

**COLUMBUS DEPARTMENT OF FIRE  
AND EMERGENCY MEDICAL SERVICES  
OPERATING GUIDELINES  
VOLUME I**

**SUBJECT:** Personal Protective Clothing  
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**1.0 PURPOSE**

- 1.2 To ensure proper guidelines for the wearing, cleaning and storage of Columbus Fire and Emergency Medical Services Personal Protective Clothing.

**2.0 OBJECTIVES**

- 2.1 To standardize the procedure for proper cleaning and storage of protective clothing.  
2.2 To create flexibility yet maintain safety standards in the course of wearing protective clothing on emergency vehicles and during emergency field operations.  
2.3 To enhance the protection of firefighters against the many inherent respiratory hazards of the profession, while at the same time increasing the overall efficiency of the Columbus Fire and Emergency Medical Services.  
2.4 To establish when and under what circumstances protective clothing shall or shall not be worn.

**3.0 DEFINITIONS**

- 3.1 **Critical Area:** That area within which the Firefighters are extinguishing a fire or mitigating an incident.
- A. Generally, this would be, but not limited to, an area around the incident of approximately 100 ft.
  - B. Any specified area in which the Incident Commander may deem necessary and appropriate to fit the situation.
  - C. 1½ times the height of any building.
- 3.2 **Full Protective Clothing:** Department issued Self Contained Breathing Apparatus, pass device, helmet, turnout coat with liner, turnout pants with liner, boots, PBI hood, and gloves.
- 3.3. **HMRT:** Hazardous Materials Response Team.
- 3.4. **Level A Protective Clothing:** Chemical resistant clothing which when used with SCBA, offers full body protection against chemical vapors, gases, liquids and particulates. Provides the highest level of protection to skin, eyes, and respiratory system.
- 3.5. **Level II Hazardous Materials Incident:** Hazardous Materials Incidents that:
- A. Can only be identified, tested, sampled, contained, extinguished and/or abated utilizing the resources of the HMRT.
  - B. Requires the resources and personnel of multi-fire company response.
  - C. Requires the use of chemical protective gear and specialized equipment.
  - D. May require the evacuation of civilians.

- E. May involve multi-agency response.
- 3.6. **PPM:** Parts Per Million, a value used to establish exposure limits.
- 3.7. **Personnel Protective Clothing:** Department issued helmet, turnout coat with liner, turnout pants with liner, PBI hood, boots, and gloves.
- 3.8. **Regulation Gear:** Those items of protective clothing issued or approved by the Columbus Fire and Emergency Medical Services.
- 3.9. **SCBA, BA, or Air Pack:** Self-Contained Breathing Apparatus.

#### **4.0 SCOPE**

- 4.1 This guideline is applicable to all Columbus Fire and Emergency Medical Services Personnel.

#### **5.0 RESPONSIBILITY**

- 5.1 The officer in charge will make a full assessment of each emergency to ensure that protective clothing being worn is consistent with safety and prevailing conditions.
- 5.2 The officer in charge at an incident will determine, with the use of carbon monoxide monitors, when self-contained breathing apparatus may be doffed. SCBA's shall be worn during all stages of an incident until the National Fire Protection Association (NFPA) threshold for carbon monoxide is determined to be below 50 PPM.
- 5.3 The officer in charge at an incident shall be responsible to see that the personal protective equipment worn is appropriate for the hazards encountered.
- 5.4 The HMRT personnel will maintain Level A protective clothing in a safe and usable condition, will inspect and test each suit to insure compliance with federal laws, standards, and will maintain up to date suit journals.

#### **6.0 PERSONAL; PROTECTIVE CLOTHING**

- 6.1 Personal Protective Clothing:
  - A. Required use on Fire Ground (structural firefighting):
    - 1. Members engaged in or responding to a fire suppression activity or exposed to the hazards associated with a fire shall don Full Personal Protective Clothing.
    - 2. The following will be strictly adhered to when the officer in charge determines that SCBA's may be removed:
      - a. Personnel returning to the work area shall wear N95 Particulate Respirators.
      - b. Personnel shall not remove N95 Particulate Respirators until they leave the work area.
      - c. N95 Particulate Respirators used during fire ground operations shall be removed from the scene and will be disposed of as household trash upon returning to the station.
  - B. Members of a company dispatched to an alarm indicating fire, potential fire or HAZMAT incident will don full protective clothing (SCBA, turnout coat with

liner, turnout pants with liner, boots, PBI hood and gloves). **HELMETS WILL BE WORN WHILE ENROUTE TO ALL EMERGENCIES.** The following exceptions will apply:

