



GENERAL ORDER

GENERAL ORDER 150.17

Occupational Health Program: Occupational Medicine

BUREAU OF OCCUPATIONAL SAFETY AND HEALTH

Issue Date: April 30, 2021

Revision Date: N/A

1 APPLICABILITY

2 All career, protective service contingent, and volunteer Operationally Qualified Personnel.

3 POLICY

4 The Howard County Department of Fire and Rescue Services (Department) is dedicated to the overall
5 health and wellness of all personnel within the Department. The purpose of this order is to establish a
6 clear and defined ongoing Occupational Medical Program. This policy incorporates updated policy
7 regarding pregnancy, and supersedes and replaces GO 110.10: Pregnancy Policy.

8 DEFINITIONS

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- 10 ➤ **Administrative Services Bureau (ASB)** - The Bureau responsible for managing payroll, human
11 resources, FMLA, work status determinations, and modified-duty assignment and schedule
12 coordination, in collaboration with BOSH.
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- 14 ➤ **Bureau of Occupational Safety and Health (BOSH)** - The Bureau responsible for managing and
15 coordinating the Department's Occupational Safety and Health Program.
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- 17 ➤ **Candidate** - A person who has entered an application process to be authorized as career,
18 protective service contingent, or volunteer Operationally Qualified Personnel.
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- 20 ➤ **Department Chief Training Officer** - The Bureau Chief of the Bureau Education and Training (E&T),
21 or their designee.
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- 23 ➤ **Department Emergency Services Provider** - A career employee or volunteer individual authorized
24 to perform duties as assigned by the Department associated with the provision of all-hazards, fire,
25 rescue, and EMS services. In the case of career and emergency services contingent personnel, this
26 is indicated by their job description specification for provision of essential services. In the case of
27 corporate volunteer individuals, this authorization is under the auspices of the Department
28 through their affiliated volunteer corporation.

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- **Department Emergency Services Provider Medical File** – A confidential file maintained by the Department’s Bureau of Occupational Safety and Health that contains protected health information for Departmental emergency service providers, consistent with OSHA 1910.1020(d)(1)(i) "Employee medical records." The medical record for each individual shall be preserved and maintained for at least the duration of employment plus thirty (30) years.
- **Duty Assignment: Full-Duty Assignment** - A duty assignment where the ability to perform all Essential Job Tasks is required.
- **Duty Assignment: Modified-Duty Assignment** - An alternative to a Full-Duty Assignment that, once requested, may be granted by the Department when a Department emergency services provider is temporarily unable to perform the Essential Job Functions of the job classification in accordance with all safety and operational standards, as documented and specified by the Department’s Occupational Medicine Physician or the individual’s personal physician.
- **Essential Job Tasks** - NFPA 1582: *Standard on Comprehensive Occupational Medical Program for Fire Departments* Chapter five provides a list of essential tasks which the Department has adopted as Essential Job Tasks, requiring the designated Department Occupational Medical Physician to evaluate and assess the ability of all Operationally Qualified Personnel to complete these functions. (2018, NFPA 1582).
- **Fire Department Occupational Medicine Physician** - A licensed doctor of medicine or osteopathy who has been designated by the Department to provide professional expertise in the areas of occupational safety and health as they relate to emergency services.
- **Functional Capacity Evaluation** - An assessment of the correlation between an individual’s capabilities and their essential job tasks.
- **Howard County Risk Management Department** - The Howard County Government office that works with BOSH to collect, analyze, and provide data on work related injuries, accidents, and illnesses involving Department personnel.
- **Industry Safe** - A software system utilized by the Department designed to track and manage issues related to occupational medical programs and occupational safety.
- **Medical Examination** - An examination performed or directed by the Department Occupational Medical Physician. This may occur as part of a pre-employment, annual, post-injury or illness, or other ongoing assessment to ensure Operationally Qualified Personnel are prepared to perform the *Essential Job Tasks* required by their job classification, description, and role.
- **NFPA 1582 (Current Edition)** - The consensus industry standard used to provide guidelines and processes regarding the comprehensive occupational medical programs for fire departments.
- **Occupational Medical Evaluation** - The analysis of information for the purposes of making a medical certification determination. The evaluation may be considered Initial, Annual, Interim, or Return-To-Work. An Occupational Medical Evaluation includes a Medical Examination.

- 77 ➤ **Operationally Qualified Personnel** - Those personnel who are employed to fulfill, or volunteer to
78 fulfill, operational functions in a given operational role such as the direct provision of fire
79 suppression, rescue, and emergency medical services. Operationally Qualified Personnel include
80 career, protective service contingent, and volunteer emergency service providers who are listed
81 as globally “Qualified and authorized to respond to emergency incidents and provide emergency
82 services” on the Operational Training Qualification Report that is maintained by E&T.
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- 84 ➤ **Work Status - Unrestricted Work Status** - The work status of an individual (career, volunteer,
85 protective service contingent, or otherwise) who can perform the Essential Job Tasks of their job
86 classification in accordance with all safety and operational standards. This status is tracked by
87 ASB, in cooperation with BOSH and other bureaus.
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- 89 ➤ **Work Status - Restricted Work Status** - The work status of an individual (career, volunteer,
90 protective service contingent, or otherwise) who *cannot* perform the Essential Job Tasks of their
91 job classification in accordance with all safety and operational standards, but can perform certain
92 job tasks of a Modified-Duty Assignment. This status is tracked by ASB, in cooperation with BOSH
93 and other bureaus.
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- 95 ➤ **Work Status – No-Work Status** - The work status of an individual (career, volunteer, protective
96 service contingent, or otherwise) who is, at the time, not capable of performing the Essential Job
97 Tasks of the position or any job tasks of a Modified-Duty Assignment. This status is tracked by
98 ASB, in cooperation with BOSH and other bureaus.
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100 PROCEDURES

101 GENERAL:

102 The determination and tracking of Departmental personnel who are considered qualified to be
103 operational, as well as the tracking of Departmental personnel who meet the training, medical currency,
104 and administrative requirements, is necessary to effectively provide for a comprehensive occupational
105 medicine program.
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107 REQUIRED DETERMINATIONS AND REPORTS:

108 The Bureau of Education & Training (E&T) shall document and report on which Departmental Emergency
109 Services Providers have met qualifications and have received authorization to operationally provide
110 emergency services, and shall maintain a regularly updated **Operational Qualification and Authorization
111 Report**.

112
113 The Administrative Services Bureau (ASB) shall determine and report a Work Status for every career,
114 emergency services contingent, and volunteer Department Emergency Services Provider. This status shall
115 indicate their ability and authorization to perform and provide emergency services as either *Unrestricted
116 Work Status, Restricted Work Status, or No-Work Status*.

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118 A provider’s Work Status is independent of their Operational Training Qualifications and Authorizations.
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120 OCCUPATIONAL MEDICAL EVALUATIONS:

121 All personnel on the Operational Training Qualification Report shall be required to complete an initial
122 Occupational Medical Evaluation and ongoing Occupational Medical Evaluations.

- 123 • Prior to initial placement on the Operational Training Qualification Report, a successful initial
124 Occupational Medical Evaluation shall be required with subsequent placement in an Unrestricted
125 Work Status.
- 126 • Once placed in an Unrestricted Work Status, an annual Occupational Medical Evaluation shall be
127 required, in accordance with the Departmental scheduling process, to remain in an Unrestricted
128 Work Status.
- 129 • In the event of an illness, injury, or condition, an Interim or Return-to-Work Occupational Medical
130 Evaluation/s may be required and shall be managed, coordinated, and scheduled by BOSH and
131 ASB. County-level approvals, as required, shall be obtained by BOSH and ASB.
- 132 • Volunteer personnel added as *operational* to the Operational Training Qualification Report after
133 the issue date of this general order shall be required to comply with these *initial* and *annual*
134 Occupational Medical Evaluation requirements. Volunteer personnel who are listed as
135 *operational* on the Operational Training Qualification Report on the date of issuance of this
136 general order shall be required to comply with these initial and ongoing Occupational Medical
137 Evaluation requirements by **April 30, 2022**. Failure to comply by this date shall result in removal
138 from operational activities and placement in a *Restricted Work Status* until compliance can be
139 achieved.

