORM (DND 2205)

SERVICE PARTICULARS

DND 2205 SECTION A – INFORMATION

 National Défense Defence nationale		PROTECTED B (When completed) PROTÉGÉ B (Une fois rempli)				
CF/DND Firefighter Physical Fitness Maintenance Program Programme de maintien de la condition physique (pompiers) FC/MDN						
Section A – Information - Renseignements						
A. Surname - Nom		Init.	SN - NM	Unit - Unité	UIC - CIU	Tel. - Tél.
Rank Grade	Job title - Titre du poste	DOB - DDN (yyaa-mm-dj)		Age - Âge	Heart rate monitor Moniteur de fréquence cardiaque <input type="checkbox"/>	
					Gender - Sexe <input type="checkbox"/> M <input type="checkbox"/> F	

10. Print all service particulars in section A of the DND 2205 and issue the heart rate monitor.

DND 2205 SECTION B – HEALTH APPRAISAL

Section B – Health Appraisal - Évaluation de la santé		
Questionnaire This questionnaire is a screening device to identify personnel for whom fitness evaluation and physical activity might be inappropriate at this time. 1. To the best of your knowledge do you have a medical condition or Medical Employment Limitation (MEL) which restricts you from participating in a maximal fitness evaluation or a progressive training program? 2. Is there any other reason you would need to talk to a physician prior to your fitness evaluation or training program? 3. Do you have a valid Periodic Health Assessment (PHA)? if No, proceed to Blood Pressure.	Yes Oui	No Non
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Blood Pressure Pre-evaluation Blood Pressure: Less than or equal to 150/100 mm Hg <input type="checkbox"/> Your pre-evaluation blood pressure lies between 141/91 mm Hg and 150/100 mm Hg and is considered to be slightly above the normal range. It is recommended that you consult your MO. Votre tension artérielle avant l'évaluation se situe entre 141/91 mm Hg et 150/100 mm Hg. Cette valeur étant légèrement supérieure à la normale, il vous est recommandé de consulter votre médecin.	<input type="checkbox"/> <input type="checkbox"/>	Questionnaire Le présent questionnaire est un outil visant à filtrer les personnes pour lesquelles une évaluation de la condition physique et l'activité physique sont actuellement contre-indiquées. 1. À votre connaissance souffrez-vous d'un trouble médical ou avez-vous une contrainte à l'emploi pour raisons médicales (CERM) qui vous empêchent de participer à une évaluation de la condition physique avec effort maximal ou à un programme de conditionnement physique progressif? 2. Y a-t-il d'autres raisons pour lesquelles vous devriez consulter un médecin avant de participer à l'évaluation de la condition physique ou d'entreprendre un programme de conditionnement physique? 3. Est-ce que votre examen médical périodique (EMP) est valide? Si Non, allez à Tension artérielle. Tension artérielle Tension artérielle avant l'évaluation : inférieure ou égale à 150/100 mm Hg
Name (print) - nom (en caractères d'imprimerie) _____ Signature of CAF member - Signature du membre des FAC _____ Date (yyaa-mm-dj) _____		

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



11. Prior to attempting the FF PFME, all firefighters must answer all three questions of the Health Appraisal (section B of the 2205 see reference image above). Instruct firefighters to carefully read, and honestly answer, these three questions. This procedure is necessary to identify potential issues that require a medical consultation prior to an evaluation.

NOTE: Effective 1 December 2013, firefighters with a valid Periodic Health Assessment (PHA) are not required to undergo pre-evaluation BP measurement prior to any CAF physical fitness evaluation. Firefighters who do not have a valid PHA are required to undergo pre-evaluation BP screening only. HR is no longer measured.

12. Only firefighters who answered “NO” to the first two questions and “YES” to the third question are cleared for the evaluation. Refer firefighters who answered “YES” to the first or second or both questions, to their Health Care Provider. Measure the Blood Pressure (BP) of those participants who answered “NO” to question three of the Health Questionnaire.
13. PHAs are valid for five years for members under 40, and two years for members over 40 for all Military Occupation Structure Identification (MOSID), unless otherwise specified. When a PHA is performed between the ages of 35 and 40, it will be valid for a maximum period of five years, but not beyond age 42.

Member's Age	PHAs Validation Period
Less than 40 years of age	5 years
More than 40 years of age	2 years
Between 35–40 years of age	5 years but not beyond age 42

BLOOD PRESSURE

14. Check the Blood Pressure box of Section B once you have verified the firefighter's BP. If the BP meets the pre-screening criteria (less than or equal to 150/100 mm Hg), the firefighter is cleared and can proceed with the evaluation.
15. Firefighters whose BP does not meet the pre-screening criteria for the FF PFME can wait five minutes and have their BP taken a second time. If their BP meets the pre-screening criteria they can proceed with the evaluation.
16. If, on the second attempt, their BP does not meet the pre-screening criteria, refer the firefighter to their Health Care Provider. The firefighter referred to the Health Care Provider should be told that there is no cause for alarm, but that the Health Questionnaire is designed to work as a safety precaution.



CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

REFERRAL TO A HEALTH CARE PROVIDER

17. Refer firefighters to a Health Care Provider when:
- Firefighter answers “YES” to the first or second or both questions on the Health Appraisal of the DND 2205 (Section B).
or
 - Firefighter answers “NO” to question three on the Health Appraisal of the DND 2205 (Section B) and their measured BP exceeds 150/100 mmHg after two attempts.
or
 - You are concerned for the firefighter’s wellbeing.

NOTE: DO NOT ATTEMPT to diagnose or discuss in detail why the firefighter had a “YES” response or why their blood pressure is above the criteria for pre-screening. The FF PFME is physically demanding and can be an inappropriate evaluation for some.

MEDICAL ACTION

18. The Health Care Provider, based on their assessment, will make one or more of the following recommendations on the DND medical chit, CF 2018 (Annex B):
- a. The firefighter is fit for the fitness evaluation and subsequent training:
 - Without limitations
 - b. The firefighter is unfit for the evaluation and training:
 - Permanently
 - Temporarily, as indicated on member’s CF 2018
19. It is important that Health Care Providers include appropriate dates and timelines for the firefighter’s employment limitations, so that you can properly plan future evaluations and make an appropriate exercise prescription.

NOTE: The only medical chits that should be presented to PSP Fitness and Sports Evaluators are those indicating Blood Pressure clearance and prescribed stability braces (for example, knee or elbow braces).

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



MEDICAL EXCUSALS

20. If a firefighter is medically excused from the FF PFME for the entire scheduled assessment period, then the Results section (Section D) of DND 2205 and the firefighter's Personal Evaluation Report (PER) must reflect that they are "Med Excused".

PART III – EVALUATION SET-UP AND CALIBRATION

Equipment checklist for FF PFME

21. It is essential that all equipment is compliant with the specifications below. The equipment required for the conduct of the evaluation is as follows:
- a. clipboards and pens
 - b. blood pressure cuff and stethoscope
 - c. chair with arm rests
 - d. stop watches (2)
 - e. Borg Scale
 - f. heart rate monitor and receiver watch
 - g. emergency communications system
 - h. 15.24 m (50 ft) or 30.48 m (100 ft) measuring tape
 - i. coloured duct tape or equivalent
 - j. non-slip rubber mats and traffic pylons
 - k. mop and bucket
 - l. Heys xScale luggage scale
 - m. FF PFMP Ops Manual 3rd edition
 - n. FF PFMP DND 2205
 - o. www.DFit.ca exercise prescription information
 - p. Task #1 – one 15.24 m (50 ft) section of 65 mm (2.5 in) hose, one 60 cm (24 in) length of half inch rope tied around the hose bundle to form a handle
 - q. Tasks #2 and #9 – 3.6 m (12 ft) aluminum roof ladder
 - r. Task #3 – two 15.24 m (50 ft) sections of 45 mm (1.75 in) charged hose with nozzle, one hose clamp and duct tape
 - s. Tasks #4 and #8 – 7.3 m (24 ft) extension ladder with 10th rung marked in coloured tape and auto descender
 - t. Task #5 – weighted sled, two 18 m (59 ft) lengths of 16 mm static rope and two carabiners
 - u. Task #6 – one ALCO forcible entry unit, one 208 L (55 gallon) barrel, one 4.5 kg (10 lb) sledge hammer, two c-clamps, two 6 ft lengths of 2" x 6" connected together with four 2" x 6" x 15" cross-braces to form a foot stop barricade that can be attached to the bottom of the prop



CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

- v. Task #7 – Rescue Randy mannequin weighing 80 kg (176 lb) with 5-point harness
- w. Task #10 – one triceps curl resistance training bar with plates loaded to 36.4 kg (80 lb)
- x. work gloves
- y. fire protective clothing and equipment ensemble (refer to Annex C)
- z. *60-min MSA SCBA air cylinder with proper fitting face mask
- aa. 5-point harness for the firefighter

*Hull Tech cannot have MSA SCBA as they are not standard issue on board ships. They are authorized to use the Drager SCBA.

EVALUATION SET-UP

22. Prior to the evaluation, the lead evaluator will complete a facility, equipment and floor surface inspection to eliminate any tripping or slipping hazards, equipment malfunctions, obstacles, inappropriate surfaces and general safety risks. We **strongly** recommend that you block off the evaluation area to prevent any interference with safe and effective administration of the evaluation.
23. The circuit has been designed so that it can be conducted in CAF fire halls. However, the exact circuit set-up can vary from one fire hall to another as the building designs vary. Therefore, it is imperative that the layout of the exact circuit is determined and sanctioned by your Manager, Fitness & Sports or equivalent. If you are unsure, contact the Fitness & Wellness Manager to help you determine if the layout is adequate.
24. The job-related evaluation is completed on a smooth and clean concrete floor. The amount of effort required for the charged hose advance, the weighted sled pull and the victim rescue is partly determined by the surface friction. Carefully calibrate these tasks each evaluation day to ensure consistency between evaluations.
25. The minimum facility requirements are as follows:
 - an unobstructed distance of approximately 36.5 m (120 ft) to accommodate the charged hose advance
 - a suitable wall to set up and anchor the 7.3 m (24 ft) extension ladder and a suitable beam to set up the auto descender
 - a suitable wall to safely set up the ALCO forcible entry unit
 - a suitable water supply for charging the fire hose

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



26. In some cases, the transitions cannot occur in a “straight line”. It might be necessary to complete the transition walk in an “out and back” format. This does not affect the overall physical demands of the evaluation.
27. Use rubber mats and pylons as necessary to clearly denote start and stop locations, directions and boundaries.

CALIBRATION

28. The weight of most equipment should not be expected to change from day to day. However, some equipment can vary (for example, dust on the pistons and brake pads of the forcible entry unit) and thus, you should check calibration before each evaluation session.
29. Measure the distance for each task daily (or as often as necessary) to ensure accuracy. In some cases, you can place marks on the floor to designate start and stop lines. Unless these are permanent marks, verify the actual distance each time you or someone else sets up the evaluation. If a pylon is knocked over during an evaluation, verify the correct location through measurement.
30. The following information will assist you with set-up and calibration. Pay attention to the use of rubber mats and pylons to locate critical points of the evaluation course. These are particularly helpful for the firefighters and evaluators.
31. **TASK #1: ONE-ARM HOSE CARRY**
 - One 15.24 m (50 ft) section of 65 mm (2.5 in) hose
 - One 60 cm (24 in) length of 16 mm rope tied around the hose bundle to form a handle



Figure 2-1. View of the set-up for the One-arm Hose Carry.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

32. TASK #2: 3.6 m (12 ft) LADDER RAISE

- 3.6 m (12 ft) ladder



Figure 2-2. View of 3.6 m (12 ft) ladder starting position. Alternately, the ladder can also lay flat on the floor.

33. TASK #3: CHARGED HOSE ADVANCE

- 3 lengths (50 ft each) of 45 mm (1.75 in) Red Chief fire hose
- Nozzle
- In the absence of a hydrant to fill the hose, you can use a standard garden faucet with the following equipment (see Figure 2-3).
 - o Garden hose and adaptor
 - o Plumber's tape
- We recommend a hose clamp as a safety precaution against leaks, especially if the nozzle is accidentally opened in the evaluation area. The hose clamp will limit the amount of water that can escape.



Figure 2-3. Set-up for charging the fire hose with a garden hose. The water supply is from a hose-bib (or janitor's sink) using a garden hose. The adaptor is home-made from parts available at any plumbing supply outlet. Use plumber's tape on all connections and a hose clamp to avoid leaks.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



- Use a cable tensiometer or luggage scale to verify the force required to move the hose. Straighten a 30.48 m (100 ft) section of charged hose and attach the cable tensiometer or the luggage scale to the end of the extended hose.
 - The force required to move the 30.48 m (100 ft) length of charged hose should be approximately 178 N (40 lb).
 - When slowly initiating the movement of the charged hose, the tensiometer or the luggage scale should be no more than 20 cm from the floor. Take the measurement at the precise moment movement is initiated.
 - If the force registered on the tensiometer or the luggage scale is above 40 lb, reduce the water pressure or the distance of the charged hose until the force registered is approximately 178N (40 lb). Do not reduce the distance more than 20 ft.
 - If the force registered on the tensiometer or the luggage scale is below 178N (40 lb), increase the water pressure or the distance of the charged hose until the force registered is approximately 178N (40 lb). Do not increase the distance more than 20 ft.



Figures 2-4 and 2-5. General view of the set-up for measuring the force required to move the charged 45 mm hose 30.48 m (100 ft).



Figure 2-6. View of the finish line for the Charged Hose Advance. The traffic pylons indicate the actual finish line 30.48 m (100 ft) from the start line. The non-slip mat provides a “target” and a safe stopping area for the firefighter. Note that the nozzle bail has been secured in the off position with duct tape. We recommend this to avoid the accidental discharge of water.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

34. TASKS #4 AND #8: FIRST AND SECOND LADDER CLIMB

- Heavy-duty extension ladder 7.3 m (24 ft). You can use a single fly ladder, but remember that the firefighter climbs to the 10th rung, so the actual length of the ladder must extend at least 2 m past the 10th rung.
- Set the ladder up against a secure wall (see Figure 2-7).
- Place the base of the ladder on a non-slip rubber mat (see Figure 2-8).
- Tie off the top of the ladder.
- Use a Come-Along strap to secure the 10th rung to an “eye-bolt” on the wall (see Figure 2-9). This serves two purposes:
 - i. The ladder is more secure.
 - ii. The firefighter has a visual target at the 10th rung. This arrangement is also shown in Figure 2-7.
- Use fall protection. An auto decender attached over the ladder is shown in Figure 2-10. The anchor point for this device would be the standard (4,000 lb) under federal standards.
- Descent rate will vary between 0.5m/s and 2m/s depending on the weight of the firefighter (lighter weight, slower descent).
- The auto descender is capable of multiple deployments, as long as it is sent back to the manufacturer for calibration on the two-year cycle, as stipulated in the instructions (see Annex K).