1. Chiefs and Staff Officers may use discretion regarding their protective clothing enroute to emergencies. Upon arrival at an emergency scene, the appropriate level of protective clothing should be donned.
  2. Personnel driving fire apparatus and Advance Life Support Units will be exempt from wearing helmets and donning SCBA'S while enroute to emergencies.
  3. Upon arrival at an emergency scene, apparatus operators, shall don the appropriate level of protective clothing as determined by the Officer in Charge, using the criteria in this guideline.
- C. Members of an Advanced Life Support Unit are required to don protective clothing when dispatched on calls involving the situations listed below. **Helmets will be donned upon arrival at the scene.**
1. Structure fires.
  2. Outside fires (i.e. woods, grass, and dumpster fires.)
  3. Vehicle fires.
  4. Vehicle extrication.
  5. Hazardous Materials/WMD incidents.
  6. Rescue.
  7. Building/Floor collapse.
  8. Trench/Confined space incidents.
  9. Calls where the potential exists for a possible/probable hazard.
- D. Members of a Fire Company and/or Advanced Life Support Unit dispatched on a medical call that indicates the need for medical attention only, are not required to don personal protective clothing while enroute to the emergency. **MEMBERS SHALL UTILIZE DISPOSABLE PERSONAL PROTECTIVE EQUIPMENT, SUCH AS:**
1. Latex or nitrile gloves.
  2. Structural firefighting gloves will be worn over latex gloves in situations where sharp or rough edges are likely to be encountered.
  3. Eye shields, masks for facial protection, and barrier proof gowns will be worn on any call that has the potential for blood/body fluid contamination or known or suspected communicable diseases.

#### 6.2 Protective Clothing Requirements During Non-Emergency Field Operations:

- A. Protective clothing will not be required during non-emergency field operations.
- B. Individuals will be responsible for securing their gear prior to the apparatus being put into motion.
- C. Protective clothing or full protective clothing may be required for certain training operations.

#### 6.3 Full protective clothing will be worn by all firefighters when operating in critical areas.

6.4 Full protective clothing, will be worn during the following emergency operations:

- A. Interior search, rescue, offensive/defensive fire operations.
- B. During Level II hazardous materials incidents.
- C. When so directed by the Officer in Charge.

6.5 Care, Cleaning, Inspection and Storage of Turnout Coat and Trousers:

- A. It is imperative that members not remove the manufacturer's care recommendations from Columbus Fire and Emergency Medical Services issued protective clothing.
- B. Logistics/Support shall schedule annual cleaning of all turnout gear, gloves and PBI hoods.
  - 1. In the event that PPE becomes contaminated, with any fluids, heavily soiled from firefighting activities or exposure to hazardous materials the Battalion Chief shall coordinate arrangements with Logistics/Support to have PPE cleaned and available for use at the start of the next date the shift is scheduled to be on duty.
  - 2. Officers in charge are responsible to ensure correct procedures are followed in regards to packaging and labeling of gear contaminated by blood/body fluids or known or suspected communicable diseases (Columbus Fire and Emergency Medical Services Infectious Control Guidelines), hydrocarbons, corrosives, etc.
- C. Never dry any component of PPE in the sun.
- D. Frequency of Inspection: Personnel and company officers shall conduct inspections. The following criteria are the minimum intervals for PPE inspections:
  - 1. Personnel shall inspect their assigned PPE each shift and report any damage to their company officer.
  - 2. Every Saturday.
  - 3. After each cleaning.
  - 4. When damage or contamination is reported by personnel.
  - 5. Upon receiving new PPE.
  - 6. Upon receiving repaired PPE.
  - 7. Upon receiving used replacement PPE.
  - 8. After every fire.
- D. Considerations for inspecting turnout coats, turnout pants:
  - 1. Cleanliness – no excessive staining.
  - 2. Proper fit.
  - 3. Closure hardware (snaps, “D” rings, rivets, zippers.)
  - 4. Pockets firmly attached and not excessively worn
  - 5. No tears, charring, fraying, or holes.
  - 6. Fabric not brittle.
  - 7. Reflective trim intact and effective.
  - 8. Seams intact and not excessively worn.
  - 9. Knee reinforcement firmly attached, no excess wear.