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141 The Department, along with the contracted Fire Department Occupational Medicine Physician, shall
142 determine the type and scope of the Occupational Medical Evaluation for a given situation.

- 143 • NFPA 1582 (current edition), *Standard on Comprehensive Occupational Medical Program for Fire*
144 *Departments*, shall be used as guidelines for Departmental Occupational Medicine Services.
- 145 • OSHA §1910.134 shall be the standard used for the respiratory protection section of the annual
146 Occupational Medical Evaluation.
- 147 • IAFF/IAFC Joint Labor Management Wellness Fitness Initiative shall be utilized as an advisory
148 guideline for the Department's Occupational Health Program and Occupational Medicine Services
149 standards.

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151 Department-required Occupational Medical Evaluations shall be conducted by the Department
152 Occupational Medicine Physician. Occupational Medical Examinations conducted by private physicians or
153 other sources shall not be a substitute for the required annual Occupational Medical Evaluation. In some
154 cases, NFPA 1582-compliant Medical Examinations conducted by private physicians or other sources may
155 be considered, but a medical appointment for review and consultation regarding the out-of-jurisdiction
156 exam shall be required with the Department Occupational Medicine Physician to evaluate its suitability as
157 a comparable exam.

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159 BOSH shall be responsible to authorize and schedule all required Occupational Medical Evaluations and
160 services for all Operationally Qualified Personnel, including career, protective service contingent, and
161 volunteer personnel. All personnel shall schedule and coordinate Medical Evaluation visits through
162 BOSH.

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164 BOSH shall be responsible to monitor the status and completion of all occupational medical services.
165 BOSH shall coordinate with Department personnel, supervisors, and volunteer fire chiefs or their
166 designee, as appropriate, to accomplish these processes. BOSH shall obtain all County approvals, as
167 required.

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171 **REQUIRED NOTIFICATIONS:**

172 Career and Protective Service Contingent Personnel

173 Career and protective service contingent personnel who are listed on the Operational Training
174 Qualification Report and in an Unrestricted Work Status who experience any injury, illness, or condition
175 (other than pregnancy), whether that injury, illness, or condition occurs while on-duty or while off-duty,
176 shall notify their immediate supervisor within 24 hours of becoming aware of such injury, illness, or
177 condition when:

- 178 • Such injury, illness, or condition inhibits their ability to safely perform one or more of the Essential
179 Job Tasks (NFPA 1582, current version, *Standard on Comprehensive Occupational Medical*
180 *Programs for Fire Departments*), or a requirement of their job classification or job description, as
181 applicable, and in accordance with all safety and operational standards, and:
 - 182 ○ The condition persists for greater than 96 hours, or;
 - 183 ○ Greater than 40 hours of disability leave, annual leave, personal leave, trade of shift, other
184 leave, or missed scheduled or assigned duty shifts or work days occur due to the reduced
185 capacity to perform.
- 186
- 187 • If notification by the individual is not possible due to the circumstances or severity of the
188 condition, notification shall take place as soon as possible, and absolutely prior to reporting for an
189 on-duty period.
- 190 • The notification must include the following information:
 - 191 ○ That the individual is experiencing an illness, injury, or condition that inhibits their ability
192 to safely perform one or more of the Essential Job Tasks or other required ability, as
193 defined above.
 - 194 ○ Whether the injury, illness, or condition is believed to be work-related.
- 195
- 196 • Operationally qualified employees assigned to the Emergency Services Bureau (ESB) shall make
197 required notifications to their immediate supervisor or the field Battalion Chief on-duty for the
198 battalion to which they are assigned. Operationally qualified employees assigned to other
199 bureaus or offices shall notify their respective bureau chief. The highest-ranking supervisor shall
200 ensure that ASB and BOSH are notified immediately.
- 201 • For significant injuries, illnesses, or conditions, in the event the appropriate bureau chief cannot
202 be immediately contacted, the highest-ranking supervisor shall also immediately notify the on-
203 duty Emergency Standby Assistant Chief.
- 204 • BOSH shall initiate the placement of the individual into a Restricted Work Status, or as
205 recommended by the Department Occupational Medical Physician as appropriate.
 - 206 ○ BOSH shall ensure ASB is notified of the need for a Work Status change.
 - 207 ○ BOSH shall ensure the appropriate supervisor and the ESB staffing coordinator are
208 notified.
 - 209 ○ Corporate volunteer fire chiefs, or their designee, shall coordinate Work Status changes of
210 their personnel as indicated on the current Work Status Report with ASB and BOSH.

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212 Corporate Volunteer Personnel

213 Corporate Volunteer personnel who are listed as *operational* on the Operational Training Qualification
214 Report and who are in an Unrestricted Work Status who experience any injury, illness, or condition (other
215 than pregnancy), whether that injury, illness, or condition occurs while on-duty or while off-duty, shall
216 notify their immediate supervisor within 24 hours of becoming aware of such injury, illness, or condition
217 when:

- 218 • Such injury, illness, or condition inhibits their ability to safely perform one or more of the Essential

- 219 Job Tasks (NFPA 1582, current version, *Standard on Comprehensive Occupational Medical*
220 *Programs for Fire Departments*), or a requirement of their position description or role, as
221 applicable, and in accordance with all safety and operational standards, and:
222 ○ The condition persists for greater than 96 hours.
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- 224 ● If notification by the individual is not possible due to the circumstances or severity of the
225 condition, notification shall take place as soon as possible, and absolutely prior to reporting for an
226 operational on-duty period.
 - 227 ● The notification must include the following information:
 - 228 ○ That the individual is experiencing an illness, injury, or condition that inhibits their ability
229 to safely perform one or more of the Essential Job Tasks or other required ability, as
230 defined above.
 - 231 ○ Whether the injury, illness, or condition is believed to be related to their Howard County
232 volunteer activities.
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 - 234 ● Operationally qualified volunteer personnel shall notify their respective corporate volunteer fire
235 chiefs. Corporate volunteer fire chiefs, or their designees, shall ensure that ASB and BOSH are
236 notified as soon as possible, but no longer than on the next business day.
 - 237 ● For significant injuries, illnesses, and conditions, in the event the appropriate bureau chief cannot
238 be contacted, the corporate volunteer chief, their designee, or the highest-ranking supervisor
239 shall also notify the on-duty Emergency Standby Assistant Chief.
 - 240 ● BOSH shall initiate the placement of the individual into a Restricted Work Status, or as
241 recommended by the Department Occupational Medical Physician as appropriate.
 - 242 ○ BOSH shall ensure ASB is notified of the need for a Work Status change.
 - 243 ○ BOSH shall ensure the appropriate supervisor and the ESB staffing coordinator are
244 notified.
 - 245
 - 246 ● Corporate volunteer fire chiefs, or their designee, shall coordinate Work Status changes of their
247 personnel with ASB and BOSH.

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249 **SCHEDULING:**

250 Operationally Qualified Personnel shall schedule annual Occupational Medical Evaluations as directed by
251 the Department.

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253 All Operationally Qualified Personnel are required to schedule their annual Occupational Medical
254 Evaluations during the specified available timeframes. Career personnel shall not schedule Occupational
255 Medical Evaluations on their scheduled Mandatory Holdover Day. If personnel do not schedule within
256 the allotted timeframes, BOSH shall work with their respective corporate volunteer fire chief or designee
257 (for volunteer Department emergency service providers) or battalion chief (for career and protective
258 service contingent emergency service providers) to obtain an acceptable date.

- 259 ● All Operationally Qualified Personnel shall report to the selected location for their annual
260 Occupational Medical Evaluation at the designated time and sign in.
- 261 ● It shall be the Department emergency service provider's responsibility to keep their scheduled
262 appointment. If the individual is unable to keep the scheduled appointment due to an unforeseen
263 conflict prior to the appointment, such as an injury, illness, condition, or family emergency, the
264 individual shall notify BOSH prior to the actual appointment time if reasonably possible. A
265 scheduled appointment shall be considered an assigned and scheduled work period.

