



SAN LUIS OBISPO CITY FIRE

GENERAL OPERATIONS MANUAL

G.O. 406.04

INSPECTION/MAINTENANCE OF PROTECTIVE CLOTHING

Revised: 8/7/2015

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Inspection and Maintenance of Protective Clothing

The San Luis Obispo City Fire Department (SLOFD) is committed to providing its firefighters with some of the most modern and effective medical, structure fire and wildland fire protective clothing (Personal Protective Equipment or “PPE”) available in order to increase firefighter safety and decrease emergency scene fatigue as much as is practically possible. The Department also has an on-going commitment to assure that this protective clothing is used and maintained correctly by providing periodic, recurring inspection of clothing and training of personnel on use, maintenance, and inspection of clothing.

The Department PPE Committee, under the guidance of the Emergency Response Battalion Chief, researches new equipment, evaluates current equipment, and recommends replacement as necessary. Members of the PPE Committee, as assigned by the ER Battalion Chief, are responsible for maintaining an adequate spare PPE inventory and ordering of new or replacement PPE items. Since PPE has a defined shelf life and constitutes a tremendous expense, the Department inventory shall be kept at a minimum level.

Additionally, in-house cleaning facilities and procedures are provided. A business that specializes in specialty cleaning of protective clothing and repair of protective clothing in accordance with manufacture recommendations and procedures may be used as needed at the direction of the ER Battalion Chief.

The intent of this guideline is to comply with recommendations found in NFPA sections 1971, 1851 and 1999 to provide the greatest amount of protection and safety to SLOFD firefighters operating at emergencies. Employees must not alter any of their PPE from its manufactured design—this includes re-shaping, removing portions to make a ‘better fit’, etc. Safety, accountability, and uniformity take precedence over individuality.

The Department maintains ownership of all PPE provided to an employee. Upon change of job status or leaving employment, employees will return all PPE provided to them by the Department that has not been removed from frontline or back-up service. While employed, employees may not use their PPE in the employment or volunteer of any other agency/employer. For example, an employee would be in violation of policy if he/she were to use Department-issued PPE while teaching a class on behalf of another employee or for use with another fire department or other employer.

Use of PPE

Firefighters operating at all types of fires shall wear 100% cotton under garments (no synthetic fabrics) including physical fitness clothing. PPE ensembles for given conditions are described in EO 602 “Personal Protective Equipment”. These ensembles shall be worn and used in accordance with manufacturers’ instructions as explained by the Department during the periodic



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training provided on use, care and maintenance of protective clothing. As a rule, in order to reduce contamination potential, personal protective equipment should not be brought into the living areas (including dorm areas) of fire stations (placement inside the entry is acceptable).

When assigned to work at a station not normally assigned to or during a call back situation, it is the individual's responsibility to obtain his/her own fire protective clothing/ medical jacket prior to reporting to duty.

PPE Service Life and Replacement

Structural Turnout Clothing

Structural Turnout Clothing (coat and pants) have an active service life as recommended by NFPA and manufacturers of 10 years. Thus the Department shall provide all emergency response personnel with front line structural turnouts that are no more than 10 years old. The service date will coincide with the date of manufacturing of the garment. When funds are available, the Department may purchase new structural turnouts for all personnel prior to the 10 year maximum, while their older set rotates to serve as spares, if still serviceable. New and improved frontline turnouts will normally be recommended by the PPE Committee, via the ER Battalion Chief, for approval by the Fire Chief. The newest set of turnouts should be utilized as the front-line PPE and the older set placed into back-up status.

Most Department personnel are provided with a spare set of structural turnout clothing. This spare set is for use during training and cleaning or repair of the primary set of clothing. This spare set shall be kept in serviceable condition and readiness and not allowed to deteriorate such that personnel safety is compromised. These back-ups will be also inspected on a regular basis to ensure the proper quality and integrity of the turnouts remains intact. Because emergency scene conditions don't take into account front-line versus spare PPE, all PPE shall be retired from emergency response service after 10 years. PPE older than 10 years may be kept for training, education, display, and CERT purposes, but under no conditions should that PPE be used in an IDHL atmosphere, including IDHL training.