10. Liner fits properly – attachment system intact and functional.
11. No discoloration.

## 6.6 Care, Cleaning, and Storage of Helmets:

- A. Helmets will deteriorate prematurely, and the protection originally designed into the helmet will diminish greatly if not properly maintained/cleaned.
- B. Frequent inspection of the cushion liner and earflaps will help detect deterioration due to hair oils and perspiration.
- C. Personnel will clean helmets after each fire and at least monthly.
- D. Allow the helmet to dry in a cool, well-ventilated place. Do not attempt to dry the helmet by placing it on or near heaters or other extremely hot objects.
  1. Cleaning procedures:
    - a. Remove ear/neck protector, headband, and crown straps.
    - b. Clean inner shell and fiberglass outer shell with mild soap or detergent.
    - c. Wash the ear/neck protector, headband, brow pad, and crown straps in warm, soapy water, rinse with clean water, and air dry at room temperature.
    - d. Clean face shields/goggles with mild detergent, rinse thoroughly with clean water, and dry with a soft cloth.
    - e. CAUTION: Do not use solvents or paint thinners on helmets because they could permanently mar surfaces, or degrade the protective properties of helmet components.
- E. In addition to the above care and maintenance tips, periodic inspections of the helmet must be made to determine its overall condition. Certain components of the helmet can be replaced should they be lost or repaired if damaged. If the helmet has been damaged, Logistics/Support Personnel must make the determination as to whether or not it is still safe for use in structural firefighting.
- F. The following will be taken into consideration when inspecting helmets:
  1. No shell deformities (soft spots, cracks, dents, blistering.)
  2. Reflective trim needs to be intact.
  3. Suspension needs to be properly installed and in good condition.
  4. Mechanical hardware needs to be tight and working properly.
  5. Bead trim around brim needs to be intact.
  6. Chinstrap needs to be intact and functional.
  7. Face shield/goggles needs to be intact without any view impairment.
- G. The following will be taken into consideration when inspecting PBI Hoods:
  1. Hoods will be clean with no excessive staining.
  2. Hoods will contain no tears, fraying, or holes.
  3. Hoods will fit properly with not excessive shrinkage or stretching.
- H. The following will be taken into consideration when inspecting boots:

1. Boots shall be clean.
  2. Boots shall contain no cracks, tears, brittle material or punctures.
  3. Liners will be intact, not torn or separated from outer shell.
  4. Seams will be intact.
- I. The following will be taken into consideration when inspecting gloves:
1. Must fit properly.
  2. No tears, charring, fraying, or holes.
  3. Seams intact and not excessively worn.
  4. Must be clean.

#### 6.7 Storage of Personal Protective Clothing:

- A. **Personal Protective Clothing (turnout pants, turnout coat, PBI hood, gloves) will not be stored in sleeping quarters.**
- B. On-duty personnel will place their protective clothing by their assigned apparatus prior to going to bed each shift.
- C. Personnel will insure they are appropriately dressed (i.e., athletic shorts, sweat pants, uniform pants, tee shirt) prior to leaving the sleeping quarters for emergency calls between the hours of 1900 and 0800 hours.
- D. Off duty personnel will store their protective clothing in the area of the station designated for that purpose.

### 7.0 SCBA

#### 7.1 The following inspection steps are to be followed and documented DAILY on the CFEMS MSA Breathing Apparatus Checklist.

- A. Inspect condition of low-pressure hose.
- B. Inspect condition of exhalation valve.
- C. Inspect condition of o-rings/gaskets/ screws at low-pressure connections.
- D. Inspect face-to-face piece seal. Don the face piece and secure. For belt mounted regulators, cover the low-pressure hose and inhale, checking for leakage.
- E. Inspect condition of speaking diaphragm.
- F. Inspect face piece straps for damage and adjust out fully.
- G. Ensure that the face piece lens is clean and undamaged.
- H. Inspect the condition of the face piece webbing/straps.
  - I. Ensure that the face piece and fittings are free of debris.
  - J. Make sure face piece is clean and sanitized.
- K. Inspect condition of seals/gasket/or screens at high-pressure hose connection.
- L. Check that cylinder valve is closed (hand tight).
- M. Inspect condition of high-pressure hose. Ensure that it is free of bulges, wrinkles, wear, or tears.
- N. Verify that hydrostatic test date has been conducted within the following timeframes:
  1. Grey composite cylinders within the past five years
  2. Yellow composite cylinders within the past three years