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- All Operationally Qualified Personnel shall be required to reschedule their missed appointment and provide their respective corporate volunteer fire chief or designee, or battalion chief with the date and time of their new scheduled Occupational Medical Evaluation.
 - Career personnel who select an off-duty date and time for their Occupational Medical Evaluation shall be required to complete, on the same day that the service is received, the appropriate Departmental process necessary to be compensated.

273 **COMPLETION OF THE MEDICAL EXAMINATION/EVALUATION:**

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- All Operationally Qualified Personnel shall receive a baseline medical evaluation during on-boarding and prior to performing firefighter emergency functions and at least annually thereafter. (NFPA 1582, 7.3: *Timing of the Annual Occupational Medical Evaluation of Members*)
 - A Respiratory Protection Questionnaire and evaluation for respirator use must be completed annually by every operationally qualified provider whose role may require the use of any type of respirator. (OSHA 1910.134, *Respiratory Protection Part A, Section 1*)

281 The goal of the Occupational Medical Evaluation shall be for the Fire Department Occupational Medicine
282 Physician to determine whether the candidate or Department Emergency Services Provider meets the
283 medical and mental health requirements to perform their essential job requirements without restriction.
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285 At the completion of the Occupational Medical Evaluation, if personnel have not been advised of a
286 referral related to any portion of the Occupational Medical Evaluation, they shall sign out of the
287 examining facility and if on-duty, shall return to their assigned work location as appropriate.
288

289 BOSH shall coordinate with the examining facility to ensure all blood and other testing results are
290 finalized and obtain written confirmation that personnel have completed all portions of the Occupational
291 Medical Evaluation and the concluded fitness for duty determination for each individual. BOSH shall
292 ensure that the fitness for duty determination is shared with the individual and the corporate volunteer
293 chief, or designee, as applicable.
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295 The provided Occupational Medical Evaluation results shall inform personnel if any issues should be
296 discussed and/or followed-up with their personal physician. Personnel shall receive a copy of their
297 Occupational Medical Evaluation report from the medical facility once all records are updated. The
298 anticipated timeline for receiving the paperwork is two to three weeks from the date of the Occupational
299 Medical Evaluation.
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301 After completion of an Occupational Medical Evaluation, if personnel have been informed and advised of
302 the need for referral that would require a Restricted Work Status or No Work Status, then:

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- On-duty career personnel shall sign out of the examining facility, notify the on-duty Battalion Chief, and immediately report to BOSH. If personnel are off-duty at the time of the examination, they shall contact BOSH at 410-313-0385.
 - Volunteer personnel shall immediately report their situation to BOSH and to their corporate volunteer fire chief or designee.
 - BOSH shall initiate the placement of the individual into a Restricted Work Status as recommended by the Department Occupational Medical Physician as appropriate.
 - BOSH shall notify ASB of the need for a Work Status change.
 - BOSH shall notify the appropriate supervisor that the individual will not be returning to their work shift until they have been medically found to be fit for duty.

313 ○ Corporate volunteer fire chiefs, or their designee, shall coordinate Work Status changes of
314 their personnel with ASB and BOSH.

- 315
- 316 • BOSH shall work constructively with career, protective service contingent, and volunteer
317 personnel toward a successful outcome of returning to an Unrestricted Work Status.
 - 318 • If the injury or medical condition results in being placed in a Restricted Work Status, career
319 personnel shall have the option to use sick leave for missed work time or request a Modified Duty
320 Assignment. BOSH shall work with career personnel regarding a request for a Modified Duty
321 Assignment which shall be submitted to ASB, as defined by GO 110.09: Modified Duty Assignment
322 as appropriate. This may also require the completion of FMLA paperwork.
 - 323 • If needed, BOSH shall be available to assist all Operationally Qualified Personnel with obtaining a
324 referral physician and scheduling their appointment for the referral. All Operationally Qualified
325 Personnel shall be responsible for any follow up scheduling and/or needs of their referral process.

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327 Operationally Qualified Personnel who are working through injuries, illnesses, or conditions towards
328 attaining an Unrestricted Work Status, including those who are determined not to be able to perform an
329 Essential Job Task may request a consultation with the Fire Department Occupational Medicine Physician
330 for guidance concerning their medical situation. If there is a general fitness concern identified, they may
331 also consult with the Department’s BOSH Health & Fitness Coordinator. It shall be an ongoing objective
332 of the Department and BOSH to assist personnel in obtaining the best possible medical care that is
333 needed to return to an Unrestricted Work Status.

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335 If an injury, illness, condition, or exposure occurs while on-duty, career, protective service contingent,
336 and volunteer personnel and their supervisory chain shall take the appropriate steps, in accordance with
337 General Order 150.12: On-Duty Injury Actions.

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339 **FUNCTIONAL CAPACITY EVALUATIONS (JOB TASK EVALUATION TO DETERMINE FITNESS FOR DUTY):**

340 If at any time the Department reasonably believes that the Department emergency service provider
341 cannot perform the Essential Job Tasks in accordance with all safety and operational standards, the
342 Department may require the individual to undergo a Medical Evaluation or Functional Capacity
343 Evaluation (FCE) to determine if the individual can perform the Essential Job Tasks. The Fire Department
344 Occupational Medical Physician may also request further medical evaluation from a specialist and/or a
345 FCE. In the event a FCE is required, the Fire Chief, in conjunction with County Human Resources and Risk
346 Management as appropriate, shall determine the most appropriate process for the evaluation. The
347 results of such an evaluation shall be placed in the individual’s Department Emergency Services Provider
348 Medical File, and ASB shall be provided the conclusion of the evaluation.

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350 **RECORD KEEPING AND CONFIDENTIALITY:**

351 BOSH shall be the recognized custodian of records for all documentation associated with Occupational
352 Medical Evaluations, on the job injuries, illnesses, or conditions, return to work physician certifications,
353 essential job task evaluations for non-work related illnesses, injuries, or conditions, and other
354 occupational medicine services. BOSH shall work with volunteer corporations to establish a partnership
355 for appropriate record keeping procedures.

- 356 • These procedures shall be agreed upon by, and established with the assistance of ASB.
- 357 • All corporate volunteer fire chiefs or their designee shall be required to sign a confidentiality
358 agreement for any record keeping related to Occupational Medical Evaluations that are
359 established.

- 360 • BOSH bureau personnel and representatives working with record keeping related to Occupational
361 Medical Evaluations shall be required to sign a confidentiality agreement.
- 362 • All signed confidentiality agreements shall be given to ASB for record keeping.

363

364 **WORK STATUS AND PREGNANCY:**

- 365 • These guidelines are established in accordance with the Pregnancy Discrimination Act of 1978
366 (PDA), as amended. The PDA broadens the definition of sex discrimination set forth under Title VII
367 of the Civil Rights Act of 1964 to include the discrimination based on pregnancy and childbirth.
368 Recognizing that pregnancy is a unique, transient physical state, an employee may need to seek
369 an Alternate Work Schedule or Modified Duty Assignment.
- 370 • A pregnant employee is not required to notify or inform the Department of a pregnancy at any
371 specific time during the pregnancy. However, the employee is strongly encouraged to discuss
372 with their physician as early in the pregnancy as possible the nature of their work and the
373 Essential Job Tasks of their position (Attachments A and B), and the impact, if any, that continuing
374 to perform those Essential Job Tasks may have on the pregnancy or fetal development. To obtain
375 more information about the impact a Full-Duty Assignment can have on pregnancy and an unborn
376 fetus, pregnant employees are strongly encouraged to review NFPA 1582: *Standard on*
377 *Comprehensive Occupational Medical Program for Fire Departments, Annex D, Pregnancy Issues*
378 (2018), provided as Attachment B, and discuss the information with their physician.
- 379 • A pregnant employee may continue to work in a Full-Duty Assignment so long as she can safely
380 perform all Essential Job Tasks of their position. An employee is strongly encouraged to consult
381 with their physician to make this decision and to re-assess the decision with their physician
382 throughout the course of the pregnancy.
- 383 • If at any time the Department reasonably believes that the employee cannot perform the
384 Essential Job Tasks in accordance with all safety and operational standards, the Department may
385 require the employee to provide written certification from their physician that they may safely
386 perform *the Essential Job Tasks* of their position or to undergo a Functional Capacity Evaluation to
387 determine if the employee can perform the Essential Job Tasks. The results of such an evaluation
388 shall be placed in the individual's Department Emergency Services Provider Medical File, and ASB
389 shall be provided the conclusion of the evaluation.
- 390 • A pregnant employee may seek a Modified Duty Assignment *at any time during the pregnancy*,
391 whether or not a physician believes it is necessary. A pregnant employee may request a Modified
392 Duty Assignment according to the procedures set out in General Order 110.09: Modified Duty
393 Assignment.
- 394 • A pregnant employee who is unable to perform the Essential Job Tasks of a Full-Duty Assignment
395 or essential functions needed for Modified-Duty Assignment may be required to take leave, in
396 compliance with applicable laws and/or County policies. The employee shall be required to
397 provide documentation as required by applicable County policies.