Figure 2-7. Set-up for the Ladder Climb evaluation.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



Figure 2-8. Base of the ladder should be on a non-slip mat.



Figure 2-9. Anchor strap from the 10th rung to an “eye-bolt” on the wall.



Figure 2-10. View of an auto descender attached over the ladder.



Figure 2-11. View of the firefighter with the auto descender attached to the harness via the O-ring on the back, close to the firefighter's neck.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION

35. TASK #5: WEIGHTED SLED PULL

- Weighted sled
- Selection of weight plates to add or remove weight as required
- Two lengths of 18 m (59 ft) of 16 mm static rope
- Carabiners (2)



Figure 2-12. View of the set-up for the weighted sled.

- Use the cable tensiometer or luggage scale to verify the force required to move the sled. Attach the cable tensiometer or the luggage scale to the rope at approximately 15.2 m (50 ft) from the attachment to the sled.
 - o The force required to initiate movement of the sled should be between 178 and 200 N (approximately 40 – 45 lb).
 - o If the force is greater than desired, you must remove weight from the sled. If the force is less than desired, you must add weight to the sled.
 - o When initiating the movement of the sled, the cable tensiometer or the luggage scale should be no more than 20 cm from the floor.



Figure 2-13. General view of the set-up for measurement of the force required to initiate movement of the sled.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



36. TASK #6: ALCO FORCIBLE ENTRY (see Annex D)

- 4.5 kg (10 lb) sledge hammer
- ALCO forcible entry unit
- Heavy duty steel stand
- Use the hydraulic calibration tool supplied with the forcible entry unit to verify the pressure required to move the target.
 - o The force required to move the target unit should be between 850 and 900 psi (pounds per square inch).
 - o If the force is greater than above, loosen the four springs equally, controlling the breaking force. If the force is less than above, tighten the four springs equally.
- Additional information on the ALCO forcible entry device, and its set-up, maintenance and calibration, can be found in Annex D.



Figure 2-14. View of the set-up for the ALCO Forcible Entry task.

37. TASK #7: VICTIM RESCUE

- Rescue Randy mannequin with total weight of 80 kg (176 lb).
- If the weight of the mannequin is less than 80 kg, use a weighted vest to increase the total weight of the mannequin to the appropriate weight; however, the weight distribution should reflect 60% upper body and 40% lower body.
- Coveralls and firefighting boots prevent undue wear and tear. Ensure that the total weight of the mannequin does not exceed 80 kg (176 lb).

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



- Fit a simple harness (or “hasty strap”) to the mannequin so that firefighters can grasp and drag the victim (see Figure 2-15). If you are using a weighted vest, place the vest under the harness.

NOTE: The firefighter pulls the mannequin’s harness, not the vest.

- The distance for this task is 25.9 m (85 ft).
- In the set-up shown below, the firefighter drags the mannequin away from the start line, around the pylon placed at the 13 m mark (half the total distance,) and then returns to the start line. The task is complete when the mannequin’s feet cross the line. Note the placement of the two pylons at the far end of the course. The smaller pylon is placed 2 m in front of the second pylon. It serves as a “warning” that the turn will be completed soon.
- Firefighters should not touch the pylons while completing this task. As this is a guideline to promote safety and completion of the task under control, no negative consequence will occur if the firefighter touches the pylon.



Figure 2-15. View of the Victim Rescue task.

38. TASK #9: 3.6 m (12 ft) LADDER LOWER

- Ensure that there is sufficient space available for safely lowering the ladder (see Figures 2-16, 18, and 19).



Figure 2-16. Step one of lowering the ladder under control.

CHAPTER 2 - PREPARING FOR THE FF PFMP EVALUATION



Figure 2-17. Step two of lowering the ladder under control.



Figure 2-18. Step three – returning the ladder to the starting position.

39. TASK #10: EQUIPMENT CARRY

- Set up the weighted triceps curl bar on a mat. Ensure that it cannot roll away when not in use and that the firefighter has secure footing when lifting and lowering the curl bar.
- The total weight of the triceps curl bar is 36 kg (80 lb).



Figure 2-19. Equipment carry set-up.

CHAPTER 3

EVALUATION PROCEDURES

PART I - GENERAL

1. The Firefighter Physical Fitness Maintenance Evaluation (FF PFME) is comprised of a 10 task circuit, simulating fire-rescue tasks that are completed continuously on a standardized course. Transition intervals of either 15.24 m (50 feet) or 30.48 m (100 feet) are incorporated between tasks and represent the conduct of a logical sequence of tasks during initial response fire-rescue operations. For performance on the circuit, firefighters will be required to wear full turnout gear consisting of firefighter's boots, gloves, helmet, bunker pants, jacket, and harness, as well as a complete SCBA.
2. When evaluating a firefighter, allow approximately 45 minutes for an evaluation.

PART II – BLOOD PRESSURE

3. When a firefighter does not have a valid PHA, the evaluator will measure pre-evaluation BP using a stethoscope and sphygmomanometer or an automatic blood pressure machine.
4. **BP measurement procedures:**
 - a. Have the firefighter sit for five minutes with their back against the chair rest, feet flat, legs and ankles uncrossed, and their left arm comfortably supported.
 - b. Ensure that the firefighter's clothing does not impede their blood flow. Ask the firefighter to change their shirt if required.
 - c. Choose an appropriately sized blood pressure cuff and apply it to the firefighter's left arm.
 - d. Place the cuff around the bare left upper arm with the lower margin two or three centimetres above the antecubital space (bend of the elbow), with the lower edge of the cuff level with the heart.
 - e. Wrap the cuff evenly around the arm, tightly enough that you can slip two fingertips under the cuff's top edge.
5. **Manual BP procedures for PSP Evaluators:**
 - a. Locate and note the brachial artery and the antecubital space by palpation.
 - b. Position the stethoscope in your ears with the earpiece pointing forward.
 - c. Locate the radial artery.
 - d. Close the valve on the air pump by turning the thumbscrew in a clockwise direction until it is tight.

CHAPTER 3 - EVALUATION PROCEDURES



- e. Inflate the cuff quickly until you can no longer feel the radial artery pulse. Continue to inflate the cuff to a level **20 to 30 mm Hg above** the level of the radial pulse (normally not above 180 mm Hg).
 - f. Quickly position the diaphragm of the stethoscope over the brachial artery. Apply a minimum amount of pressure on the diaphragm of the stethoscope so as not to distort the artery. The diaphragm should be in complete contact with the skin. The stethoscope should not touch the cuff or its tubing.
 - g. Release the cuff pressure at a rate of approximately **2 mm Hg per second**.
 - h. Establish the systolic blood pressure by listening for the first perception of sound (Korotkoff sound).
 - i. Note the exact numerical line on the scale where you hear this sound.
 - j. Establish the diastolic BP when the sounds stop their tap-like quality and are fully muffled.
 - k. Deflate the cuff to zero pressure and remove it from the firefighter's arm.
6. In the event that the pre-evaluation systolic blood pressure is **higher than 150 mm Hg** and/or the pre-evaluation diastolic blood pressure is **higher than 100 mm Hg**, have the firefighter rest quietly for five minutes before repeating the measurement. If, after two readings the firefighter's pre-evaluation systolic BP and/or pre-evaluation diastolic BP are still too elevated, do not allow the firefighter to do the FF PFME. Refer the firefighter to their Health Care Provider.
7. A firefighter whose pre-evaluation blood pressure is between 141/91 mm Hg and 150/100 mm Hg is permitted to perform the FF PFME without restrictions. Advise the firefighter that their BP reading is slightly above the normal range and encourage them to consult with their Health Care Provider. Verbally tell the firefighter that there is no cause for alarm and that consulting a Health Care Provider serves as a simple safety precaution.

AUTOMATIC BP PROCEDURES:

8. Instruct the firefighter to sit very still and to not move their arm, hand, fingers or body during the measurement of the BP. Any movement could produce a false measure of the BP or prevent the automatic blood pressure machine from reading the BP. Press the button to start the machine. Once the automatic blood pressure machine has finished measuring the firefighter's BP, remove the cuff from the firefighter's arm.



CHAPTER 3 - EVALUATION PROCEDURES

9. **Fit Heart Rate (HR) Monitor:** Provide a HR monitor and help the firefighter put it on correctly. The chest strap should be quite snug. The heavy clothing and self-contained breathing apparatus (SCBA) pack will frequently cause the chest strap to move and disrupt transmission if it is loose. Once the evaluation has started you will not be able to tighten the strap. Make sure that the monitor is working properly and displays the firefighter's heart rate. Instructions for proper operation can be found in the Heart Rate Monitor Operator's Manual. The HR receiver can be attached to the SCBA or at a location convenient for you to read while walking beside the firefighter. You should expect to see very high (near maximal) HR values during the evaluation period, due in part to the physical exertion and in part to the heat stress that can occur.
10. **Evaluator's observation.** You must make general observations during the screening process. Postpone and reschedule the evaluation, if the firefighter:
 - demonstrates difficulty breathing at rest
 - coughs persistently
 - is ill
 - has lower-extremity swelling
 - displays any signs of serious distress
11. These concerns should be dealt with in a similar manner to a **YES** response on the Health Appraisal Questions. Encourage the firefighter to see their Health Care Provider about some of the concerns (persistent cough, lower extremity swelling) or simply return at the re-scheduled time when the concerns are no longer relevant.
12. For a medically fit firefighter, proceed with the evaluation after confirming that the pre-evaluation instructions (chapter 2 Para 10) were followed and that no other issues have been observed.

PART III – FITNESS ASSESSMENT

INFORMATION BRIEFING

13. Before the warm-up, provide a clear explanation of the test components using the provided script (see Annex G). Walk the firefighter through the FF circuit and explain how each task will be conducted, general technical information highlighting ideal technique, safety, Emergency Action Plan (EAP), Borg Scale, timings, and criteria for the termination of the evaluation. This is also a good time to provide an opportunity for the firefighter to ask questions about the test

CHAPTER 3 - EVALUATION PROCEDURES



components. During the explanation, another evaluator will demonstrate each test component as mentioned in the script.

MANDATORY WARM-UP

14. Prior to the evaluation, each firefighter will undergo a PSP evaluator lead standardized warm-up (see Annex I). You will conduct the warm-up in small groups of two firefighters to ensure they are not waiting for an extended period of time before being able to attempt the evaluation. The warm-up includes:
 - a. Mandatory light aerobic activity (2-3 minutes), performed with a 20 m set-up. To include:
 - 20 m x walking: easy arm circles 10 m in each direction
 - 20 m x walking: 10m arms across chest and to back, 10 m arms up and down
 - 10 m arms up and down
 - 20 m x walking knee lifts
 - 20 m x walking butt kicks
 - 20 m x walking Frankensteins (alternating straight leg raise to opposite hand in forward motion)
 - 2 x 20 m progressive jogging
 - 1x 20 m side steps, alternating directions
 - 1 x 20 m carioca, alternating directions
 - b. Mandatory dynamic movements (2-3 minutes) performed in a stationary position. During this phase of the warm-up, use this time to coach and correct on proper lifting techniques as described in Annex J. Include the following:
 - 5/side reaching side bends
 - 3 x full squats
 - 3 x lunges forward/backward complex
 - 3 x each right and left alternating side/lateral step lunges
 - 3 x each single, stiff-legged dead lift (with single-arm reach)

CHAPTER 3 - EVALUATION PROCEDURES



- 3 x push-up plus
 - 3 Spiderman/side
- c. 1-2 minute warm-up period, at the firefighter's discretion.

EVALUATION PROCEDURES

15. Once the warm-up is complete, have the firefighter dress in their Personal Protective Equipment (PPE). The firefighter must wear correctly fitting fire protective clothing including jacket, pants, rubber boots, flash-hood, helmet, leatherwork gloves, harness, and the self-contained breathing apparatus ("one-hour" MSA or Drager SCBA cylinder is acceptable). Note that the jacket collar must be fully done up and the helmet visor must be in the down position. All firefighters must wear a 5-point harness under their SCBA.
16. Prior to the start of the circuit, make sure that the firefighter is properly dressed and that no loose straps or belts are hanging. You, or the assisting firefighter, must ensure that the air tank being used is full, as indicated on the dial. In order to conserve air, the firefighter is instructed to don and check the SCBA for proper operation, and place the regulator in the stand-by position. When you and the firefighter are ready, insert the regulator into the face piece, ensure it is connected properly, and then begin the evaluation.

NOTE: Throughout the entire evaluation, instruct the firefighter to move quickly (a very brisk walk, not a run) towards the finish line. By definition, running includes a "flight phase" where both feet are off the ground. This does not occur in walking because one foot is always in contact with the ground.

TASK #1: ONE-ARM HOSE CARRY

17. **Purpose:** This task simulates the requirement of carrying equipment from a fire truck to a fire hydrant or to the scene of a fire.



Figure 3-6. One-arm Hose Carry.

CHAPTER 3 - EVALUATION PROCEDURES



18. Procedures:

- i. The firefighter lifts and carries one 15.24 m (50 ft) section of rolled 65 mm (2.5 inch) hose weighing 16.5 kg (36 lb) in one hand a distance of 15.24 m (50 ft).
- ii. The firefighter places both feet on a rubber mat, turns 180 degrees, and returns the same distance, carrying the hose in the other hand.
- iii. Once the firefighter places both feet on the starting mat, they can then safely lower the hose to its original position.

NOTE: The firefighter must carry the hose by the rope. The evaluation time begins when the firefighter first reaches for the rope.