Hoods

As per EO 602 "Personal Protective Equipment," hoods are required to be worn on structure fires, vehicle fires, etc. All emergency personnel are issued and must properly use and maintain fire hoods.

Structural Helmets

Structural helmets provided by the Fire Department will be the Cairns 1044 with approved goggles either on the helmet or readily available in the PPE ensemble (such as in a turnout coat pocket), or an equivalent model as determined by the ER Battalion Chief. If an individual chooses to purchase and wear a leather helmet it shall be the Cairns N6A Houston (along with approved goggles/glasses). . Any damage, repair, or replacement needs for individually purchased leather helmets are at the expense of the employee.



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Helmets must be accompanied by approved NFPA structural firefighting eyewear (which may be either on the helmet or in a pocket of accompanying PPE). Helmets will be inspected on a regular basis to ensure that proper safety provisions are complied with, and integrity of the helmet remains intact.

For accountability purposes at emergency scenes, structural helmets must have numbers that correspond to the fire apparatus they are assigned to at all times. The standard way this will be accomplished is via magnetized helmet numbers provided by the Department. Individuals that have customized their number system (such as via stickers) must comply with this rule also, either by wearing their standard issue helmet with the magnets provided, or supplying other means of properly identifying their unit number at the employee's expense.

Fire employees will also wear the proper colored helmet in regards to their assigned position that shift e.g. captain working as engineer must wear a black helmet.

Fire Chief, Deputy Chief and Battalion Chiefs wear white helmets, Captains will wear red, and Engineers and Firefighters will wear black. Fire Prevention personnel (Fire Marshal, Inspectors, Arson Investigators) shall wear orange colored helmets in order to clearly identify roles on the emergency scene.

Employees must remember that the Department owns the Cairns 1044 helmet (and all PPE that it issues to the employee). The replacement cycle of the composite helmets will be on a 20 year replacement schedule depending on heat damage, impacts, integrity of the liner, integrity of the impact cap/safety system, and the chin strap.

Modifications to Structural Helmets

Structural helmets, whether the Cairns 1044, or the N6A Houston purchased by the employee, are certified by NFPA as an ensemble. The ensemble includes the suspension system, NFPA approved eyewear, etc. . SLOFD, in the interest of highest safety for its personnel, will observe the following stipulations regarding modifications of structural helmets:

- Do not alter the shape of the helmet
- Do not remove the rubber lining on the helmet brim
- Do not remove parts of the helmet suspension system, or the impact cap
 - Ratchet system may be removed only if the helmet fits the individual's head snugly with or without a hood being worn.
- Committee may contribute toward the 4 square inch per side requirement as long as the specified amount of reflective material is visible from all sides and back.
- Employees that desire to paint their helmet to comply with the rank/colors listed above should use a paint recommended by MSA Cairns; and for safety purposes the paint must have an extremely high heat rating.
- Earflaps, while recommended for added protection, may be removed due to the superseding SLOFD requirement that fire hoods must be worn as part of the standard PPE ensemble fire as mentioned in EO 602.
- Chinstraps must be present, in proper repair, and used whenever the helmet is worn.



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Helmet Shields and Holders

Helmet shield holders may be any of the 3 approved styles for MSA Cairns helmets. Helmet shields may be personalized but must comply with the following parameters:

- They will have a black background with red panels.
- They will have “San Luis Obispo City Fire” “San Luis Obispo Fire “SLO City Fire” at the top of the shield, and should have the rank of the individual at the bottom of the shield.
- They may have additional small stickers, inscriptions, etc., that in no way can be perceived as offensive, nor compete with the official SLOFD inscription at the top.
- Helmet shields with a specific station number or apparatus number may be worn ONLY when an individual is assigned to that piece of apparatus.
- Employees that desire a customized shield shall present their idea to the ER BC (in consultation with the PPE Committee) for approval prior to purchase and design. Otherwise they may have to discontinue use if it isn't approved



Standard Shield



**Sample Approved
Personalized Shield**

Other Structural Gear

Turnout boots—1 set provided—shall be replaced on an as-needed basis based on the individual and the department boot representative via the ER Battalion Chief. Structure gloves, hoods, and flashlight will also be provided by the Fire Department and replaced via the inspection process.