398

399 **INJURY, ILLNESS, AND CONDITION BACK TO WORK PROCESS:**

400 The physical and mental ability to perform all Essential Job Tasks shall be the standard to return to work.
401 Any Department emergency services provider who seeks to return to an Unrestricted Work Status based
402 on the medical evaluation of a personal physician shall be required to submit certain paperwork to BOSH
403 for evaluation by the Fire Department Occupational Medicine Physician.

404

405 A Department emergency services provider who is in a No-Work Status or Restricted Work Status as the
406 result of an on or off-the-job injury, illness, or condition may request a return to an Unrestricted Work
407 Status using the following procedure:

- 408 • The individual shall notify BOSH when a return to Unrestricted Work Status date has been
409 established.
- 410 • BOSH shall provide the individual with the Essential Job Tasks paperwork to be completed by the
411 treating physician.
- 412 • The individual shall provide BOSH with the Essential Job Tasks form for firefighters completed and
413 signed by the treating physician. The Essential Job Tasks form shall include the date when the
414 individual is able to be released to return to Unrestricted Work Status.
- 415 • When the individual's treating physician for off-duty injury, illness, or condition is unsure of
416 signing the Essential Job Tasks form, the individual may have the Fire Department Occupational
417 Medicine Physician complete the release process to return to work in addition to their treating
418 physician. The individual may be returned to a Restricted or No-Work Status until such time as all
419 required paperwork is completed.
- 420 • The Fire Department Occupational Medicine Physician shall review the treating physician's
421 certification and the Essential Job Tasks form for Firefighters. If the Department Occupational
422 Medicine Physician has any question about the certification, he or she may contact the treating
423 physician for clarification.
- 424 • BOSH shall communicate regularly regarding injuries, illnesses, and conditions, and anticipated
425 return to work status with the Fire Department Occupational Medicine Physician to ensure
426 continuity of care.
- 427 • BOSH shall ensure all associated required County authorizations and approvals related to the case
428 are obtained and communicate with other County departments as appropriate.
- 429 • BOSH shall notify the Bureau Chief of the Administrative Services Bureau or designee when an
430 individual is returning to Unrestricted Work Status. ASB shall notify the respective Bureau Chief of
431 the individual returning to Unrestricted Work Status.
- 432 • BOSH shall ensure all documentation is placed in the Department Emergency Services Provider
433 Medical File.

434
435 If the individual was not able to complete a required annual Occupational Medical Evaluation that was
436 scheduled to occur during the injury, illness, or condition period due to the injury, illness, or condition
437 that prevented such an examination, the Department emergency services provider may request to fulfil
438 the annual Medical Evaluation requirement during their Return-to-Work Medical Evaluation.

439
440 BOSH may assist personnel to coordinate injury, illness, or condition follow-up medical appointments to
441 facilitate a healthier return to work within the proper timeframes.

442
443 The Risk Management Office may contact the Fire Department Occupational Medicine Physician and
444 BOSH for consultation and individual case management regarding Workers' Compensation case care
445 management. The County Department of Human Resources and the County Department of Risk
446 Management may coordinate with ASB and BOSH regarding additional follow-up or independent medical
447 evaluations, as appropriate, on a case-by-case basis.

448 REFERENCES

- 449 • Occupational Safety and Health Administration (OSHA) §1910.134: *Respiratory Protection*.
- 450 • Occupational Safety and Health Administration (OSHA) §1910.120: *Hazardous Waste Operations
451 and Emergency Response*.
- 452 • Occupational Safety and Health Administration (OSHA) §1910.1018: *Medical surveillance
453 Guidelines*.

- 454 • (2018) NFPA 1582: *Standard on Comprehensive Occupational Medical Program for Fire*
- 455 *Departments.*
- 456 • IAFF/IAFC Joint Labor Management Wellness Initiative.
- 457 • GO 150.12: Reporting Procedures for job related, injury, illness, exposure and collision/accident
- 458 and processing.
- 459 • GO 110.09: Modified Duty Assignment.

460 SUMMARY OF DOCUMENT CHANGES

- 461 • New General Order.
- 462 • This new General Order incorporates updated policy regarding pregnancy, and supersedes and
- 463 replaces GO 110.10: Pregnancy Policy and its attachments.

464 FORMS/ATTACHMENTS

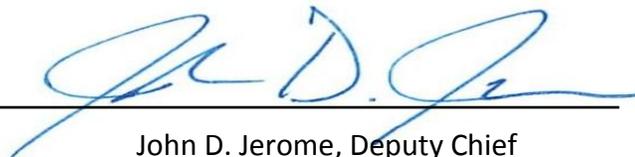
- 465 • Attachment A: Physician's Certification and Essential Job Tasks for Firefighters.
- 466 • Attachment B: NFPA 1582: *Standard on Comprehensive Occupational Medical Program for Fire*
- 467 *Departments, Annex D, Pregnancy Issues (2018).*

468 APPROVED

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473 William Anuszewski, Fire EMS Chief
474 Office of the Fire Chief

475 Author:

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481 John D. Jerome, Deputy Chief
482 Planning Command
483 Bureau of Occupational Safety and Health



Attachment A

Howard County Department of Fire & Rescue Services

Howard County Department of Fire & Rescue Services * 2201 Warwick Way, Marriottsville, MD 21104 * 410-313-6000

Physician's Certification

PATIENT / EMPLOYEE LAST NAME	PATIENT / EMPLOYEE FIRST NAME
------------------------------	-------------------------------

PHYSICIAN'S CERTIFICATION:

I have reviewed the tasks and essential functions listed and it is my opinion that the above named individual (check one):

- Is currently **ABLE** to perform **FULL-DUTY** as a Firefighter without undue risk to themselves, coworkers, or the general public, and is **ABLE** to maintain regular and predictable attendance.
- Is currently **NOT ABLE** to perform **FULL DUTY** as a Firefighter, but is **ABLE** fit to perform in a **RESTRICTED DUTY** capacity in an administrative/office/sedentary setting on a part-time full-time basis.

SPECIFY RESTRICTIONS

- Is currently **NOT ABLE** to perform in **ANY CAPACITY** and should be placed in a **NO-WORK** status.
- None of the above. As the patient's treating physician, I am deferring the return-to-work medical evaluation and/or the Physician's Certification to the Fire Department occupational health specialist.*

PROGNOSIS:

DATE	Indicate date when patient/employee should be re-evaluated for change in work capacity.
DATE	Indicate date by which you anticipate this patient will have reached maximum medical improvement.
<input type="checkbox"/> YES <input type="checkbox"/> NO	When this patient has reached maximum medical improvement, do you anticipate that they will be able to resume the above tasks and essential functions?

MEDICATION STATUS:

<input type="checkbox"/> DO <input type="checkbox"/> DO NOT	Prescribed medications, if any, [DO or DO NOT] affect employee's ability to safely perform the essential functions of his/her position, including the ability to operate an employer provided motor vehicle.
---	--

ADDITIONAL INFORMATION:

Please include any additional information you can provide, including a narrative report, which would assist the County in evaluating this employee's duty status or assignment (attach second page if needed).