Specific Instructions

- The evaluator indicates when the evaluation begins and soon after, the firefighter must start the task.
 - The clock starts as soon as the firefighter moves to pick up the hose bundle.
 - The firefighter must lift and carry the hose safely and in control at all times.
19. **Walk #1: 15.24 m (50 ft) to the 3.6 m (12 ft) Ladder Raise.** While the firefighter is walking, use Annex E to record the firefighter's heart rate as indicated on the heart rate monitor. Ask and record the Rating of Perceived Exertion (RPE). Using the Borg Scale, have the firefighter point to a value that reflects how difficult they found that specific task. Record these values during all the walks.

NOTE: HR and RPE, in conjunction with observed signs of distress, should provide sufficient information for you to terminate the evaluation for safety reasons (if necessary).

CHAPTER 3 - EVALUATION PROCEDURES



TASK #2: 3.6 M (12 FT) LADDER RAISE

20. **Purpose:** This task simulates the requirement of removing a roof ladder from a fire truck, carrying it to the scene of the fire, and raising it against a wall.



Figure 3-7. 3.6 m (12 ft) ladder in the final raised position.

21. **Procedures:** For this task, the firefighter picks up a 3.6 m (12 ft) ladder weighing 13.6 kg (30 lb) laying flat on the floor or propped securely on its side, carries it a distance of 15.24 m (50 ft), and then raises it against a wall at the target position. Mark the target with a non-skid mat as shown in the photo above.

Specific Instructions

- The firefighter must lift and carry the ladder safely and in control at all times. Remind firefighters about safe lifting and raising technique.
22. **Walk #2: 15.24 m (50 ft) to Charged Hose Advance.** Use Annex E to record the firefighter's heart rate and RPE.

TASK #3: CHARGED HOSE ADVANCE

23. **Purpose:** At the scene of a fire, the firefighter must drag sections of a charged hose from the fire hydrant to the scene of the fire.



Figure 3-8. Proper position during the charged hose advance.

CHAPTER 3 - EVALUATION PROCEDURES



24. **Procedures:** The firefighter picks up the nozzle end of a 30.48 m (100 ft) section of 45 mm (1.75 in) charged hose and drags the hose a distance of 30.48 m (100 ft). Once the firefighter stands with both feet on a mat at the 30.48 m (100 ft) mark, they will then place the nozzle on the mat in a safe manner.

Specific Instructions

- The firefighter must carry the hose over the shoulder (see Figure 3-8) and secure it firmly with two hands at all times. Coach and correct if necessary.
 - The firefighter must carry the nozzle near waist level.
 - The firefighter must cross the finish line with both feet going straight ahead. Twisting, turning or backing across the finish line is not permitted.
 - When the firefighter is completely across the finish line, they must stop and set the nozzle safely on the floor. They must not drop the nozzle.
25. **Walk #3: 15.24 m (50 ft) to First Ladder Climb.** Use Annex E to record the firefighter's heart rate and RPE.

TASK #4: FIRST LADDER CLIMB

26. **Purpose:** This task represents the requirement to climb and descend ladders or stairs.



Figure 3-9. Firefighters must maintain three points of contact during the ladder climb.

27. **Procedures:** For this task, you must stop and restart the timer when you or another evaluator clips the firefighter in and out of the harness. You must deduct the time it takes to do this from the total time (so as not to penalise the firefighter for this safety requirement). Once the firefighter is securely attached to the belay device (see Figure 2-10), the firefighter is required to climb 10 rungs up and 10 rungs down on a 7.3 m (24 ft) ladder. The firefighter must repeat this process three times for a total of 30 rungs up and 30 rungs down. The firefighter must

CHAPTER 3 - EVALUATION PROCEDURES



place both feet on the 10th rung prior to descending. The firefighter must place both feet on the ground prior to ascending. You must call out the number of rungs climbed in order to assist the firefighter (for example, “one, two, three”, etc.).

Important: Only call out the rungs completed so as not to pace the firefighter by voice command. The firefighter must determine their own pace.

Specific Instructions

- The firefighter must maintain a three-point contact (two feet and one hand, or one foot and two hands) at all times on the ladder.
 - A flight phase (both feet off the ladder at once, or a jump from one rung to the next) should be treated the same as running. The first time results in a warning, and the firefighter must return to where they were prior to the offence, and then continue with the evaluation. If the firefighter continues to repeat the offence, you must stop the evaluation.
 - Call out each step in this fashion, “one-two-three-four-five-six-seven-eight-nine-ten-UP (second foot on the 10th rung)” followed by, “ten-nine-eight-seven-six-five-four-three-two-one-DOWN (second foot on the floor)”.
 - The second step at the top (10th rung) and bottom (floor), must be weight bearing. If the firefighter fails to complete this requirement, instruct them to return to the top or bottom, and properly complete the evaluation.
 - The firefighter must remain under control at all times. If the firefighter misses a rung or slips, they must stop, go back to the point of error, and continue with the evaluation.
28. **Walk #4: 30.48 m (100 ft) to Weighted Sled Pull.** Use Annex E to record the firefighter’s heart rate and RPE.

TASK #5: WEIGHTED SLED PULL

29. **Purpose:** This task simulates the requirement to pull equipment onto a roof or into a burning building using a hand-over-hand technique. For reasons of safety during the evaluation, this task is simulated on the floor versus having the firefighter actually pull equipment onto a roof.



Figure 3-10. Hand-over-hand technique during the weighted sled pull.

CHAPTER 3 - EVALUATION PROCEDURES



30. **Procedures:** For this task, the firefighter must pull a weighted sled a total distance of 30.48 m (100 ft). The firefighter can use a hand-over-hand, or a one- or two-hand pull technique. This task starts with the firefighter pulling the sled from the starting position 15.24 m (50 ft) away. Once the entire sled passes the 15.24 m (50 ft) mark on the floor, they must walk 15.24 m (50 ft) back to where the sled started, pick up the rope, and begin pulling the sled towards themselves until the entire sled passes the original 15.24 m (50 ft) mark on the return trip.

Specific Instructions

- The firefighter should take up a position approximately 2 m (6.5 ft) behind the line that they must pull the sled across.
 - The firefighter's feet should remain in one spot and must not move excessively. Firefighters cannot hold the rope and move backwards to move the sled.
 - Once you signal that the sled has crossed the line, you must instruct the firefighter to move quickly (a brisk walk) towards the opposite end of the course.
 - Do not allow the firefighter to proceed until the sled is fully across the line. Explain this aspect of the evaluation protocol to the firefighter during the warm-up period.
 - A second evaluator should be available to monitor this task. An evaluator should be at each end of the course to ensure that the sled fully crosses the line and that the firefighter follows the evaluation procedures. Once the firefighter pulls the sled the required distance, you must reset it in the starting position, and pull the rope tight. No slack or knots should be present in the rope during the evaluation.
 - At the other end, the firefighter should take up a position about 2 m (6.5 ft) behind the line, bend and pick up the rope, and pull the sled back.
31. **Walk #5: 15.24 m (50 ft) to Forcible Entry.** Use Annex E to record the firefighter's heart rate and RPE.

TASK #6: FORCIBLE ENTRY

32. **Purpose:** This task simulates the forcible entry into a building by either knocking down a door or a wall. The height of the target from the ground realistically represents the normal door handle height. Moving the mechanically braked target corresponds with the forces required to knock down structures (doors/walls) in order to obtain access.

CHAPTER 3 - EVALUATION PROCEDURES



Figure 3-11. Proper technique during the ALCO Forcible Entry task.

33. **Procedures:** Place the 4.5 kg (10 lb) steel sledge hammer in an upright position immediately in front of the target area. The firefighter picks up the hammer and uses it to repeatedly strike the mechanically braked target surface of the forcible entry apparatus until the target moves the required distance. The firefighter must use the sledge hammer in a swinging manner and not as a battering ram. The firefighter is permitted as many hits as required to move the target the full distance. The task is complete when you hear the buzzer and you shout, “Stop.”

Specific Instructions

- Place the hammer on end in a neutral position on the ground in front of the forcible entry unit. Firefighters are not permitted to place the hammer in a more favorable position.
- The firefighter cannot move their feet past the foot stop barrier.
- The firefighter must hold the hammer safely with two hands in contact with the shaft at all times.
- Note the position of the right hand on the hammer shaft in Figure 3-11. The tape mark on the shaft of the hammer (30 cm from the top edge of the head of the hammer) **MUST** be visible between the hand and the head of the hammer. This is to avoid injury. If the firefighter’s hand is too close to the striking surface the impact is transferred to the forearm. Remind the firefighter of the proper location for their hands.
- Encourage the firefighter to hit the target “hard and fast” in order to move it horizontally until you hear the buzzer.
- The firefighter should continue hitting the target until the evaluator indicates (in a very loud voice) to “stop”.
- At the sound of the buzzer and after the evaluator signals that the evaluation is complete, the firefighter can safely put the hammer down on the floor.

CHAPTER 3 - EVALUATION PROCEDURES



34. **Walk #6: 15.24 m (50 ft) to Victim Rescue.** Use Annex E to record the firefighter's heart rate and RPE.

TASK #7: VICTIM RESCUE

35. **Purpose:** This task simulates the evacuation of a casualty from a structure.



Figure 3-12. Using the harness to drag the rescue mannequin.

36. **Procedures:** For this task, the firefighter is required to drag an 80 kg (176 lb) "Rescue Randy" mannequin a total distance of 25.9 m (85 ft). The firefighter must complete this task by holding the mannequin around the upper torso or with the provided safety harness.

NOTE: They cannot drag the mannequin by its clothing or limbs.

- The firefighter drags the mannequin from its starting position towards a pylon 13 m (42.5 ft) away.
- Once the firefighter safely navigates the turn around the pylon (no contact with the pylon is allowed), they must drag the mannequin back to the starting position.
- The task is complete when the entire mannequin passes the 25.9 m (85 ft) mark on the floor.

Specific Instructions

- The firefighter has the choice of lifting the rescue mannequin with their arms around the mannequin's torso or by gripping the harness while walking backwards.
- Remind the firefighter about both techniques and allow them to practice both methods.

CHAPTER 3 - EVALUATION PROCEDURES



- If the firefighter drops the mannequin at any time during the evaluation, the firefighter must pick it up and continue.
 - Encourage the firefighter to walk backwards quickly but remind them that they must remain under control.
 - Guide firefighters through the evaluation so that they do not accidentally touch the turning pylon. Give verbal and visual instructions. Explain all instructions during the warm-up period.
 - The firefighter must turn safely and under control around the turning pylon. The firefighter should not touch the pylon with either their body or with the mannequin.
 - If the firefighter gains an advantage from touching the pylon such as shortening the course, have the firefighter correct their mistake and ensure that they follow the proper path around the cone before they continue with the task.
 - Place a “warning pylon” in front of the turning marker to inform firefighters that they are approaching the turning pylon. Remind firefighters to do a visual check while passing the “warning pylon” for spatial awareness.
 - Once past the warning pylon, advise firefighters to take a wide turn to avoid touching the “turning” pylon. Provide verbal and visual instructions at this time.
 - Once you signal that the entire mannequin has crossed the finish line, the firefighter can then safely lower the mannequin to the floor.
37. **Walk #7: 15.24 m (50 ft) to Second Ladder Climb.** Use Annex E to record the firefighter’s heart rate and RPE.

TASK #8: SECOND LADDER CLIMB

38. **Purpose:** Refer to Task 4: First Ladder Climb



Figure 3-13. View of proper climbing technique on the ladder.

CHAPTER 3 - EVALUATION PROCEDURES



39. **Procedures:** For this task, you must **stop** and **restart** the timer when you or another evaluator clip the firefighter in and out of the harness. You must deduct the time it takes to do this from the total time (so as not to penalize the firefighter for this safety requirement). The firefighter is required to climb 10 rungs up and 10 rungs down twice. This task is similar to Task #4 except that this time the firefighter only climbs up and down twice instead of three times. The firefighter can stop and rest during the task. However, for safety reasons, you should encourage the firefighter to rest prior to their second ascent, and discourage them from resting on any of the rungs. The firefighter must place two feet on the 10th rung and on the ground as described in Task #4.
40. **Walk #8: 30.48 m (100 ft) to 3.6 m (12 ft) Ladder Lower.** Use Annex E to record the firefighter's heart rate and RPE.

TASK #9: 3.6 M (12 FT) LADDER LOWER

41. **Purpose:** This task simulates the situation of a firefighter moving a ladder from one location at the scene of a fire to another location, or removing a ladder from the scene of a fire back to the fire truck.



Figure 3-14. Lowering the 3.6 m (12 ft) ladder under control.

42. **Procedures:** The firefighter is required to safely lower the 3.6 m (12 ft) ladder. They are then required to carry the ladder a distance of 15.24 m (50 ft), and then safely lower the ladder into its original starting position.

Specific Instructions

- The firefighter must lift and carry the ladder safely and in control at all times. Remind firefighters about safe lifting and lowering technique.
43. **Walk #9: 15.24 m (50 ft) to Equipment Carry.** Use Annex E to record the firefighter's heart rate and RPE.

CHAPTER 3 - EVALUATION PROCEDURES



TASK #10: EQUIPMENT CARRY (36.4 KG / 80 LB)

44. **Purpose:** This task represents the requirement for a firefighter to carry heavy equipment to or from the scene of an accident or fire.



Figure 3-15. Proper technique for carrying the weighted triceps curl bar.

45. **Procedures:** For this task, the firefighter is required to lift the weighted triceps curl bar from its position on the “starting mat” and carry it to another mat 15.24 m (50 ft) away. Once both feet are placed on the mat the firefighter can turn around and carry the triceps bar back to the starting mat. The task (and overall evaluation) is complete when both feet are placed back on the original starting mat.
46. The evaluation ends when the firefighter places both feet on the mat. The time required to lower the weight to the floor is not included in the task. Firefighters are very likely to be very tired at this point, and lowering the weight in a hurry presents an injury risk.

Specific Instructions

- The firefighter must lift and carry the triceps bar using both hands or using a cradle hold. The triceps bar must not be perpendicular to the floor (for example, placing the bar on their shoulder). The firefighter must have a controlled hold of the triceps bar at all times.