Wildland Gear

The Fire Department will provide up to 2 sets of wildland pants and jacket, along with brush helmet with shroud goggles, web gear including fire shelter, belt, boots (up to \$250),. These will be replaced on an as-needed basis via the inspection process.



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EMS PPE

The Fire Department will provide an NFPA 1999 compliant “medical type” jacket. It’s use is specifically for providing protection during emergency operations from body fluids, certain chemicals, cold, and rain. The medical jacket should not be worn while performing vehicle maintenance, yard maintenance or other duties where undue soiling or wear will result. The medical jacket, like other PPE, should not be worn inside living areas due to possibility of contamination. The Fire Department will also provide EMS protective eyewear, gloves, and tuberculosis rated, fit-tested filter masks.

Uniform Boots

The Fire Department will provide one pair of approved uniform boots to each individual. These must be NFPA approved steel toe and steel shank. Note that wildland boots do not have steel toe/shank and may not be worn in place of uniform boots except on wildland incidents. Non-rated “station boots” may only be worn at the station, and may not be worn anywhere else. Such footwear, including running shoes, is also not approved at or around the station when performing tasks in which wearers may injure their feet (such as apparatus maintenance, manipulative training, working around moving vehicles, etc.) For current approved boots, consult the Department boot representative.

Retirement of PPE

PPE that is provided to any individual is the property of the Fire Department and shall be returned to the Fire Department upon termination or promotion (e.g. changing helmet due to Captain promotion). PPE that is still usable will be re-issued as needed. Retired PPE (past its serviceable age) shall be kept by the Fire Department based on the serviceability, condition, and quality of the PPE. The best sets will be kept in the training shed for the purpose of use during training, academies, and public education events.

PPE Inspection

All firefighting personnel shall receive training on the inspection of their protective ensembles. A routine inspection shall be done by each firefighter after each use and/or cleaning of their protective clothing. During a routine inspection personnel will evaluate the following items:

- Helmets will be checked for signs of heat damage to the shell (discoloration, bubbling, deformity, or crazing), and integrity of the liner/suspension system and chin strap.
- Protective pants, coats, gloves and hoods will have outer shells and inner liners checked for signs of heat damage (as indicated by charring, color change, or degradation of material strength), rips/tears, missing or loose reflective trim, contamination (products of combustion, chemicals, or body fluids), integrity of all seams, functioning of all closure systems (snap, clip and loop, and Velcro types), and soiling.
- Boots shall be checked for physical damage (rips, tears, deformed or exposed steel toes), thermal damage (charring, bubbling, melting), contamination (by-products of combustion, chemicals or body fluids), and closure system function.

Once every six months an advanced inspection of structural fire protective ensembles will be scheduled and initiated by the shift Battalion Chiefs. This advanced inspection will be



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performed by the engine company Captains. The shift Battalion Chiefs will ensure that all personnel have their ensembles inspected during this period. Chief Officers will be responsible for inspection of their own PPE.

Prior to wildland fire season, in April or May, the shift Battalion Chiefs shall cause an inspection of wildland fire protective ensembles to occur. The inspection will be performed by the engine company Captains with the Battalion Chiefs assuring that all personnel have their ensembles inspected. This inspection shall also include the wildland fire shelter. Annual inspections of all PPE will also be performed by members of the PPE committee and/or a Chief Officer.

The medical jacket should be inspected during the semi-annual PPE inspection. Inspecting this garment is very similar to turnout inspection with shell and shell coating (fluid barrier in shell), lining and closures evaluated for integrity and function.

Specialized PPE / gear (such as Technical Rescue Team, SWAT Medic, etc.) shall be inspected on a regular basis and maintained according recognized standards.

Cleaning, repair, or replacement as explained below shall correct deficiencies noted during any of the inspections.