- O. Ensure that the by-pass valve is closed and the mainline valve is open.
- P. Check the operation of the low-pressure alarm.
- Q. Check the pressure on the regulator gauge and the cylinder gauge. Air pressure must not be below 100 psi of the approved maximum pressure. A pressure difference greater than 100 psi requires that the unit be taken out of service.
- R. Ensure that the harness cylinder lock is properly operating and secure.
- S. Ensure that all harness straps are fully extended, untwisted, and in good condition.
- T. Inspect condition of the harness waist buckle clasp.
- U. Inspect the integrated PASS. SEE Policy/Procedure Manual, Volume III, PASS.
- V. Check screws in the regulator and insure they are not loose. If screws are loose, tighten until they are snug. Do not remove cover from regulator.
- W. Ensure that all cylinders are fully charged.
- X. Ensure that all cylinders are clean and free of gouges, corrosion, chipping, and cracking.
- Y. Individuals performing SCBA component inspections must initial the MSA Breathing Apparatus Checklist (CFEMS Form MSALIST).
- Z. The Company Commander must initial the MSA Breathing Apparatus checklist form.

7.2 Cleaning and Disinfecting the Face Piece: **NEVER USE COROSIVE OR ABRASIVE MATERIALS (BRISTLE BRUSHES, CLEANSER, ETC) TO CLEAN THE FACE PIECE.**

- A. Remove the mask-mounted regulator from the face piece.
- B. Thoroughly wash the face piece (and nose cup) in the cleaning solution (dishwashing liquid and water mixture). A soft brush or sponge can be used to scrub the soiled face piece.
- C. Rinse the face piece inside and out in plain water (120 degree maximum). **DO NOT ALLOW WATER OR CLEANING SOLUTION TO ENTER THE REGULATOR INLET.**
- D. Clean the pressure demand exhalation valve by pressing in on the stem with a blunt object and flushing with clean water.
- E. Allow the face piece to air dry. Do not dry the parts by placing them near a heater or in direct sunlight. This will cause the rubber to deteriorate.
- F. Operate the exhalation valve by hand to be sure it works properly.
- G. Disinfect the face piece with a solution of bleach and water (1 part bleach, 10 parts water). Thoroughly rinse the face piece with clean water and allow to air dry. Place the face piece into the drawstring plastic bag for storage after it has completely dried.
- H. SCBA harnesses and cylinders shall be cleaned thoroughly after each use. Clean the harness, straps and cylinder with a mild detergent and water mixture. A soft bristle brush may be used to dislodge dirt and soot. Thoroughly rinse the harness, straps and cylinder with clean water and air dry completely before storage.
- I. Inspect all components of the SCBA in accordance with the inspection procedures listed in 7.1 of this document.
- J. Thoroughly dry the face piece and regulator after cleaning and disinfecting. The face piece can trap water, which could enter the regulator.

**8.0 APPENDIX A**

**COLUMBUS DEPARTMENT OF FIRE AND EMERGENCY MEDICAL SERVICES  
MSA BREATHING APPARATUS CHECKLIST**

STATION #: \_\_\_\_\_ UNIT #: \_\_\_\_\_ HARNESS #: \_\_\_\_\_ MONTH: \_\_\_\_\_ YEAR: \_\_\_\_\_ \_\_\_\_\_ psi (Place a Y in box if item is satisfactory; N if not)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Condition of low-pressure hose/exhalation valve.															
Check face-to-facepiece seal.															
Facepiece straps adjusted out fully.															
Lens clean and undamaged.															
Condition of head harness/webbing/straps.															
Facepiece and fittings free of debris.															
Fit test satisfactory.															
Facepiece is clean and sanitized.															
Cylinder is fully charged.															
Condition of cylinder – gouged, corroded, chipped, or cracked.															
Cylinder valve knob in closed hand-tight position.															
Condition of high-pressure hose – free of bulges, wrinkles, wears, or tears.															
Verify hydrostatic test date.															
Bypass valve closed/mainline valve open.															
Low-pressure alarm operating.															
Pressure on regulator gauge corresponds with pressure on cylinder gauge (difference must be greater than 100psi).															
Cylinder is locked into harness properly.															
All harness straps extended fully, untwisted, and in good condition.															
Harness waist buckle clasps and unclasps readily.															
PASS device operates properly.															
Reserve cylinder is fully recharged.															
Reserve cylinder is clean and free of gouges, corrosion, chipping and cracking.															
Verify hydrostatic test date on reserve cylinder.															
Initials of person performing MSA Breathing Apparatus Check:															
Initials of Company Commander:															