NOTE: Most firefighters are very tired at this point; remind them about safe lifting and lowering technique.

- Encourage the firefighter to keep a steady pace.
- The evaluation is over and time stopped when the firefighter places both feet on the mat. The firefighter should pause briefly before lowering the bar to the mat.
- Advise the firefighter to take a breath and then lower the bar to the mat.

CHAPTER 3 - EVALUATION PROCEDURES



47. Use Annex E to record the firefighter's final heart rate and RPE.

END OF EVALUATION

48. The testing session is now complete. Most firefighters will be very tired and might be hot. Have the firefighter stand still while you help remove the protective ensemble. Start with the helmet and flash-hood, then the SCBA, gloves and jacket. Move the firefighter to a designated recovery area.

49. **Criteria for Termination of the Circuit.** The circuit is terminated when any of the following occurs:

- The firefighter complains of or experiences dizziness, chest pain, tightness in the chest, nausea, severe pain or weakness in limbs, mental confusion, or any other severe pain.
- The firefighter stops and does not wish to continue.
- The firefighter staggers, has marked dyspnea (breathlessness) or cyanosis (blue discoloration of the skin due to lack of oxygen).
- If you judge the firefighter to be out of control or if the firefighter does not follow the rules, give a warning. If the firefighter does not take the proper corrective action, then stop the evaluation immediately.
- If, at any time, you become concerned with the firefighter's safety.

COOL DOWN.

50. It is important that the firefighter does not leave the evaluation area after they have completed the circuit. A supervised walk within the testing area should take place to allow the firefighter's heart rate to slow down. The firefighter should then perform some stretching and concentrate on all the major muscle groups.

PART IV – EVALUATION SUMMARY

DND 2205 SECTION C – PERFORMANCE

Section C – Performance - Exécution			
Evaluation - Évaluation			
Circuit Performance Exécution du parcours	<input type="checkbox"/> 1 st - 1 ^{er}	<input type="checkbox"/> 2 nd - 2 ^e	<input type="checkbox"/> Other - Autre
	Time / Temps	min.	sec.
Re-Test (original test sheet must be attached with this re-test) Reprise de l'évaluation (les résultats de l'évaluation précédente doivent être joints à la nouvelle évaluation)			



CHAPTER 3 - EVALUATION PROCEDURES

51. Insert the total circuit time in the appropriate **min.** and **sec.** box. Remember to subtract the time that it took to clip the firefighter in and out of the auto descender when they climbed the ladder in tasks #4 and #8.

DND 2205 SECTION D – RESULTS

Section D – Results - Résultats			
Met standard / Satisfait à la norme	Yes / Oui	No / Non	Re-Test (first attempt only) Reprise (première tentative seulement)
1 st Circuit – 1 ^{er} Parcours	<input type="checkbox"/> ≤ 8 m 01s	<input type="checkbox"/> ≥ 8 min 10s	<input type="checkbox"/> ≥ 8 min 02s to 8 min 09s
2 nd Circuit – 2 ^e Parcours	<input type="checkbox"/> ≤ 8 m 01s	<input type="checkbox"/> ≥ 8 min 02s	
Next evaluation - Prochaine évaluation	Date (yyaa-mm-dj)		<input type="checkbox"/> Medically excused for entire assessment period Exemption médicale pour la totalité de la période d'évaluation

52. Results are determined as follows:

a. **Circuit:**

- i. Select **“YES”** if the firefighter met the standard of 481 s (8 min and 1 s) or less. Firefighter demonstrates physical fitness capacity to complete firefighting work at the acceptable work rate.
- ii. Select **“NO”** if the firefighter has a time of 490s (8 min and 10s) and greater on their **FIRST** annual evaluation of the year or fails to complete each task in the circuit or fails to complete the entire circuit. Select **“NO”** if the firefighter has a time of 482s (8 min and 2s) and greater on their **second or subsequent evaluations**. Firefighter does not demonstrate physical fitness capacity to complete firefighting work at the acceptable work rate.
- iii. Select **“Re-Test”** if the firefighter has a time of 482-489s (8 min 2 s – 8 min 9s). Performance can represent inadequate fitness or could be due to biological variability. Schedule the retest within two weeks.

NOTE: The criteria **“Re-Test”** only applies for the firefighter’s **FIRST** annual evaluation. If a firefighter’s results are within this time frame on their second or subsequent evaluation, it is an automatic **“NO”** Did not meet standard”.

NEXT EVALUATION

53. Indicate in this section of the DND 2205 the appropriate date for the firefighter’s next annual evaluation. The FF PFMP Evaluation is valid for 365 days from the date the test was completed.

CHAPTER 3 - EVALUATION PROCEDURES



However, the reporting period is from April 1st to March 31st.

Next evaluation date options are as follow:

- MET FF PFMP MPFS – 365 days
- Did not meet FF PFMP MPFS – 90 days
- Re-test – 2 weeks

54. Firefighters who fail to achieve FF PFMP MPFS will be advised by the CoC if administrative procedures will apply in accordance with DAOD 4007-4.

DND 2205 SECTIONS E AND F

– EXERCISE PRESCRIPTION AND CERTIFICATION OF EVALUATION AND PRESCRIPTION

Section E – Exercise Prescription - Prescription d'exercices	
<input type="checkbox"/> PSP Fitness and Sports Staff and/or DFit.ca (<i>Self supervision</i>)	<input type="checkbox"/> PSP Fitness and Sports Staff (<i>Direct supervision</i>)
<input type="checkbox"/> Personnel du conditionnement physique et des sports des PSP ou cphysd.ca (<i>autonomie</i>)	<input type="checkbox"/> Personnel du conditionnement physique et des sports des PSP (<i>surveillance directe</i>)
Section F – Certification of Evaluation and Prescription - Attestation d'évaluation et prescription d'exercices	
_____	_____
Name (<i>print</i>) - Nom (<i>en caractères d'imprimerie</i>)	CFMWS Fitness and Sports Evaluator Signature Signature de l'évaluateur du conditionnement physique et des sports des SBMFC

55. Indicate if the firefighter's exercise prescription is Self-supervision (has passed the evaluation) or Direct supervision (has failed their evaluation), according to their evaluation results. You must print legibly and sign your name in section F.

DND 2205 SECTION G – CERTIFICATION OF UNDERSTANDING

Section G – Certification of Understanding - Attestation	
I acknowledge the above fitness evaluation results, exercise prescription and the requirement to maintain an up to date physical fitness training record. Je reconnais les résultats de l'évaluation de la condition physique et la prescription d'exercices ci-dessus, ainsi que la nécessité de tenir à jour un carnet d'entraînement de conditionnement physique.	
_____	_____
Signature of CAF member - Signature du membre des FAC	Date (<i>yyaa-mm-dj</i>)

56. The firefighter signs and dates their acknowledgement of the fitness evaluation results, exercise prescription and the requirement to maintain an up to date physical fitness training record. In cases where the firefighter refuses to sign, you can note in this section, "member refused to sign", and then distribute the required copies.



CHAPTER 3 - EVALUATION PROCEDURES

PENSION IMPLICATIONS

57. It is important that you complete the DND 2205 in accordance with proper procedures. The completed form provides supporting information of direction and control of the FF PFME by approving the firefighter to proceed with the assigned exercise prescription. The DND 2205, the generated programs from www.DFit.ca and/or fitness programs created by PSP fitness staff can be considered when determining a disability pension for injuries sustained while conducting physical fitness training.
58. It is in the CAF's best interest that its personnel participate in physical fitness activities that are conducted in accordance with this manual and other related policies and orders. Due to the unique nature of a firefighter's work environment, it is not always possible for its personnel to participate in a physical fitness training program during normal working hours. When engaged in the FF PFMP on their own time, it is understood that firefighters will be doing so to meet operational requirements.

DND 2205 SECTION H – PROGRAM APPROVAL

Section H – Program Approval - Approbation du programme

The above fitness evaluation and prescription have been reviewed and are approved.
L'évaluation de la condition physique et la prescription d'exercices ci-dessus ont été révisées et approuvées.

Signature of Commanding Officer - Signature du commandant

Unit - Unité

Date (yyaa-mm-dj)

59. Send Copy 1 to the firefighter's unit and have the Fire Chief sign it.

DISTRIBUTION OF THE DND 2205

60. The Firefighter Physical Fitness Maintenance Program form, DND 2205, will be the only form used to record firefighter evaluation results and exercise prescription. In accordance with the Privacy Act, once completed, the DND 2205 is a Protected B document and must be treated as such.
61. Completed DND 2205 forms will be distributed in accordance with the following procedures:
 - a. Copy 1 to the firefighter's Orderly Room for Fire Chief signature and for placement in the member's Unit Personnel Record – UPR.
 - b. Copy 2 to the Base/Wing Surgeon.
 - c. Copy 3 to CFMWS/DFit.
 - d. Copy 4 to PSP Fitness & Sport Section (Physical Fitness Envelope - DND 1117).
 - e. Copy 5 to the firefighter.

CHAPTER 3 - EVALUATION PROCEDURES



NOTE: Annex E must be kept with Copy 4 – PSP Fitness Section (Physical Fitness Envelope – DND 1117).

DISTRIBUTION OF THE DND 2205 AND ACTION ON POSTING OF CAF FIREFIGHTERS

62. When a firefighter is posted, the physical fitness records (DND 1117) held by the Manager, Fitness & Sports must be forwarded to the PSP Unit at their next posting location.
63. You are responsible for distributing Copies 3, 4 and 5. The Fire Chief does not have to sign Copies 3, 4, and 5. Ensure that mailed copies follow Protected B regulations. Mail Copy 3 within 30 days of the evaluation period. You are also responsible for sending Copies 1 and 2 to the Base Fire Chief for their signature and distribution.

CHAPTER 4

EXERCISE PRESCRIPTION

GENERAL

1. Health-related fitness includes components of fitness that exhibit a relationship with health and wellness status. Positive health and wellness are associated with the capacity to enjoy life, to withstand challenges, and to live without disease. The underlying concept of health-related fitness is that better status in each of the constituent components is associated with lower risk for the development of disease or functional disability.
2. Research has indicated that, as the aerobic capacity of NDFS firefighters increases, circuit performance time decreases, and that the single best predictor of performance on the circuit is VO₂ max^{25,26}. This finding is not surprising since previous studies have demonstrated that the performance of fire suppression tasks is enhanced in those firefighters with high VO₂ max^{4,11,15}. Since the demands of firefighting tasks require the firefighter to possess very high levels of aerobic power, muscular strength, muscular endurance and flexibility⁶, the exercise program prescribed to firefighters should include these fitness components. Individual exercise programs will only be provided by certified PSP Fitness staff.

FEEDBACK TO FIREFIGHTERS

3. Meet briefly with all firefighters, after an evaluation, to review test results and applicable prescription information. Firefighters unable to attain the MPFS, or those with specific fitness needs/injuries beyond the norm, should be allocated additional time or have a meeting scheduled with a qualified PSP Fitness and Sports Instructor or a PSP Physical Exercise Specialist, as applicable.

Feedback will generally include:

- An overview of the evaluation results.
- A personalized exercise prescription based on their evaluation results and the use of www.DFit.ca. www.DFit.ca programming and custom fitness programs developed by the fitness staff can be monitored by the PSP fitness staff and therefore provide ongoing guidance.
- A description of a proper warm-up and cool-down.

SUPERVISION OF EXERCISE PROGRAMS

The levels of supervision are as follow:

4. **Direct Supervision:** Place an “x” in the box that corresponds to “PSP Fitness and Sport Staff

CHAPTER 4 - EXERCISE PRESCRIPTION



(Direct supervision)” if the firefighter fails to meet the evaluation standard. The frequency of remedial physical fitness training will be no less than three times per week, for a minimum of twelve weeks. However, the Fire Chief, with the Manager, Fitness & Sports or delegated representative, can make exceptions to this guideline when it is clear that the firefighter is ready to pass their evaluation.

NOTE: Direct supervision implies direct monitoring and reporting of a firefighter’s exercise program by certified PSP Fitness staff. Re-evaluation procedures must follow all DAOD 4007-4 directives and guidelines set out in this manual.

5. **Self-supervision:** Place an “x” in the box that corresponds to “PSP Fitness and Sport Staff and/or www.DFit.ca (Self supervision)” if the firefighter meets the evaluation standard. In this case, the firefighter is in charge of their own fitness in accordance with the www.DFit.ca programs that were provided to the firefighter by qualified PSP fitness staff.

PSP DELIVERED EXERCISE PRESCRIPTION

6. The firefighter’s exercise prescription information contains the following:
 - A warm-up and cool-down that includes a flexibility/mobility program.
 - A cardiovascular program that includes recommended quantity and quality of activity.
 - A muscular strength and endurance program that includes recommended quantity and quality of activity.

WARM-UP

7. We highly encourage a series of warm-up exercises prior to starting physical fitness training. A proper warm-up will move all major muscle groups, increase body temperature, raise heart rate and respiration rates, and generally prepare the body for the physical fitness activities that are to follow. The warm-up should last a minimum of five minutes. To increase blood flow, the firefighter should begin with easy jogging, brisk walking, or other activities conducted in an easy manner. They should then perform a series of dynamic movement and muscle activation exercises.
8. Specific warm-up exercises can be found in Annex I, or you can refer the firefighter to www.DFit.ca for additional examples.



CHAPTER 4 - EXERCISE PRESCRIPTION

COOL-DOWN

9. Upon completion of physical fitness training, a cool-down assists the various body systems to return to their homeostatic states in a safe, gradual fashion. It allows the body temperature to gradually return to normal. This process can be assisted by conducting an active recovery period followed by stretching and recovery exercises.
10. Approximately 5-10 minutes of cool-down activities are important at the end of the workout. Active recovery will prevent blood pooling and stretching exercises will improve flexibility.
11. Encourage firefighters who are pursuing a flexibility/stretching routine to:
 - stretch slowly and smoothly without bouncing
 - use gentle stretch-and-hold or continuous movement, whichever is right for the exercise
 - avoid stretching injured muscles
 - avoid pain
 - avoid holding their breath during the stretch
 - hold each stretching exercise repetition for a minimum of 15 seconds
 - strive for a relaxed feeling
 - keep warm while stretching

AEROBIC FITNESS PROGRAMS

12. Each participant will receive an aerobic fitness program via www.DFit.ca or directly from the local PSP staff. The aerobic fitness program will include the recommended quantity and quality of activity to improve or maintain their aerobic fitness.
13. The following general guidelines for the prescription of aerobic exercise will be used based on the FITT Principle:
 - **Frequency:** 3–5 times per week. The frequency prescribed will depend on the firefighter's current level of activity, as well as their circuit performance time.
 - **Intensity:** Target HR zone for exercise prescription should be between 60–90% of predicted HR max.