SIGNATURE:

PHYSICIAN NAME (PRINT)	PHYSICIAN SPECIALTY
PHYSICIAN ADDRESS	PHYSICIAN PHONE
PHYSICIAN ORIGINAL SIGNATURE	DATE



Attachment A

Howard County Department of Fire & Rescue Services

Howard County Department of Fire & Rescue Services * 2201 Warwick Way, Marriottsville, MD 21104 * 410-313-6000

Typical Tasks and Essential Functions for Firefighters

**HOWARD COUNTY DEPARTMENT OF FIRE & RESCUE SERVICES (DFRS)
TYPICAL TASKS AND ESSENTIAL FUNCTIONS FOR FIREFIGHTERS
(Trainees, Recruits, Firefighters, Heavy Vehicle Operators, Officers, Chiefs)**

Operational, uniformed career and volunteer personnel of DFRS perform physically demanding work, under very difficult conditions, and may be required to work at or near maximal heart rates for extended periods of time. A firefighter's work is usually performed in heavy protective equipment, typically weighing in excess of 50 pounds of itself with additional weight associated with tools and equipment. Tasks may be performed in adverse weather and environmental conditions. Firefighters may be exposed to extreme and rapidly fluctuating temperature conditions and to potentially toxic substances including carbon monoxide, carbon dioxide, hydrogen cyanide, acrolein, hydrogen chloride, nitrogen dioxide, sulphur dioxide, benzene, and a myriad of harmful substances produced by burning plastics. Firefighters may also be exposed to biological and radiation hazards. Firefighters may be scheduled to work 24 hour shifts and must be physically able to perform their duties at any moment during the assigned shift.

Operational, uniformed career, and volunteer members must be able to perform the following tasks as outlined in NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Department, "Chapter 5 Essential Job Tasks" 2018 edition. Please check the appropriate box for each task. Additional comments can be added at the end of form, as appropriate.

The patient is capable of the following Essential Job Tasks: Without restriction Under controlled circumstances for training or assessment purposes only.

TASK	YES	NO	
1	<input type="checkbox"/>	<input type="checkbox"/>	Performing fire-fighting tasks (e.g. hose line operations, extensive crawling, lifting and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions while wearing personal protective ensembles and self-contained breathing apparatus (SCBA), including working in extremely hot or cold environments for prolonged time periods.*
2	<input type="checkbox"/>	<input type="checkbox"/>	Wearing an SCBA, which includes a demand valve-type positive-pressure facepiece or HEPA filter masks, which requires the ability to tolerate increased respiratory workloads.
3	<input type="checkbox"/>	<input type="checkbox"/>	Exposure to toxic fumes, irritants, particulates, biological (infectious) and nonbiological hazards, and/or heated gases, despite the use of personal protective ensembles and SCBA.
4	<input type="checkbox"/>	<input type="checkbox"/>	Depending on the location of call, climbing six or more flights of stairs while wearing fire protective ensemble weighing at least 50 pounds (22.6 kilograms) or more and carrying equipment/tools weighing an additional 20 to 40 pounds (9 to 18 kilograms).
5	<input type="checkbox"/>	<input type="checkbox"/>	Wearing fire protective ensemble that is encapsulating and insulated, which will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F (39°C).
6	<input type="checkbox"/>	<input type="checkbox"/>	Searching, finding and rescue-dragging or carrying victims ranging from newborns up to adults weighing over 200 pounds (90 kilograms) to safety despite hazardous conditions and low visibility.
7	<input type="checkbox"/>	<input type="checkbox"/>	Advancing water-filled hose lines up to 2½ inches (65 mm) in diameter from fire apparatus to occupancy [approximately 150 feet (50 meters)], which can involve negotiating multiple flights of stairs, ladders, and other obstacles.
8	<input type="checkbox"/>	<input type="checkbox"/>	Climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces, and operating in proximity to electrical power lines and/or other hazards.
9	<input type="checkbox"/>	<input type="checkbox"/>	Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest periods, meals, access to medication (s), or hydration.
10	<input type="checkbox"/>	<input type="checkbox"/>	Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens.



Attachment A

Howard County Department of Fire & Rescue Services

Howard County Department of Fire & Rescue Services * 2201 Warwick Way, Marriottsville, MD 21104 * 410-313-6000

Typical Tasks and Essential Functions for Firefighters

11	<input type="checkbox"/>	<input type="checkbox"/>	Critical, time-sensitive, complex problem solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions.
12	<input type="checkbox"/>	<input type="checkbox"/>	Ability to communicate (give and comprehend verbal orders) while wearing personal protective ensembles and SCBA under conditions of high background noise, poor visibility, and drenching from hose lines and/or fixed protection systems (sprinklers).
13	<input type="checkbox"/>	<input type="checkbox"/>	Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to civilians or other team members.
14	<input type="checkbox"/>	<input type="checkbox"/>	Working in shifts, including during nighttime, that can extend beyond 12 hours.

* NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments, "Annex A Explanatory Material" 2018 Edition provides further definition of certain firefighting tasks:

A firefighter, while wearing full protective clothing (turnout coat and pants, helmet, boots, and gloves) and SCBA, is required to safely perform a variety of fire-fighting tasks that require upper body strength and aerobic capacity. For those not familiar with fire suppression, the following specific details inherent to the activities in essential Job Task 1 are offered:

1. *Lifting and carrying tools and equipment (e.g. axe, Halligan tool, pike pole, chain saw, circular saw, rabbit tool, high-rise pack, and hose) that weigh between 7 and 20 pounds (3.2 and 9 kilograms) and are used in a chopping motion over the head, extended in front of the body, or in a push/pull motion.*
2. *Advancing a 1¼ inch (45 millimeters) or a 2½ inch (65 millimeters) diameter hose line, which requires lifting, carrying, and pulling the hose at grade, below, or above grade, or up ladders. In addition to the weight of the hose itself, a 50 foot (15 meters) section of charged 1¼ inches (45 millimeters) hose contains approximately 90 pound (41 kilograms) of water, and a 50 foot (15 meters) section of 2½ inches (65 millimeter) hose holds approximately 130 pounds (59 kilograms) of water.*
3. *Performing forcible entry while utilizing tools and equipment (e.g., axe, Halligan tool, chain saw, circular saw, rabbit tool) that requires chopping, pulling, or operating these items to open doors, windows, or other barriers to gain access to victims or possible victims or to initiate fire-fighting operations.*
4. *Performing ventilation (horizontal or vertical) utilizing tools and equipment (e.g. axe, circular saw, chain saw, pike pole) while operating on a flat or pitched roof or operating off a ground or aerial ladder. This task requires the firefighter to chop or push tools through roofs, walls, or windows.*

Other tasks that could be performed can include search and rescue operations and other emergency response actions under stressful conditions, including working in extremely hot and cold environments for prolonged time periods.

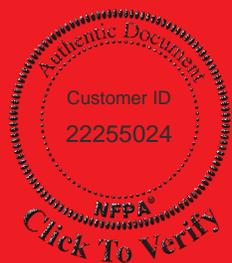
PATIENT / EMPLOYEE NAME (PRINT)		
PHYSICIAN NAME (PRINT)	PHYSICIAN ORIGINAL SIGNATURE	DATE
ADDITIONAL COMMENTS		

NFPA®

1582

Standard on Comprehensive Occupational Medical Program for Fire Departments

2018



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NFPA® 1582

Standard on

Comprehensive Occupational Medical Program for Fire Departments

2018 Edition

This edition of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, was prepared by the Technical Committee on Fire Service Occupational Safety and Health. It was issued by the Standards Council on August 1, 2017, with an effective date of August 21, 2017, and supersedes all previous editions.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See “Codes & Standards” at www.nfpa.org for more information.

This edition of NFPA 1582 was approved as an American National Standard on August 21, 2017.

Origin and Development of NFPA 1582

The initial mandatory medical requirements for candidates for fire fighter were in the 1974 edition of NFPA 1001, *Standard on Professional Qualifications for Fire Fighter*. When the first edition of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, was issued in 1987, it required all members engaged in emergency operation to be examined by a physician at least annually and suggested the medical examination be developed and administered by the fire department physician in recognition of the specific requirements of the members’ activities.