CHAPTER 4 - EXERCISE PRESCRIPTION



- **Time:** Normally 20–60 minutes of continuous activity. The duration of exercise sessions will be based on the firefighter’s current level of activity and circuit performance time.
 - **Type:** Activities that use large muscles groups and can be done in a continual and rhythmic manner. The type of aerobic activity prescribed should be based upon the firefighter’s activity preference.
14. In addition to the above general guidelines, for firefighters completing the circuit between 8:00 and 10:00 minutes, the starting exercise intensity prescribed should probably be within the range of 60–75% of age-predicted maximum heart rate. For firefighters completing the circuit in under 8:00 minutes, the exercise intensity prescribed should probably be within the range of 75–90% of age-predicted maximum heart rate. You should keep in mind that along with intensity, the frequency, time and type of activity must be considered for aerobic exercise prescription.

HEART RATE MONITORING

15. Encourage firefighters to monitor their HR prior to, during, and after their physical fitness training sessions. Monitoring their HR prior to the exercise session will provide the firefighter with a pre-exercise HR value, which they can use as a baseline for measuring progress. Firefighters should also monitor their HR during exercise sessions to ensure that they are exercising within their target HR zone. They should take their post-exercise HR to ensure that appropriate recovery has occurred.
16. HR can be monitored by a number of methods:
- Heart rate monitor or
 - Palpation (radial or carotid artery)
17. Inform firefighters that their target HR zone is based on average HRs for persons of a similar age, and that their own maximum heart rate (MHR) could be below or above the average. Therefore, they might have to adjust their level of activity so that they are comfortable.

CALCULATING TARGET HEART RATE

220 - Age = Maximum heart rate (MHR)				Target Heart Rate Zone				
MINIMUM	MHR	182	X	60	% intensity	=	109	Minimum
MAXIMUM	MHR	182	X	90	% intensity	=	164	Maximum

CHAPTER 4 - EXERCISE PRESCRIPTION



18. The Borg Scale (see Annex H) is another method of monitoring exercise intensity. The scale uses a numbering system with descriptions of perceived effort to assess exercise intensity. All firefighters should be familiar with the Borg Scale and its application, as it is used during the evaluation.
19. The “Talk Test”, although not as scientific as HR monitoring or the Borg Scale, is useful. The principle of the Talk Test is that a firefighter should be able to carry on a conversation in short sentences during exercise, and if they cannot, then the intensity is too high.

NOTE: It should be emphasized that these are general guidelines. It is the PSP Fitness staff’s responsibility to determine the starting exercise intensity, frequency, time, and type of exercise. Relying on their own professional qualifications and experience, evaluators will prescribe exercise based on the following criteria:

- their interaction with the firefighter
- the firefighter’s current physical activity/training level
- any additional information gathered during the evaluation

MUSCULAR STRENGTH AND ENDURANCE

20. A muscular strength and endurance program will be provided to each firefighter. The program will be tailored to improve or maintain muscular strength and endurance, and it will be based on the FITT principle.
21. Direct firefighters to consult with their local PSP Fitness staff as their first point of contact for fitness training and advice. You can also direct them to use the www.DFit.ca tool. www.DFit.ca is a powerful and interactive tool that provides evidence-based fitness recommendations to participants. The online prescription tool provides a comprehensive physical fitness training program for all, regardless of location.
22. www.DFit.ca provides:
 - various fitness training plans
 - nutritional information
 - video demonstrations
 - injury prevention information
 - online journals to help firefighters record their activities and stay on track

CHAPTER 4 - EXERCISE PRESCRIPTION



23. As of 1 April, 2013, www.DFit.ca has a specific section for firefighters providing a customized training program based on occupational requirements of the firefighter trade.
24. To access the web application visit www.DFit.ca. Click **Specialty Training**, and then click the **Firefighter logo**.

RATE OF PROGRESSION – ALL FITNESS PROGRAMS

25. Progression rates will depend on the firefighter's initial functional capacity, health status, age, and needs or goals. Firefighters who are in poor fitness condition can experience relatively quick improvements (in 6 to 12 weeks) for some fitness parameters due to motor learning. As their physical condition improves, the increment of improvement will become smaller. Fitness evaluators must therefore impress upon the firefighter to think in terms of a long-term goal. Words of encouragement are always useful, as are methods of self-discovery and self-monitoring (for example, resting HR will decrease over time, weight can decrease or be redistributed, muscles will tone up, the firefighter should feel better, etc.).

UNIT TRAINING ON THE CIRCUIT

26. The task-based circuit can be used for unit training and/or remedial physical training purposes. It will assist firefighters to successfully complete the circuit in the required time, as well as refine their firefighting skills. Units using the circuit for training should make it progressive in nature as illustrated in Table 1.

TABLE 1

LEVEL	FREQUENCY per week	PROGRESSION
1	2	gym gear and running shoes only
2	2	firefighting bunker gear, boots, helmet only
3	2	firefighting bunker gear, boots, helmet, SCBA with no mask
4	2	full turnout gear with SCBA and mask

27. Firefighters should not progress to the next level of training until they can complete the entire circuit as specified above. Place emphasis on completing the entire circuit and not the speed at



CHAPTER 4 - EXERCISE PRESCRIPTION

which it is completed. Firefighters who can complete the circuit at level 4, as described above, can be encouraged in the following weeks of training to increase their speed (no running permitted).

PRESCRIPTION MATERIALS

28. All FF FPMP materials are available as resource materials. In addition, firefighters can use Canadian Society of Exercise Physiology – Physical Activity Training for Health (CSEP PATH) resource materials.
29. The tools found in the CSEP PATH manual can be effective in the development of an action plan for firefighters with lower levels of physical fitness. These tools include:
 - Healthy Physical Activity Participation Questionnaire
 - Stages of Change
 - Activity Inventory
 - Inventory of Lifestyle Needs and Activity Preferences
 - Choosing Alternatives for Action
 - Decision Balance Sheet
 - Motivation List
 - First-Step Planner
 - Self-Contract
 - Goal-Setting Worksheet
 - Relapse Planner
 - FANTASTIC Lifestyle Checklist
 - Health Promotion Resources

SPORT AND RECREATION ACTIVITIES

30. The Canadian Armed Forces sports program is an integral part of the CF Morale and Welfare Services and the CAF Health and Physical Fitness Strategy. It contributes to an active and healthy lifestyle, and enables CAF personnel to play and compete at their highest possible level.

CHAPTER 4 - EXERCISE PRESCRIPTION



31. Competitive sports are part of the training and development of CAF members. The objectives established for the sports program are met in part through participation in team and individual sports competitions.
32. Comprehensive sports programs, through the demands of training and competition, contribute to the operational readiness and overall effectiveness of the CAF. The objectives of the program are to:
 - a. Develop unit cohesion, team work, morale, pride and identity.
 - b. Instill a high degree of esprit de corps and camaraderie.
 - c. Develop individual attributes such as leadership, perseverance, self-discipline, self-sacrifice, self-control, self-esteem, confidence, warrior spirit and a general respect for all participants.
 - d. Promote and develop physical fitness, health and mental well-being.
 - e. Provide the opportunity for all members to develop their physical potential.
 - f. Provide the opportunity for members to participate in highly skilled, competitive and organized athletics.
 - g. Motivate military athletes and teams to achieve higher standards of proficiency and strive for excellence.
33. The DAOD 5045-0, Canadian Forces Personnel Support Programs, pertains to these activities.

CHAPTER 5

HEALTH RELATED FITNESS

GENERAL

1. Health related fitness includes those components of fitness that exhibit a relationship with health status²⁴. Positive health is associated with a capacity to enjoy life, to withstand challenge, and the absence of disease. The underlying concept of health related fitness is that better status in each of the components is associated with lower risk for development of disease or functional disability²⁷.
2. Heart attack, stroke, and cancer are the major causes of death and disability among Canadian adults. Physical inactivity, cigarette smoking, improper dietary habits, and inappropriate responses to stress all contribute to those problems²⁴. The physiological and psychological stresses associated with the firefighter occupation, exposure to carbon monoxide and other toxic fumes, cigarette smoking, and a sedentary lifestyle can predispose firefighters to cardiovascular disease^{7, 8, 33, and 35}.

LIFESTYLE ASSESSMENT

3. The Canadian Society for Exercise Physiology has developed a FANTASTIC Lifestyle Checklist that covers a broad range of issues that have a subtle but powerful influence on health²⁴. This FANTASTIC Lifestyle Checklist is a tool that will permit the firefighter to reflect on various habits and attitudes. This tool does not have to be used; however, it is available as a resource if desired. The firefighter might want to discuss their responses with you. Conversely, the firefighter can choose not to discuss their responses. Firefighters can take the checklist home and complete it on their own. In this particular case, you should explain how to complete the checklist and interpret the results.

STRENGTHENING THE FORCES HEALTH PROMOTION PROGRAM

4. Strengthening the Forces (StF), the CAF's Health Promotion Program, is designed to enable CAF members to increase control over, and to improve, their overall health and well-being. StF provides information and programming in the following core components:
 - Injury Reduction Strategies and Active Living – Injury Reduction Strategies for Sports and Physical Activity.
 - Addiction Awareness and Prevention – Alcohol, Other Drugs, and Gambling Awareness Program, Butt Out Tobacco Cessation Program.

CHAPTER 5 - HEALTH RELATED FITNESS



- Social Wellness – Stress Take Charge, Mental Fitness & Suicide Awareness, Managing Angry Moments, Inter-Comm: Dealing with Conflict and Improving Communication in Personal Relationships.
 - Nutritional Wellness – Weight Wellness, Top Fuel for Top Performance.
5. The most current brochures and materials related to the above programs can be accessed through local health promotion delivery offices or by ordering through the Canadian Forces supply system. For more information on these programs, go to:
<http://cmp-cpm.forces.mil.ca/health-sante/ps/hpp-pps/default-eng.asp>



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ANNEX A

FIREFIGHTER PHYSICAL FITNESS MAINTENANCE PROGRAM (DND 2205)



National Défense / Défense nationale		PROTECTED B (When completed) PROTÉGÉ B (Une fois rempli)	
CF/DND Firefighter Physical Fitness Maintenance Program Programme de maintien de la condition physique (pompiers) FC/MDN			
Section A – Information - Renseignements			
A. Surname - Nom		Init.	SN - NM
		Unit - Unité	UIC - CIU
		Tel. - Tél.	
Rank / Grade	Job title - Titre du poste	DOB - DDN (yyaa-mm-dj)	Age - Âge
		Heart rate monitor / Moniteur de fréquence cardiaque	<input type="checkbox"/>
		Gender - Sexe	<input type="checkbox"/> M <input type="checkbox"/> F
Section B – Health Appraisal - Évaluation de la santé			
Questionnaire		Yes / Oui	No / Non
<p>This questionnaire is a screening device to identify personnel for whom fitness evaluation and physical activity might be inappropriate at this time.</p> <p>1. To the best of your knowledge do you have a medical condition or Medical Employment Limitation (MEL) which restricts you from participating in a maximal fitness evaluation or a progressive training program?</p> <p>2. Is there any other reason you would need to talk to a physician prior to your fitness evaluation or training program?</p> <p>3. Do you have a valid Periodic Health Assessment (PHA)? If No, proceed to Blood Pressure.</p>		<input type="checkbox"/>	<input type="checkbox"/>
Questionnaire		<p>Le présent questionnaire est un outil visant à filtrer les personnes pour lesquelles une évaluation de la condition physique et l'activité physique sont actuellement contre-indiquées.</p> <p>1. À votre connaissance souffrez-vous d'un trouble médical ou avez-vous une contrainte à l'emploi pour raisons médicales (CERM) qui vous empêchent de participer à une évaluation de la condition physique avec effort maximal ou à un programme de conditionnement physique progressif?</p> <p>2. Y a-t-il d'autres raisons pour lesquelles vous devriez consulter un médecin avant de participer à l'évaluation de la condition physique ou d'entreprendre un programme de conditionnement physique?</p> <p>3. Est-ce que votre examen médical périodique (EMP) est valide? Si Non, allez à Tension artérielle.</p>	
Blood Pressure		Tension artérielle	
Pre-evaluation Blood Pressure: Less than or equal to 150/100 mm Hg		Tension artérielle avant l'évaluation : inférieure ou égale à 150/100 mm Hg	
<input type="checkbox"/> Your pre-evaluation blood pressure lies between 141/91 mm Hg and 150/100 mm Hg and is considered to be slightly above the normal range. It is recommended that you consult your MO. Votre tension artérielle avant l'évaluation se situe entre 141/91 mm Hg et 150/100 mm Hg. Cette valeur étant légèrement supérieure à la normale, il vous est recommandé de consulter votre médecin.			
Name (print) - nom (en caractères d'imprimerie)		Signature of CAF member - Signature du membre des FAC	
		Date (yyaa-mm-dj)	
Section C – Performance - Exécution			
Evaluation - Évaluation			
Circuit Performance / Exécution du parcours		Time / Temps	
<input type="checkbox"/> 1st - 1 ^{er} <input type="checkbox"/> 2nd - 2 ^e <input type="checkbox"/> Other - Autre		<input type="checkbox"/> min. <input type="checkbox"/> sec.	
Re-Test (original test sheet must be attached with this re-test) Reprise de l'évaluation (les résultats de l'évaluation précédente doivent être joints à la nouvelle évaluation)			
Section D – Results - Résultats			
Met standard / Satisfait à la norme		Yes / Oui	No / Non
1 st Circuit – 1 ^{er} Parcours		<input type="checkbox"/> ≤ 8 m 01s	<input type="checkbox"/> ≥ 8 min 10s
2 nd Circuit – 2 ^e Parcours		<input type="checkbox"/> ≤ 8 m 01s	<input type="checkbox"/> ≥ 8 min 02s
Next evaluation - Prochaine évaluation		Date (yyaa-mm-dj)	<input type="checkbox"/> Medically excused for entire assessment period / Exemption médicale pour la totalité de la période d'évaluation
Section E – Exercise Prescription - Prescription d'exercices			
<input type="checkbox"/> PSP Fitness and Sports Staff and/or DFit.ca (Self supervision) / Personnel du conditionnement physique et des sports des PSP ou cphysd.ca (autonomie)		<input type="checkbox"/> PSP Fitness and Sports Staff (Direct supervision) / Personnel du conditionnement physique et des sports des PSP (surveillance directe)	
Section F – Certification of Evaluation and Prescription - Attestation d'évaluation et prescription d'exercices			
Name (print) - Nom (en caractères d'imprimerie)		CFMWS Fitness and Sports Evaluator Signature / Signature de l'évaluateur du conditionnement physique et des sports des SBMFC	
Section G – Certification of Understanding - Attestation			
I acknowledge the above fitness evaluation results, exercise prescription and the requirement to maintain an up to date physical fitness training record. Je reconnais les résultats de l'évaluation de la condition physique et la prescription d'exercices ci-dessus, ainsi que la nécessité de tenir à jour un carnet d'entraînement de conditionnement physique.			
Signature of CAF member - Signature du membre des FAC		Date (yyaa-mm-dj)	
Section H – Program Approval - Approbation du programme			
The above fitness evaluation and prescription have been reviewed and are approved. L'évaluation de la condition physique et la prescription d'exercices ci-dessus ont été révisées et approuvées.			
Signature of Commanding Officer - Signature du commandant		Unit - Unité	Date (yyaa-mm-dj)
DND 2205 (02-2015) Draft #2 Design: Forms Management 613-995-9944 Conception: Gestion des formulaires 613-947-8944		Copy 1 - UPR Copie 1 - DPU	
		PROTECTED B (When completed) PROTÉGÉ B (Une fois rempli)	