In the late 1980s, members of the Technical Committee on Fire Fighter Professional Qualifications (responsible for NFPA 1001) and members of the Technical Committee on Fire Service Occupational Safety and Health (responsible for NFPA 1500) formed a working group to develop a new standard on medical requirements for fire fighters.

The first edition of NFPA 1582 was titled *Standard on Medical Requirements for Fire Fighters* and was issued in 1992 under the responsibility of the Fire Service Occupational Safety and Health Committee. A subsequent edition was issued in 1997. The 2000 edition was titled *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*, in recognition of the increasing amount of guidance being provided in the document to persons serving as fire department physicians.

The title of the 2003 edition was changed to *Standard on Comprehensive Occupational Medical Program for Fire Departments* to reflect a comprehensive occupational medical program. The document included references to the IAFC-IAFF Fire Service Joint Labor-Management Wellness-Fitness Initiative, and to NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Fighters*. These two documents outline a health-related fitness program that is medically validated against NFPA 1582. The 2003 edition delineated between medical issues of a candidate seeking to become a fire fighter, and those of incumbents currently performing the tasks of fire fighting. The intent with incumbents with a medical condition is to rehabilitate them and only restrict them from performing those essential job tasks where their injury or illness would affect the safety of themselves or others on their crew.

In the 2007 edition, new requirements were added to both the chapter on medical evaluation for candidates and the chapter on specific evaluation of medical conditions in incumbents to allow persons with diabetes to enter the fire service or continue performing essential job tasks associated with fire fighting if they meet defined criteria. All the medical conditions that govern whether a person can become a fire fighter and the specific medical conditions of incumbents that affect their ability to perform certain essential job tasks were reviewed and updated, if appropriate, based on current medical research and knowledge.

For the 2013 edition, the committee, with the assistance of several task groups and subject matter experts in specialty areas with regard to medical conditions, updated many of the medical requirements to reflect current practices. Some of the areas that were addressed were that of diabetes, metabolic syndrome, prosthetic adjuncts, hearing aids, and cochlear implants, as well as pregnancy and reproductive system concerns. Also developed for the 2013 edition was a new annex designed to assist the end user with the subject of pregnancy. The committee, with the assistance of the International Association of Fire Fighters, provided an updated Annex C, which contains the protocols for the evaluation of fitness for members. The committee also updated some of the medical requirements relating to hypertension, anticoagulants, TB testing, and screening for cancer.

For the 2018 edition, the committee, with the assistance of several task groups and subject matter experts in specialty areas with regard to medical conditions, has updated many of the medical requirements to reflect current practices. Some of the areas that were addressed were lung function, spinal injuries/conditions, and seizure disorders. A new section was added to the annual fitness evaluation regarding lung function performance. The committee updated all of the annex material in order to provide the best guidance and references for physicians and fire departments.

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Technical Committee on Fire Service Occupational Safety and Health

Randy J. Krause, *Chair*
Port of Seattle Fire Department, WA [E]

Murrey E. Loflin, *Nonvoting Secretary*
National Institute for Occupational Safety & Health, WV [RT]

Lawrence T. Bennett, University of Cincinnati, OH [SE]

David T. Bernzweig, Columbus (OH) Division of Fire, OH [L]
Rep. Columbus Firefighters Union

Sandy Bogucki, Yale University Emergency Medicine, CT [SE]

James E. Brinkley, International Association of Fire Fighters, DC [L]
Rep. International Association of Fire Fighters

Dennis R. Childress, Orange County Fire Authority, CA [U]
Rep. California State Firefighters Association

Thomas J. Cuff, Jr., Firemens Association of the State of New York, NY [U]

David W. Dodson, Response Solutions LLC, CO [SE]
Rep. Fire Department Safety Officers Association

Christopher A. Garrett, Owasso Fire Department, OK [M]
Rep. International Fire Service Training Association

Stanley Haimes, UCF College of Medicine, FL [SE]

Todd A. Harms, Phoenix Fire Department, AZ [E]

Scott D. Kerwood, Hutto Fire Rescue, TX [E]
Rep. International Association of Fire Chiefs

J. Roger Lackore, Smeal Fire Apparatus, WI [M]
Rep. Fire Apparatus Manufacturers Association

Tamara DiAnda Lopes, Reno Fire Department, NV [U]

Joseph Mchugh, Fire Department City of New York, NY [U]
Rep. Fire Department City of New York

Steven M. Moffatt, Public Safety Medical, IN [SE]

Paul J. Napoli, Association of Fire Districts of the State of New York, NY [U]

Rep. Association of Fire Districts/State of New York

Robert D. Neamy, Gardnerville, NV [M]

Rep. National Incident Management System Consortium

Christopher W. Norris, Westhampton Fire Department, MA [E]

Charles J. Popp III, Boston Fire Department, MA [U]

David J. Prezant, Fire Department City of New York, NY [E]
Rep. Fire Department City of New York

Steven A. Rabine, Volunteer Firemen's Insurance Services, Inc., PA [I]

Gregory Reynar, Los Angeles City Fire Department, CA [U]

Daniel G. Samo, Northwestern Medical Group, IL [SE]

Andrew G. Schwartz, Lion Group, Inc., OH [M]

Denise L. Smith, Skidmore College, NY [SE]

Donald F. Stewart, Medocracy Inc./Fairfax County Fire & Rescue, VA [E]

Philip C. Stittleburg, La Farge Fire Department, WI [U]
Rep. National Volunteer Fire Council

Susan Tamme, Tampa Fire Rescue Department, FL [L]
Rep. International Association of Women in Fire & Emergency Services

Fred C. Terryn, U.S. Department of the Air Force, FL [U]

Teresa Wann, Santa Ana College, CA [SE]

Kim D. Zagaris, State of California, CA [E]

Alternates

Robert Albanese, Fire Department City of New York, NY [U]
(Alt. to Joseph Mchugh)

Kurt Becker, Clayton, Missouri Fire Department, MO [L]
(Alt. to James E. Brinkley)

Brett R. Bowman, City of Manassas Fire & Rescue Department, VA [E]
(Alt. to Scott D. Kerwood)

Wesley D. Chestnut, Spartan Motors, Inc., MI [M]
(Alt. to J. Roger Lackore)

Bradd K. Clark, Ocala Fire Rescue, FL [M]
(Alt. to Christopher A. Garrett)

Steven D. Corrado, UL LLC, NC [RT]
(Voting Alt.)

Fabrice Czarnecki, University of Maryland St. Joseph Medical Center, MD [SE]
(Alt. to Daniel G. Samo)

Kenneth Desmond, Bath, ME [U]
(Alt. to Philip C. Stittleburg)

Hayley Fudge, Lion Group, Inc., OH [M]
(Alt. to Andrew G. Schwartz)

Randall W. Hanifen, University of Cincinnati, OH [SE]
(Alt. to Lawrence T. Bennett)

Jerome E. Ozog, Volunteer Firemen's Insurance Services, Inc., PA [I]
(Alt. to Steven A. Rabine)

Paul Parrish, Austin Fire Wellness, TX [SE]
(Alt. to Sandy Bogucki)

Jack E. Reall, Columbus (OH) Division of Fire, OH [L]
(Alt. to David T. Bernzweig)

Phillip C. Vorlander, Waunakee, WI [M]
(Alt. to Robert D. Neamy)

Nonvoting

William R. Hamilton, U.S. Department of Labor, DC [E]

Andrew Levinson, U.S. Department of Labor, DC [E]
Rep. Occupational Safety & Health Administration

Ken Holland, NFPA Staff Liaison

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on occupational safety and health in the working environment of the fire service. The Committee shall also have responsibility for documents related to medical requirements for fire fighters, and the professional qualifications for Fire Department Safety Officer.

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Annex D Pregnancy Issues

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

D.1 Introduction.