ANNEX B

DND MEDICAL CHIT (CF 2018)



PROTECTED A (When completed)

CF H Svcs Gp Employment Limitations for Return to Work Worksheet

Facility Providing Care		Current date	
SN	Surname	Init.	Rank
MOSID	Unit		
CF component <input type="checkbox"/> Regular <input type="checkbox"/> Reserve	V	CV	H
	G	O	A
	Date recommended		
Sick leave	Excused duty	Next medical due	Reassessment date
Days	Days (2 max)		
Initial visit	F/U visit	Recurrence	Time in / Time out

(See reverse for instructions)

Bradma Card

Possible duty injury
 Possible duty illness
 Apparent non-duty injury
 Apparent non-duty illness
 Undetermined

FIT - Full duties
 Grounded/Unfit diving: ___ days
 Review by: _____
 Estimated time until FIT - Full duties: _____
 (If > 6 months, UNIT may consider SPHL)

Modified Duties: ___ (max. 30 days)
 Temporary category (months): 3
 6
 12
 Permanent category recommendation: pending D MED POL +/- AUMB review.

Geographic Employment Limitations

1. Requires medical follow-up every ___ week(s) ___ month(s) or immediately if suffers a crisis related to the medical problem.
 This follow-up must be done locally, or at other locations (review with MO). (see Additional details section)

2. To avoid known specific agents that may provoke a medical crisis. To carry self-administered medication at all times.

Occupational Employment Limitations

3. May do unit PT
 self-directed PT
 professionally directed PT
 no PT
 (see Additional details section)

4. Can perform CF EXPRES test without any limitations
 step test instead of shuttle
 no CF EXPRES test
 (see Additional details section)

5. Should avoid contact sports
 high impact activities
 running.

6. Requires rest every ___ minutes and/or the opportunity to change physical position.

7. Should avoid _____ (activity) on a daily basis as this may aggravate the chronic medical problem.

8. Unable to do repetitive tasks with the _____ (body part) for more than ___ minutes.

9. Unable to lift greater than ___ kg and/or repetitively and/or overhead.

10. Unable to tolerate shift work (but can tolerate full-time hours) or irregularly scheduled meals.

11. May work ___ hours per day ___ day(s) per week.

12. Unable to tolerate drill and parades.

13. Sedentary and light physical tasks only.

14. Not to drive DND vehicles.

15. Unable to remain alert/vigilant.

16. Unable to supervise personnel.

17. Flexibility in work schedule is required.

18. Unable to safely work in specific environments (i.e., on unstable platforms, at heights, with hazardous equipment) where sudden incapacitation may result in a risk of significant injury to self or others.

19. Unable to wear personal protective equipment (specify type) _____

20. OTHER (including modified aircrew activities, unfit diving, unfit weapons handling, etc. - see Additional details section)

Additional details:

Clinician Name	Clinician Signature	CDU No.	Telephone	Date
----------------	---------------------	---------	-----------	------

I have read and acknowledge this form.

Member Signature	Date	<input type="checkbox"/> Refer to Case Manager	<input type="checkbox"/> Refer to RTW Coordinator
		<input type="checkbox"/> RTW Case Conference Required	<input type="checkbox"/> Case Conference required

Original to member's CF 2034
CF 2018-E (09-2007)
7530-21-904-3305

Copy 2 to Unit Copy 3 to Member

PROTECTED A (When completed)

Design: Forms Management 613-993-4050/613-993-4062 (04-2010)

ANNEX C



PRE-EVALUATION INSTRUCTIONS FOR FIREFIGHTERS

PRE-EVALUATION INSTRUCTIONS FOR FIREFIGHTERS

A minimum of 48 hours prior to the FF FPME, inform firefighters of the following guidelines:

- a. Firefighters should not:
 - Exercise six hours prior to the evaluation.
 - Consume alcohol for at least six hours prior to the evaluation.
 - Eat, smoke, or drink tea or coffee for at least two hours prior to the evaluation.
- b. The dress requirement for the warm-up is standard PT kit. The dress requirements for the FF FPME is full turnout gear consisting of:
 - firefighter's boots
 - gloves
 - flash-hood
 - helmet
 - bunker pants and jacket
 - positive-pressure self-contained breathing apparatus (SCBA) complete with mask.

The circuit has been designed to be completed on one tank of oxygen, therefore, quickfills or exchanges of air tanks are not permitted.

ANNEX D

ALCO FORCIBLE ENTRY DEVICE - USER INSTRUCTIONS

WARNING: Failure to follow these instructions could lead to improper installation, performance problems, and possible injury.

MOUNTING THE FORCIBLE ENTRY DEVICE

1. Fasten the forcible entry device against a permanent masonry or steel mounting stand approximately 78 cm above the floor.

The stand must be capable of withstanding significant horizontal forces exerted from the 10-pound (4.54-kilogram) sledgehammer used to compress the forcible entry device.

2. Position the base of the stand against a secure wall to prevent it from shifting during use.
3. Counter balance the stand with one 208 L (55 gallon) barrel. Filling a barrel of this size approximately $\frac{3}{4}$ full of water acts as an effective counter-weight to counterbalance the mass of the forcible entry unit.
4. Use six 3" x 5/8" high-quality fastening bolts to attach the forcible entry device to the stand. The fastening bolts' diameter must match the diameter of the mounting holes of the forcible entry device.

Important: Do not hammer the bolts into position. This could damage the bolt threads.

5. Slide the bolts through the mounting holes until they extend completely through the stand.
6. Secure the bolts using lock washers and high-quality nuts.
7. Center and securely attach the wooden footplate to the front of the stand with two 4" C clamps (see Figure A).

The wooden footplate simulates the base of a wall or door.



Figure A. The forcible entry device, home-made stand, barrel, wooden footplate, and sledge hammer set up and ready for use. Two 6 ft lengths of 2" x 6" connected together with four 2" x 6" x 15" cross-braces to form a foot stop barricade that can be attached to the bottom of the unit with "C-clamps" to prevent firefighters from moving past the front plane of the unit.

ANNEX D



Figure B. The forcible entry device mounted using the stock stand available through CPAT Distribution, Inc. The forcible entry device is in the process of being calibrated.

PREPARING THE FORCIBLE ENTRY DEVICE FOR USE

If you haven't used the forcible entry device in several weeks, or if it's been recently moved to a new location, we recommend that you re-calibrate it. See "Calibrating the forcible entry device" on page 61 for more details.

After you've mounted the forcible entry device, prepare it for use.

1. Fully extend the hitting surface away from the mounted part of the forcible entry device.

NOTE: If you cannot extend the hitting surface, release the brake by turning the hand wheel clockwise.

The forcible entry device is fully extended when the hitting surface reaches the stop.

2. Engage the brake (designed to restrict compression) on the restriction blade by rotating the hand wheel counter-clockwise.

The brake is completely engaged when you can freely rotate the hand wheel counter-clockwise. Free counter-clockwise rotation ensures that the brake is under full compression by all eight springs.

IMPORTANT: The hand wheel must rotate freely, otherwise the brake will not be fully engaged against the restriction blade. In such a situation, it'll take less force to compress the forcible entry device.



USING THE FORCIBLE ENTRY DEVICE

The forcible entry device is designed to be struck with the head of a 10-pound sledgehammer on the rubber pad hitting surface. As the hitting surface is struck, the forcible entry device compresses.

The amount of force required to compress the forcible entry device depends on the amount of tension in each of the eight springs attached to the brake mechanism.

By increasing the spring tension, the force required to compress the forcible entry device increases.

Full compression is achieved when the hitting surface engages a switch mounted on the stationary portion of the forcible entry device. The switch is wired to a battery-operated light and buzzer.

RESETTING THE FORCIBLE ENTRY DEVICE

After the light and buzzer are triggered, use the hand wheel to reset the forcible entry device.

1. Turn the hand wheel $\frac{1}{4}$ to $\frac{1}{2}$ turn clockwise to release the brake pressure on the restriction blade.
2. Pull the forcible entry device by hand back into the starting position.
3. Once the hitting surface is fully extended to the stops, turn the hand wheel counter-clockwise until it is tension-free.

Loosening the hand wheel returns the brakes to their original position, thus allowing the springs to apply pressure on the restriction blade.

CALIBRATING THE FORCIBLE ENTRY DEVICE

To measure pressure

1. Make sure that the forcible entry device is in the full reset position and that the hand wheel is loosened.
2. Attach the two arms of the hydraulic calibrator (Figure C) to the two calibration bolts located on the upper and lower surface of the forcible entry device. See Figure B on page 60.
3. Slide the locking pins to the closed position to secure the hydraulic calibrator to the forcible entry device.

ANNEX D



Figure C. Close-up of the hydraulic calibrator.

4. Use a slow and smooth pumping action to gradually build pressure against the hitting surface.

NOTE: Make sure that the piston's rectangular foot makes contact squarely with the center of the hitting surface.

5. Watch the pressure gauge while pumping and record the pressure when the hitting surface first moves.

Calibrate the forcible entry device to 850 PSI.

6. Continue pumping until the hitting surface triggers the compression buzzer.

IMPORTANT: The pressure required to move the hitting surface must be consistent through the full range of motion.

7. To release the pressure, turn the hydraulic calibrator's relief valve counter-clockwise. The hydraulic calibrator piston returns to the start position.
8. Reset the forcible entry device. See "Resetting the forcible entry device" on page 60.

TO INCREASE SPRING TENSION

If the target surface moves at **less** than 850 PSI, tighten the four nuts equally to add more tension to the braking mechanism's eight springs.

NOTE: Hold each bolt head stationary with a wrench or socket while making adjustments to the nut.



1. Tighten each of the four nuts in ½ turn clockwise increments.
2. Check the calibration pressure.
3. Repeat steps 1 and 2 until the pressure is calibrated to 850 PSI.

TO REDUCE SPRING TENSION

If the target surface moves at **more** than 850 PSI, loosen the four nuts equally to remove tension in the braking mechanism's eight springs.

NOTE: Hold each bolt head stationary with a wrench or socket while making adjustments to the nut.

1. Loosen each of the four nuts in ½ turn counter clockwise increments.
2. Check the calibration pressure.
3. Repeat steps 1 and 2 until the pressure is calibrated to 850 PSI.

INCONSISTENT PRESSURE

If the pressure to move the hitting surface is inconsistent (plus or minus 25 PSI) over the full range of motion, thoroughly clean the four guide rails. For more details, see "Maintenance schedule" below.

NOTE: We've found the setup and calibration of the forcible entry device to be very consistent in a high-volume testing environment. However, sporadic use or transport of the forcible entry device to a new testing location can warrant more frequent inspection, cleaning, and calibration to guarantee consistent results.

ANNEX D



MAINTENANCE SCHEDULE

DAY TO DAY

1. At the start of each testing day, inspect, lightly clean, and calibrate (if necessary) the forcible entry device to guarantee consistent results.
 - a) Inspect the forcible entry device before and after each use for dust and other debris.
 - b) Use a dry towel to remove dust and greasy residue from the forcible entry device.

MONTHLY

Depending on the volume of use, thoroughly clean the forcible entry device's braking mechanism approximately once a month.

1. Remove the four nuts and bolts that secure the eight springs to the restriction blade.

NOTE: Remember the order of the parts.

2. Slide the restriction pads out of position.

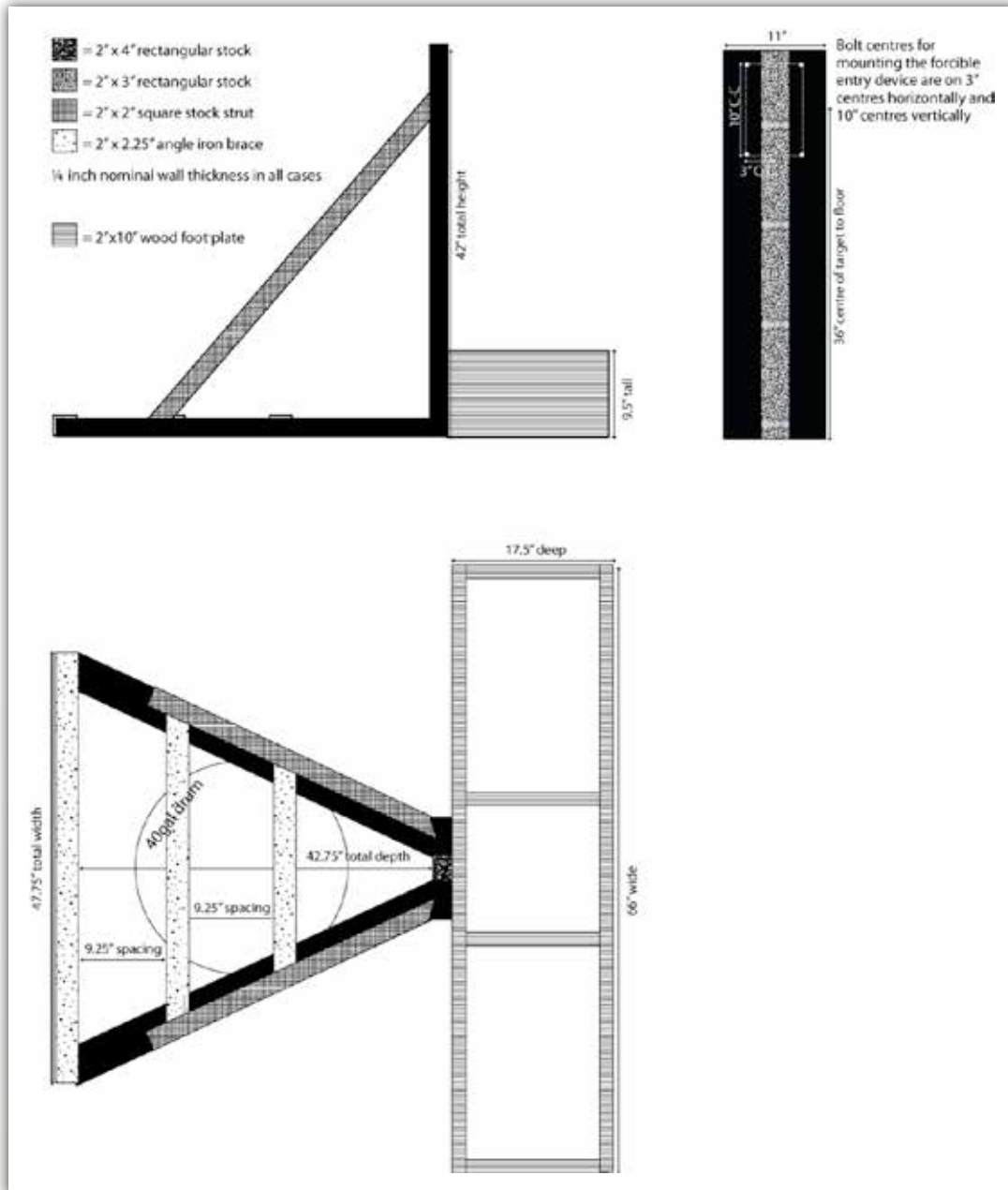
The restriction pads provide resistance against the restriction blade.

3. Clean all nuts, bolts, springs, and washers with a dry towel, and then look for wear or other defects. Replace parts as necessary.
4. Apply a light application of low-viscosity grease (if needed) to the four guide rails to ensure friction-free movement.
5. Remove dust and other residue from the restriction pads with a commercially available brake parts cleaning solvent (for example, Brākleen Brake Parts Cleaner).

TIP: Let the newly cleaned restriction pads dry overnight to allow all traces of cleaning solvent to evaporate before reassembly and calibration.



SPECIFICATIONS FOR FORCIBLE ENTRY DEVICE STAND AND FOOT PLATE



ANNEX E



HEART RATE AND RATE OF PERCEIVE EXERTION (RPE) MONITORING

TASK	HEART RATE	RPE
1. One-arm Hose Carry		
2. 3.6 m (12 ft) Ladder Raise		
3. Charged Hose Advance		
4. First Ladder Climb		
5. Weighted Sled Pull		
6. Forcible Entry (ALCO)		
7. Victim Rescue		
8. Second Ladder Climb		
9. 3.6 m (12 ft) Ladder Lower		
10. Equipment Carry		



ANNEX F

FF PFMP CIRCUIT DESCRIPTION

1. The evaluation consists of 10 job-related tasks that simulate the physical demands required in the initial response to fire-rescue operations. The tasks are completed in a continuous and consecutive manner on a concrete slab floor. Tasks are separated by walking a distance of either 15.24 m (50 ft) or 30.48 m (100 ft) which are incorporated between each task, simulating the work done during the initial response to a working fire. The FF PFME consists of the following tasks, in order:
 - a. **Task #1: One-arm Hose Carry:** Using a rope handle, the firefighter carries, in one hand, one 15.24 m (50 ft) section of rolled 65 mm rubber jacketed hose weighing 16.5 kg (36 lb), a distance of 15.24 m (50 ft), then returns the same distance carrying the hose in the other hand. The firefighter sets down the rolled hose and walks 15.24 m (50 ft) to the next event.
 - b. **Task #2: Ladder Raise:** The firefighter lifts and carries a 3.6 m (12 ft) aluminum roof ladder 13.6 kg (30 lb) a distance of 15.24 m (50 ft) and raises it to a secure position against a wall. The firefighter then walks 15.24 m (50 ft) to the next event.
 - c. **Task #3: Charged Hose Advance:** The firefighter lifts a hose nozzle and places it over the preferred shoulder, then proceeds to drag two charged lengths 30.48 m (100 feet) of 45 mm hose a distance of 30.48 m. (100 ft). The force required to move the hose is approximately 178 N. The firefighter then walks 15.24 m (50 ft) to the next event.
 - d. **Task #4: First Ladder Climb:** After being clipped in to the belay device, the firefighter uses a 7.2 m (24 ft) ladder, climbs 10 rungs (3.45 m) up and down, three times. The firefighter then walks 30.48 m (100 ft) to the next event.
 - e. **Task #5: Weighted Sled Pull:** While standing in a stationary position, the firefighter pulls on a 16 mm static nylon rope attached to a weighted sled 15.24 m (50 ft) using a hand-over-hand movement. The firefighter then walks 15.24 m (50 ft) and repeats the pull. The force required to move the weighted sled is approximately 178 N. The firefighter then walks 15.24 m (50 ft) to the next event.
 - f. **Task #6: Forcible Entry (ALCO):** Using a 4.5 kg (10 lb) steel-head sledge hammer, the firefighter hits a target on a mechanical apparatus until a buzzer sounds. The firefighter then walks 15.24 m (50 ft) to the next event.
 - g. **Task #7: Victim Rescue:** Walking backwards, the firefighter drags an 80 kg (176 lb) mannequin a total distance of 25.9 m (85 ft) (13 m one way, around a pylon and then back 13 m). The firefighter then walks 15.24 m (50 ft) to the next event.
 - h. **Task #8: Second Ladder Climb:** After being clipped in to the belay device, the firefighter uses a 7.2 m (24 ft) ladder, climbs 10 rungs (3.45 m) up and down, two times. The firefighter then walks 30.48 m (100 ft) to the next event.

ANNEX F



- i. **Task #9: Ladder Lower and Carry:** The firefighter lowers and carries a 3.6 m aluminum roof ladder 13.6 kg (30 lb) a total distance of 15.24 m (50 ft). The firefighter then walks 15.24 m (50 ft) to the next event.
 - j. **Task #10: Equipment Carry:** The firefighter picks up and carries a triceps bar with weight plates and collars (total weight of 36.4 kg (80 lb)) a distance of 15.24 m (50 ft) and then returns a distance of 15.24 m (50 ft). The evaluation ends when the firefighter finishes the carry. Lowering the weight is not part of the evaluation. In the interest of safety, the firefighter should pause briefly at the end of the evaluation and then lower the weight.
2. The overall time to complete all the elements of the evaluation safely and in the correct order is used to score the performance. There is no required time for any single event or the transition times between events.

ANNEX G

FF PFMP SCRIPT



- a. There are ten job-related tasks with a transition walk between each task. You must complete each task in the circuit prior to the start of the next task, and you must complete the tasks sequentially.
- b. The entire evaluation is timed (job-related tasks plus the transitions walks) and you should try to complete it as quickly as possible, however, safety is of primary importance.
- c. You are not allowed to run at any time. This is based on the fact that firefighters do not run at the scene of an actual fire, but walk between firefighting tasks.

NOTE: By definition, running includes a “flight phase” where both feet are off the ground. This does not occur when walking because one foot is always in contact with the ground.

- d. Your starting position for the evaluation is, “standing straight and looking ahead”.
- e. The clock starts as soon as you reach with one arm for the hose bundle of the One-arm Hose Carry.
- f. The clock stops once you have completed the 10th task (Equipment Carry) and have placed both feet on the mat. Only then should you safely lower the Equipment Carry bar and begin the appropriate cool-down procedures.
- g. At the end of each task, we will ask you to point to a number on the **Borg Scale** (Table 1) that reflects how difficult you found that specific task.
- h. You must wear a heart rate (HR) monitor during the evaluation process. We will record your heart rate in Annex E.
- i. The circuit was designed to be completed on one tank of oxygen. Therefore, we will not permit quickfills or air tank exchanges.
- j. On rare occasions, you might slip or stumble. If it is clearly a minor incident with no safety implications, you can continue.
- k. You can stop and rest between or during tasks as required. Rest intervals consisting of walking a distance of either 15.24 m (50 ft) or 30.48 m (100 ft) have been incorporated between tasks, and represent how tasks are performed at the scene of an actual fire.
- l. At all times, you are required to pay close attention to our instructions.
- m. Use safe lifting, raising, pulling, and carrying techniques throughout the evaluation.

ANNEX G



CRITERIA FOR TERMINATION

The circuit is terminated when any of the following occur:

- You complain of or experience dizziness, chest pain, tightness in the chest, nausea, severe pain or weakness in limbs, mental confusion, or any other severe pain.
- You stop and determine that you do not wish to continue.
- You stagger, have marked dyspnea (breathlessness) or cyanosis (blue discoloration of the skin due to lack of oxygen).
- If we judge you to be out of control or not following the rules, you will be given one warning. If you do not take the proper corrective action, then we will stop the evaluation immediately. A second infraction will result in immediate termination of the evaluation.
- If, at any time, we are concerned about your safety.

Task #1: One-arm Hose Carry

- Lift and carry one section of rolled 65 mm hose weighing 16.5 kg (36 lb) in one hand a distance of 15.24 m (50 ft), place both feet on a rubber mat, turn 180 degrees, and return the same distance, carrying the hose in the other hand. When both your feet are on the starting mat or the start line, then you can safely lower the hose to its original position.
- You must carry the hose by the rope.
- The evaluation time begins when you first reach for the rope.

Walk 1: 15.24 m (50 ft) to the 3.6 m (12 ft) Ladder Raise

Task #2: 3.6 m (12 ft) Ladder Raise

- Pick up a 3.6 m (12 ft) ladder lying flat on the floor or propped securely on its side, carry it a distance of 15.24 m (50 ft), and then raise it against a wall at the target position.
- Carry the ladder safely and in control at all times.

Walk 2: 15.24 m (50 ft) to Charged Hose Advance

Task #3: Charged Hose Advance

- Pick up the nozzle end of a 30.48 m (100 ft) section of 45 mm (1.75 in) charged hose over your shoulder with two hands, at all times, and drag the hose a distance of 30.48 m (100 ft).



- Carry the nozzle near waist level. If less hose than this is over your shoulder you might struggle near the end of the task since the weight of the charged hose will pull you backwards. This can result in a loss of balance or even a fall.
- After approximately 50 ft, the resistance is such that it is essential to “dig in” and “go hard” (we will encourage smaller firefighters to gain momentum at this point, or they will most likely “stall” with the weight of the hose before the finish line).
- We will encourage you to drive straight ahead. There is a tendency for the weight of the hose to “twist” your body off course.
- Optimal performance is achieved when you “get low” and drive forward hard to maintain momentum.
- You must cross the finish line with both feet, going straight ahead. Twisting, turning, or backing across the finish line is not permitted.
- Once you are standing with both feet on the mat or finish line, place the nozzle on the mat or finish line in a safe and controlled manner. You must not drop the nozzle.

Walk #3: 15.24 m (50 ft) to First Ladder Climb

Task #4: First Ladder Climb

NOTE: We will stop and start the timer when we clip you in and out of the harness. We will deduct the time it takes to do this from the total time so as not to penalize you for this safety requirement.

- Once you are securely attached to the belay device you are required to climb 10 rungs up and 10 rungs down on a 7.3 m (24 ft) ladder. You will repeat this process three times, for a total of 30 rungs up and 30 rungs down.
- Both your feet must be weight bearing on the 10th rung prior to descending, and on the ground prior to ascending. If you fail to complete this requirement, we will instruct you to return to the top or bottom, and properly complete the step.
- You must maintain three-points of contact (two feet and one hand, or one foot and two hands) at all times on the ladder.
- A flight phase (both feet off the ladder at once, or a jump from one rung to the next) will be treated the same as running. The first time results in a warning, and you must return

ANNEX G



to where you were prior to the offence and then continue the evaluation. We will stop the evaluation if you repeat the offence.

- We will call out each step in this fashion, “one-two-three-four-five-six-seven-eight-nine-ten-UP (second foot on the 10th rung)” followed by, “ten-nine-eight-seven-six-five-four-three-two-one-DOWN (second foot on the floor)”.

NOTE TO EVALUATOR: It is important to only call out the rungs completed so as not to pace the firefighter by voice command. The firefighter must determine their pace.

- You must remain under control at all times. If you miss a rung or slip you must stop, go back to the point of error, and continue with the evaluation.

Walk #4: 30.48 m (100 ft) to Weighted Sled Pull

Task #5: Weighted Sled Pull

- You are required to pull a weighted sled a total distance of 30.48 m (100 ft). You can use a hand-over-hand, a one-hand or two-hand pull technique. This task begins with you pulling the sled from the starting position 15.24 m (50 ft) away. Once the entire sled passes the 15.24 m (50 ft) mark on the floor, walk 15.24 m (50 ft) back to where the sled started, pick up the rope and pull the sled towards yourself until the entire sled passes the original 15.24 m (50 ft) mark on the return trip.
- Take up a position approximately 2 m behind the line.
- Your feet should remain in one spot and must not move excessively. You cannot hold the rope and move backwards to move the sled.
- Once we signal that the sled has crossed the line, move quickly (a brisk walk) towards the opposite end of the course.
- You are not allowed to proceed until the sled is fully across the line.
- At the other end, take up a position about 2 m behind the line, bend and pick up the rope and pull the sled back.