D.1.1 Due to the legal issues associated with pregnancy and employment (see Section D.2), this annex is intended to serve as guidance for the fire department physician in advising the pregnant fire fighter of the risks associated with performing essential job functions and enabling her in decision-making. This has been summarized in an informational handout developed by the Task Group for the pregnant fire fighter (see A.9.18.2).

D.1.2 The majority of pregnant fire fighters will be able to continue to work throughout pregnancy, with some accommodations. A point will likely come during the pregnancy when the physical changes to the body of the pregnant fire fighter will impair her ability to perform some of the essential job tasks, and appropriate restrictions will need to be offered.

D.2 Legal Framework.

D.2.1 This document does not constitute legal advice. Before developing a pregnancy policy or before restricting or suspending a pregnant fire fighter against her will, fire physicians and the AHJ should seek competent legal advice.

D.2.2 The Pregnancy Discrimination Act of 1978 states that discrimination on the basis of pregnancy or childbirth constitutes unlawful sex discrimination under Title VII of the Civil Rights Act of 1964 [1]. Women who are pregnant or have related conditions must be treated in the same manner as other applicants or employees with similar abilities or limitations. An employer may not force a pregnant employee to take disability leave if she is able to work and cannot remove her from her duty assignment if she is able and willing to perform it. The Pregnancy Discrimination Act applies to most employers that have 15 or more employees.

D.2.3 The U.S. Supreme Court ruled in 1991 that an employer may not exclude pregnant women from hazardous jobs [2]. Therefore, assuming the pregnant fire fighter is willing and able to perform her essential job tasks, fire agencies should give options to pregnant fire fighters, but ultimately it is up to the individual fire fighters to decide, after consultation with their personal physicians, whether to accept a light duty assignment or other reasonable changes in their job assignments.

D.3 The pregnant fire fighter can be exposed to the following hazards associated with adverse outcomes to the pregnancy or damage to the fetus:

- (1) Physical hazards, including heat, trauma, radiation, and noise.
- (2) Chemical hazards, including exposure to carbon monoxide, other products of combustion (e.g., hydrogen cyanide, acrolein, formaldehyde, benzene, acetaldehyde, formic acid), heavy metals, and organic solvents.
- (3) Biological hazards. As first responders, fire fighters are at a higher risk of exposure to infectious agents. Pregnancy by itself does not increase that risk. However, with some agents (e.g., novel H1N1 influenza), the risk of complications is higher during pregnancy. Pregnant fire fighters should be aware of these risks and follow good hygiene principles.



FIGURE C.2.1.12(a) [Sit and Reach Flexibility Evaluation — Initial Position.]



FIGURE C.2.1.12(b) [Sit-and-R Reach Flexibility Evaluation — Forward Position.]

- (3) Jamar Hydraulic Hand Dynamometer: for information and local distributor contact, Jamar, Sammons Preston, 4 Sammons Court, Bolingbrook, IL 60440, Phone (800) 323-5547 (Note: The Jackson Strength Evaluation System includes a Jamar Hydraulic Hand Dynamometer).
- (4) Novel Acuflex II Trunk Flexibility Tester: for information and local distributor contact, Novel Products Incorporated, Post Office Box 408, Rockton, IL 61072-0408, Phone (800) 323-5143, fax (815)624-4866, E-mail novelprod@aol.com.
- (5) Polar Heart Rate Monitor: for information and local distributor contact, Polar Electro Inc., 370 Crossways Park Drive, Woodbury, NY 11797, Phone (800) 227-1314; Canada (888) 918-5043, fax (516) 364-5454, Website www.polarus.com.
- (6) StairMaster StepMill SM-916 or 7000 PT: for information and local distributor contact, StairMaster Sports/Medical Products, L.P., 12421 Willows Road, NE, Suite 100, Kirkland, WA 98034, Phone (425) 823-1825, ext. 7605, fax (425) 821-3794, Website www.stairmaster.com.

D.4 Physical Hazards.

D.4.1 Trauma.

D.4.1.1 The uterus extends out of the protection of the pelvis after 13 weeks and is therefore more susceptible to direct trauma (to the uterus or the fetus) after that gestational point [3].

D.4.1.2 Fetal mortality due to nonuterine trauma is increased during the first 23 weeks, possibly due to higher susceptibility to maternal hypotension during the first and second trimesters [4,5].

D.4.1.3 With blunt trauma, the leading causes of fetal death are maternal shock, abruption, and uterine rupture [3]. Direct fetal injury from blunt trauma is rare [5].

D.4.1.4 Fetal mortality rates due to maternal trauma [3]:

- (1) Overall with major trauma: 40 percent to 65 percent [4,5,6]
- (2) Overall with minor trauma: 1 percent to 5 percent [3,5]
- (3) In case of maternal pelvic fracture: 25 percent to 35 percent [5,7]
- (4) Gunshot wound to abdomen: 30 percent to 50 percent [5]

D.4.1.5 Long-term outcomes after trauma, besides fetal loss, include higher risk of preterm labor and placental bleeding [5]. The risks of preterm labor and low birth weight were found to be nearly double in a series of patients discharged from a trauma center [8].

D.4.1.6 Pregnant fire fighters should be encouraged to wear seat belts. Proper seat belt positioning during pregnancy should be taught (lap belt under the abdomen and shoulder harness between the breasts); improper placement can result in uterine rupture [3,5]. Seat belt use significantly reduced fetal mortality (fivefold reduction) in a series of cases of pregnant patients injured in motor vehicle accidents [9].

D.4.1.7 Standard personal protective equipment is not designed to protect the fetus. The personal protective equipment fitted pre-pregnancy might not offer the same level of protection during pregnancy.

D.4.2 Noise. Noise exposure during pregnancy has been associated, in human studies, with several adverse outcomes, including miscarriage [10,11], intrauterine growth retardation [11,12,13], preterm delivery [11,14], hearing loss in babies and children [15,16], and hypertension in pregnancy [11]. In a review of 10 studies on pregnancy and noise, most studies did not achieve statistical significance in showing negative effect of noise [17]. The safe threshold of noise exposure during pregnancy is unknown [18]. (See D.11.1.)

D.4.3 Shift Work. Alternating shift work and night work have been associated with preterm birth [24,25], miscarriage [26] and lower birth weight [25,27]. Existing research is controversial. (See D.11.2.)

D.4.4 Heat. In animal studies, increase in maternal core temperature over 1.5°C has been shown to be teratogenic [30]. Core temperature has been shown to be up to 39°C in training [31,32]. Hyperthermia creates the highest risk during the first two months of pregnancy [33,34]. Sports Medicine Australia recommends a pregnant woman “to avoid exercise in hot conditions” [33]. Exercising in a warm environment should be

limited, and adequate hydration should be maintained with physical activity.

D.4.5 Physical Activity. Prolonged working hours, heavy lifting, prolonged standing, and heavy physical workload have been associated with preterm birth, lower birth weight, and pre-eclampsia [14,28]. (See D.11.3.)

D.4.6 Radiation. Fire fighters assigned to patient transport via aircraft or other high-altitude aviation may encounter radiation exposure of significance to a fetus [35,36]. (See D.11.4.)

D.5 Chemical Hazards.

D.5.1 Carbon Monoxide. Carbon monoxide exposure during pregnancy is associated with miscarriage, malformations, mental retardation, and low birth weight [32,38,39].

D.5.2 Products of Combustion. Other chemicals toxic to the fetus that are found in products of combustion include benzene, acrolein, formaldehyde, hydrogen cyanide, acetaldehyde, chloroform, and formic acid [32,38,39]. Both fire suppression and overhaul phases can expose firefighters to toxic chemicals [40].

D.5.3 Exposure to Lead and Other Metals. Lead exposure during pregnancy is associated with serious maternal-fetal complications, including miscarriage, premature rupture of membranes, pre-eclampsia, hypertension, and neurobehavioral effects in infants and children [41,42,43]. Even at low levels, lead exposure has been associated with preterm delivery; congenital abnormalities [44]; and decreased birth weight, length, and head circumference [45]. Current research suggests that there is no safe lead exposure threshold to children, infants, and fetuses [43,46,47]. (See D.11.5.)

D.5.4 Exposure to Organic Solvents. Some organic solvents, like xylene, might be harmful to the fetus [18].

D.5.5 Other Chemicals. Clandestine drug laboratories and hazardous-material scenes should be avoided. Clandestine drug laboratories can expose fire fighters to a variety of toxic chemicals, some of which are potentially injurious to the fetus [49]. Extensive exposure to exhaust fumes might be dangerous because of exposure to carbon monoxide, benzene, and other organic solvents from motor vehicles. In the United States, gas used for regular road traffic does not contain benzene. In developing countries that use leaded gasoline, lead exposure can be significant problem for fire fighters exposed to exhaust fumes [52].

D.6 Medical Issues. The American College of Obstetricians and Gynecologists has published a list of medical contraindications to exercise during pregnancy [53] [Exercise during pregnancy and the postpartum period. ACOG Committee. Opinion No. 267. <http://mail.ny.acog.org/website/SMIPodcast/Exercise.pdf>]. That list could be used to recommend work accommodation to pregnant fire fighters who are suffering from specific complications.

D.7 Risks by Trimesters. Table D.7 lists risks by trimester and during lactation.

D.8 Recommended Activity Modifications During Pregnancy.

D.8.1 The following activities are not recommended during the entire pregnancy:

- (1) Exposure to excessive heat

- (2) Hazmat assignment, exposure to products of combustion or toxic chemicals
- (3) Use of encapsulating protective gear
- (4) Exposure to ionizing radiation [18,35]
- (5) Exposure to prolonged vehicular exhaust or high-volume vehicular traffic (*see D.8.1.1*)
- (6) Aviation (including helicopter) unit assignment [18,35,36,37]

D.8.1.1 Recommendations by Trimester.

- (1) First trimester:
 - (a) Modified, nonhazardous duty only if requested by the fire fighter in consultation with her personal (treating) physician.
 - (b) The fire physician should ensure that the fire fighter and her treating physician are aware of risks created by the job assignment.
 - (c) All recommendations stated in D.8.1
- (2) Second trimester:
 - (a) An accommodation for maternity uniform may be needed.
 - (b) The following are not recommended:
 - i. Assignments with alternating shift work
 - ii. Heavy lifting and prolonged standing
 - (c) All recommendations stated in D.8.1
- (3) Third trimester:
 - (a) The fire fighter may have to be taken off hazardous duties if she is unable to perform the required job functions due to issues with balance, speed, or agility. She should be given a modified duty assignment.
 - (b) An accommodation for maternity uniform may be needed.
 - (c) The following are not recommended:
 - i. Assignments with alternating shift work
 - ii. Heavy lifting and prolonged standing
 - (d) All recommendations stated in D.8.1

D.9 Post-Delivery: Return to Work.

D.9.1 Because of different types of deliveries and associated complications, return-to-work decisions should be based upon an individualized evaluation of the fire fighter’s current status and the requirements of her work assignment. (*See D.11.6.*)

D.9.2 Once the fire fighter requests to return to full duty with the consent of her treating health care provider, all restrictions for patrol duty and training should be lifted, unless other medical issues are present.

D.9.3 The physician should consider various issues such as the following [55]:

- (1) Delivery trauma and mode of delivery
- (2) C-section healing (*See D.11.7.*)
- (3) Physical deconditioning, fatigue, and lack of sleep
- (4) Musculoskeletal conditions (e.g., back pain, carpal tunnel syndrome, tendonitis)
- (5) Pregnancy-related issues
 - (a) Hypertension
 - (b) Eclampsia
 - (c) Gestational diabetes
 - (d) Post-partum depression
 - (e) Post-partum thyroiditis
 - (f) Deep venous thrombosis
 - (g) Anemia
 - (h) Other complications

D.10 Post-Delivery: Lactation.

D.10.1 Fire fighters who are breastfeeding should avoid unprotected exposure to toxic levels of heavy metals and other chemicals.

D.11 Notes.

D.11.1 Intrauterine measurements showed that the fetus was not significantly protected against loud noises [19]. One study in human volunteers found a maximal intrauterine noise attenuation of 10 dB at 4000 Hz [20]. In a study of ewes, the noise attenuation was 20 dB at 4000 Hz, but low-frequency sounds less than 250 Hz were 2 to 5 greater inside the uterus [21]. The sound of a siren can reach up to 110 dB inside the cab of an emergency vehicle [22,23]. The Navy and Marine Corps Public Health Center makes the following recommendations:

“1. The ACGIH [American Conference of Governmental Industrial Hygienists] 115 dBC TWA [time weighted average] and peak 155 dBC noise notations should be observed as exclusion criteria starting at 20 weeks gestation. Excluding pregnant women from discharging firearms after 20 weeks gestation would be consistent with those criteria.

Table D.7 Risks by Trimester and During Lactation

	First Trimester	Second Trimester	Third Trimester	Lactation
Trauma	The risk of direct fetal trauma is mitigated due to the location of uterus, which is a pelvic organ in the first trimester.	The risk of direct fetal trauma is increased due to the intra-abdominal position after 13 weeks.	The risk of direct fetal trauma is increased due to the intra-abdominal position after 13 weeks.	No additional risk.
Chemicals	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide.	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide.	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide.	Avoid exposure to heavy metals, hydrocarbons, carbon monoxide.
Other risks	Heat, noise, radiation, shift work, infections.	Heat, noise, radiation, shift work, infections.	Heat, noise, radiation, shift work, infections.	No additional risk.

2. Pregnant workers should be vigilant in wearing hearing protectors whenever environmental noise exceeds 84 dBA, to minimize potentially unhealthy maternal cardiovascular and endocrine effects on the growing fetus.

3. Extended exposures (more than 12 minutes) above 104 dBA should be avoided after 20 weeks gestation, even with the use of maternal hearing protection.

4. Impact/impulse noise exposure sufficient to require personal hearing protection should be avoided" [18].

D.11.2 In a review of studies on pregnancy and shift work, 8 out of 12 studies showed a significant (but usually small) adverse effect of alternating shift work on pregnancy [17]. In a meta-analysis of 17 studies of shift work during pregnancy, the authors found a significant but small (relative risk 1.2) effect of shift work on preterm delivery; but no association between shift work and birth weight [28]. In a meta-analysis of 4 studies of pregnancy among nurses, shift work was significantly associated with a slightly increased risk of miscarriage [29].

D.11.3 In a meta-analysis of 53 studies of occupational exposures (prolonged working hours, shift work, lifting, standing and heavy physical workload) during pregnancy, the authors found a significant but small effect of long working hours (beyond 40 hours a week) on preterm birth; and a significant but small effect of prolonged standing (more than 3 hours day) on preterm birth. The influence of these occupational exposures on pre-eclampsia is less clear [28].

D.11.4 Aviation-related (including helicopters) potential hazards for the fetus include vibration, noise, jet fuel, and altitude [18,37].

D.11.5 Inorganic lead is absorbed by inhalation and ingestion. Blood absorption of inhaled lead is 30-40%, and blood absorption of ingested lead is 5-15%. Lead is then mostly stored in bones. The half-life of lead is 1 to 3 months in blood and soft tissues and 10 to 25 years in bones. Lead crosses the placenta and is transmitted from the mother to the fetus. Lead is excreted mainly through the kidneys and gastrointestinal tract. Lead is also excreted in breast milk [42,43,48].

D.11.6 Sports Medicine Australia recommends waiting for up to 6 weeks after delivery before performing intense physical exercises [54].

D.11.7 In a series of 100 patients with complications after a C-section, the most common complications were endomyometritis (63 patients), wound infection (32 patients), wound hematoma (22 patients) and postpartum hemorrhage (12 patients). Wound dehiscence was seen in 4 patients. All complications were seen within 10 days of the surgery [56]. Sports Medicine Australia recommends waiting for 6 weeks after C-section to resume exercising [54].

D.12 Pregnancy References.

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Annex E Sample Physician Evaluation Form for Fire Fighters with Diabetes

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

E.1 Figure E.1 is a form that will assist physicians in the evaluation of individuals with diabetes mellitus against their ability to safely perform the essential job functions of a fire fighter.