Walk #5: 15.24 m (50 ft) to ALCO Forcible Entry

Task #6: ALCO Forcible Entry

- A 4.5 kg (10 lb) steel sledge hammer is placed in an upright position immediately in front of the target area. Pick up the hammer and repeatedly strike the mechanically braked target



surface of the forcible entry apparatus until the target moves the required distance. Use the sledge hammer in a swinging manner and not as a battering ram. You are permitted as many hits as required to move the target the full distance. The task is complete at the sound of the buzzer when we shout “Stop”.

- Place the hammer on end in a neutral position on the ground in front of the forcible entry unit. You are not permitted to place the hammer in a more favorable position.
- Your feet are not allowed to move past the foot stop barrier.
- Use the hammer safely with two hands in contact with the shaft at all times.
- The tape mark on the shaft of the hammer **MUST** be visible between the hand and the head of the hammer. This is simply to avoid injury. If your hand is too close to the striking surface, the impact is transferred into your forearm.
- Continue hitting the target until the sound of the buzzer and we shout “Stop”. The evaluation is complete, and you can then safely put the hammer down on the floor.

Walk #6: 15.24 m (50 ft) to Victim Rescue

Task #7: Victim Rescue

- You are required to drag an 80 kg (176 lb) “Rescue Randy” mannequin a total distance of 25.9 m (85 ft). You must complete this task by holding the mannequin around the upper torso or with the provided safety harness. You cannot drag the mannequin by its clothing or limbs. Drag the mannequin from its starting position towards a pylon 13 m (42.5 ft) away. Once you safely navigate the turn around the pylon (no contact with the pylon is allowed), you must drag the mannequin back towards its starting position. The task is complete when the entire mannequin has passed the 25.9 m (85 ft) mark on the floor.
- You have the choice of lifting the mannequin with your arms around its torso or by gripping the harness while walking backwards.
- If you drop the mannequin at any time during the evaluation, you must pick it up and continue.
- Walk backwards quickly but remain under control.
- We will guide you (verbal and visual instructions) through the evaluation so that you don’t touch the turning pylon. There are no negative consequences if you touch the pylon.
- A “warning pylon” is placed in front of the turning marker to inform you that you are approaching the turning pylon. We will remind you to do a visual check while passing the “warning pylon” for spatial awareness.

ANNEX G



- Once past the warning pylon, we will advise you to take a wide turn to avoid touching the “turning” pylon. We will provide verbal and visual instructions at this time. Should you gain an advantage from touching the pylon (for example, shortening the course), you will have to correct your mistake and follow the proper path around the cone before you can continue.
- Once we signal that the entire mannequin has crossed the finish line, you can then safely lower it to the floor. Do not drop the mannequin.

Walk #7: 15.24 m (50 ft) to Second Ladder Climb

Task #8: Second Ladder Climb

- Refer to Task #4:

NOTE: The firefighter must only climb up and down twice during this task, not three times.

Walk #8: 30.48 m (100 ft) to 3.6 m (12 ft) Ladder Lower

Task #9: 3.6 m (12 ft) Ladder Lower

- You are required to safely lower the 3.6 m (12 ft) ladder. Carry the ladder a distance of 15.24 m (50 ft) then safely lower the ladder onto its original starting position.
- Lift and carry the ladder safely and in control at all times. Use safe lifting and lowering techniques.

Walk #9: 15.24 m (50 ft) to Equipment Carry

Task #10: Equipment Carry (36.4 kg / 80 lb)

- You are required to lift the weighted triceps curl bar from its position on the “starting mat” and carry it to another mat 15.24 m (50 ft) away. Once you place both your feet on the mat, turn around and carry the triceps bar back to the starting mat. The task (and overall evaluation) is complete when both your feet are placed back on the original starting mat, and not when the weight is lowered to the floor.
- Lift and carry the triceps bar using both hands or using a cradle hold. Triceps bar must not be perpendicular to the floor (for example, placing the bar on the shoulder). You must be in control of the triceps bar at all times.
- Keep a steady pace.
- Pause briefly and take a breath before lowering the bar to the mat.

ANNEX H



BORG SCALE FOR RATINGS OF PERCEIVED EXERTION (RPE) SCALE RATING

6	
7	Very, very light
8	
9	Very light
10	
11	Fairly light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Very, very hard
20	

Borg's rating of perceived exertion (RPE) was developed to allow the exerciser to subjectively rate their feelings during exercise, taking into account personal fitness level, environmental conditions, and general fatigue levels. The Borg scale rates exercise intensity on a scale of 6 to 20.

NOTE: RPE has been found to be a valuable and reliable indicator in monitoring an individual's exercise tolerance. Research has found that perceived exertion ratings correlate highly with measured exercise heart rates and calculated oxygen consumption values. Since the firefighter must wear a mask, it is nearly impossible for the firefighter to verbally express their feelings regarding exercise intensity and exertion. This information provides the evaluator with vital clues to decide on the direction of the evaluation.

ANNEX I



WARM-UP

Mandatory light aerobic activity (2-3 minutes), performed with a 20 m set-up. To include:

1. 20 m x walking: Easy arm circles, 10 m in each direction
4. 20 m x walking knee lifts



2. 10 m x walking: arms across chest and to back



5. 20 m x walking butt kicks



3. 10 m walking: Arms up and down



6. 20 m x walking Frankensteins (alternating straight leg raise to opposite hand in forward motion)





7. 2 x 20 m progressive jogging



8. 1x 20 m side steps, alternating directions



9. 1 x 20 m carioca, alternating directions



Mandatory dynamic movements that reflect the movement patterns used during the evaluation (2-3 minutes) are performed in a stationary position.

1. Reaching side bends x 5/side



2. 3 x full squats



ANNEX I



3. 3 x lunges, forward/backward complex



6. 3 x push-up plus



4. 3 x each, R and L alternating side/lateral step lunges



7. 3 Spiderman/side



5. 3 x each single, stiff-legged dead lift (with single-arm reach)



ANNEX J

BACK INJURY PREVENTION



THE 4 RULES OF SAFE LIFTING

1. Keep neutral spine
2. Centre of gravity
3. Knee tracking over the second toe
4. Balance

Neutral Spine

- Ability to maintain the spine in its natural curves
- Contracting the supporting muscles to resist any force that tends to bend or twist the spine
- Preserve alignment between the shoulders and hips



ANNEX J



Centre of Gravity

- Maintain weight of the body and objects over the optimal point of control
- Focus on the big muscle groups to initiate the movement
- Contract the supporting muscles to provide support



Knees Tracking over the Second Toe

- Knees must keep track of the toes to create “pillars” during the movement
- Hips must initiate the movement



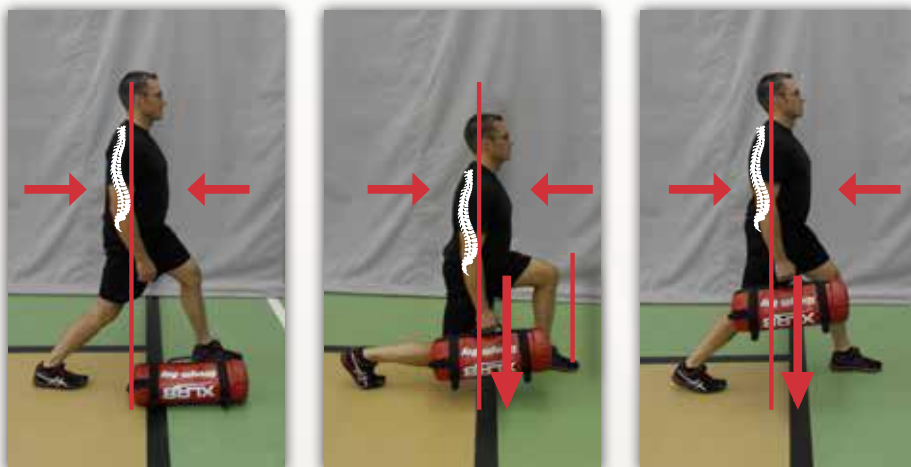


Balance

- Ensure the hips dominate the movement pattern
- Execute the movement pattern under control
- Keep the object being lifted close to the body



Lunging



ANNEX J



SAFE LIFTING CORRECTIONS

Incorrect lifting techniques to watch out for and correct:

1. Back-dominant lift
2. Break in the lumbar spine
3. Break in the thoracic spine
4. Poor knee alignment
5. Limited ankle mobility
6. Knee-dominant lift
7. Poor lateral balance

Following are examples of some common lifting errors, risks, and their subsequent corrections.

Back-Dominant Lift

Error:

Instead of having a neutral spine, the entire spine is rounded, from the cervical to the lumbar region. This can occur when the load is too close to the body (Fig. 1) or too far from the body. (Fig. 2)



Fig. 1



Fig. 2

Injury Risk:

Disk impingement resulting from spinal flexion and excessive load on the spine.

**Correction:**

Bend the knees and hips to load the hips (not the spine).

Have the participant squat close to, and facing, a wall to help them understand how to position their back to safely lift the load. (Fig. 3)



Fig. 3

Excessive Lumbar Flexion**Error:**

The neutral spine in the lumbar region is compromised at the end of the lift.

This error is caused by a narrow stance, going too low in the movement, or having trouble keeping the spine in a neutral position.



Fig. 4

ANNEX J



Injury Risk:

Disk impingement resulting from spinal flexion and excessive load on the spine.

Correction:

Have the participant go into the table position (Fig. 5) and get them to arch their back to see where the break in the neutral lumbar spine occurs.



Fig. 5

Once the break occurs, have them widen their stance to find the optimal degree (position) in which it is safe for them to squat and still maintain a neutral lumbar spine. (Fig. 6)



Fig. 6



Encourage the participant to stop going too low and help them find the best degree at which they can maintain a neutral spine. (Fig. 7 & 8)



Fig. 7



Fig. 8

Excessive Thoracic Flexion

Error:

The neutral spine is compromised in the thoracic region. A lack of strength or control in the posterior chain muscles causes the spine to curve. (Fig. 9)



Fig. 9

Injury Risk:

Disk impingement resulting from spinal flexion and excessive load on the spine.

ANNEX J



Correction:

Encourage the participant to use their latissimus dorsi muscles to stabilize the core when bending down to lift the load.

The wall exercise (Fig. 10) is one method to enforce a neutral spine. However, participants will need to lift loads from off the ground and consciously stabilize their back muscles to help maintain a neutral spine. (Fig. 11)



Fig. 10



Fig. 11

Poor Knee Alignment

Error:

The knee does not align (“track”) in the direction of the second toe. (Fig. 12)

This error can be caused by:

- poor mobility due to leg muscle imbalances; or
- not knowing how to control leg muscular contractions in order to maintain a straight movement during the flexion phase of the knees, hips, and ankles. (Fig. 13-14)



Fig. 12



Fig. 13



Fig. 14

**Injury Risk:**

Excessive pressure is exerted on the following joints: knees, hips, and/or ankles.

Correction:

Depending on the type of error, have the participant use a resistance band to force the knees outwards or inwards. (Fig. 15)



Fig. 15

Limited Ankle Mobility**Error:**

The heels leave the ground during the lifting phase. (Fig. 16 & 17)

This error occurs when the participant's centre of gravity is misaligned, causing the load to be centered over the toes or the ball of the foot.



Fig. 16



Fig. 17

ANNEX J



Injury Risk:

Excessive pressure is exerted on the knee joints.

Correction:

Centre the load over the arch of the foot. (Fig. 18)

Have the participant place their heels firmly on the ground.

Encourage them to activate their glutes to ensure a strong stance.

The wall exercise is useful, as it forces the participant to keep their knees tracking their toes and the centre of gravity closer to the body. (Fig. 19)

Placing an object, such as a weight, under their heels might improve their centre of gravity.



Fig. 18



Fig. 19



Knee-Dominant Lift

Error:

The majority of the weight is loaded on the knee joints. (Fig. 20)

This error sometimes occurs when the knees are not aligned with the direction of the toes (“tracking”). (Fig. 21)



Fig. 20



Fig. 21

Injury Risk:

Excessive pressure is exerted on the knee joints.

NOTE: There is a higher risk of injury to the knees versus the hip joints.

Correction:

Encourage the participant to correct their body position so that their knees track the toes and remain aligned with the toes. This will load the hip joint.

The wall exercise is useful when trying to fix errors with knee-dominant lifts. The wall forces participants to push their hips out in order to properly execute the movement. (Fig. 22)



Fig. 22

ANNEX J



Poor Lateral Balance

Error:

Loss of balance due to poor mechanics or difficulty contracting muscles equally.

Injury Risk:

Possible injuries to the following joints: hips, knees, ankles, and back.

Correction:

To work both legs equally, encourage the participant to hold onto a chair while trying to maintain proper tracking with both knees. (Fig. 25)



Fig. 23



Fig. 24

A resistance band can also be used to correct knee-tracking issues. (Fig. 26)



Fig. 25



Fig. 26



ANNEX K

OPERATIONS MANUAL FOR THE PERFECT DESCENT CLIMBING SYSTEMS, INDOOR MODEL

Managers, Fitness, Sport & Recreation must ensure that the Auto Belay is sent for calibration every two years. Managers will register the equipment upon receipt. Managers must ensure that the maintenance program is documented and followed as per the Auto Belay Operations Manual found at the web site below.

- In order to access the most up to date information on the setup, care and maintenance of your Perfect Descent Climbing Systems, please view the online Operations Manual at this following website: www.perfectdescent.com under “***Auto Belay Resources***”, “***Manuals***”.
- Perfect Descent Climbing Systems purchased by CFMWS HQ in October 2013 and February 2014 must use the “***220i Indoor/Outdoor Manual***”. These Auto belays were not registered at the time of purchase, please ensure that you register your auto belay devices online here: <http://perfectdescent.com/auto-belay-registration-form>
- Advisory notices can also be found at the following link: <http://perfectdescent.com/advisory-notice>