PPE Cleaning

Studies have shown that toxic substances deposited on firefighters' protective clothing may, over time, build-up within the clothing and eventually be absorbed through the skin as the firefighter perspires. These toxic substances are present at any fire, especially at the modern structure fire, in smoke and as other products of combustion. Studies have identified this exposure medium as a likely cause of increased cancer rates in firefighters. To reduce this unhealthy exposure firefighting protective ensembles will be cleaned after every fire where the firefighter has been contaminated with smoke, after every body fluid or chemical contamination, or every four months in the absence of contamination.

Personnel cleaning contaminated clothing shall wear latex/non-latex gloves and eye protection.

Personnel shall not take contaminated clothing home or use public or typical commercial laundry services for cleaning.

Protective clothing contaminated with a hazardous material (other than the products of combustion associated with a typical structure or wildland fire, and fuel or motor oils) shall not be cleaned by firefighters and will require specialized analysis and cleaning if appropriate.

Protective clothing shall not be cleaned using chlorinated bleach or powder or liquid laundry detergent due to improper ph values. Per manufacturers' recommendations, protective clothing shall only be cleaned with a detergent approved for such cleaning.



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Routine Cleaning

Should be done by the firefighter to remove debris by brushing or hosing off protective clothing and/or spot cleaning minor contaminations. Routine cleaning will usually not require removing the clothing from service.

Advanced Cleaning

Will be required when a general contamination has occurred (e.g. interior operations on a structure fire, in the smoke of a wildland fire, etc.). Advanced cleaning begins on scene by hosing off debris and ash prior to leaving. Advanced cleaning will be completed at Station One, or at a station with a front-loading high RPM washing machine, and will require the removal of the protective clothing from service. Shells and liners will be separated and washed separately with liners and hoods being washed first. A sink, washer/extractor and approved cleaner will be used for advanced cleaning. A spray bottle of approved cleaner will be used for spot treating heavy stains. A 1:10 solution of cleaner to warm water shall be used for pre-soaking shells. Heavily soiled or contaminated shells and gloves should be spot treated and pre-soaked for at least 20 minutes (and up to 24 hours) before washing in the extractor. By pre-soaking and brushing with a soft bristle brush, heavily soiled/contaminated turnouts can be cleaned very effectively- the more soak time and light scrubbing time invested, the cleaner the turnouts will be. Protective clothing should always be washed and soaked in warm water that is 110-120 degrees (push and hold the "up" button while the extractor is running to view water temperature). To use the extractor follow the instructions above the washer/extractor and the proper amount of cleaner will be automatically injected into the extractor at Station One. 9 Oz. of cleaner should be added to washers at other stations. Always hang protective clothing in the shade to dry. Turnouts with the "Isodry" logo on the shell shoulder should have the liners "fluffed" in a dryer set on low or no heat for at least 10 minutes to maximize thermal protective/insulation qualities. Gloves and hoods may be dried in a dryer on a low temperature setting. Personal laundry should not be cleaned in the extractor due to possible cross contamination.

Medical Jacket

Cleaning of the medical jacket is similar to turnout cleaning. The first step is removal of gross contamination, which should begin in the field or at the hospital. Disinfection should occur prior to final washing in a machine at the station. The washer should be decontaminated with an empty load of hot water and bleach after decontaminating the medical jacket. The medical jacket shall be cleaned with the same approved cleaner used for other protective clothing.

Specialized Cleaning and Repair

Specialized cleaning and repair will be done by a source specializing in cleaning, analysis and repair of fire protective clothing. Specialized cleaning will be required anytime protective clothing is contaminated with a hazardous chemical (other than products of combustion from a typical fire or fuel or motor oils) or when in-house advanced cleaning is not effective.



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Specialized cleaning or repair should always be coordinated through the person in charge of fire protective clothing. One resource for specialized cleaning and repair of fire protective clothing is:

Fire Maintenance Company/Turnout Maintenance
7734 Garden Grove Blvd.
Westminster, CA 92683
877-988-3473

PPE Storage

Fire protective clothing should always be stored out of sunlight or fluorescent lighting as ultra-violet light degrades the fabric used in this clothing. Turnout and wildland gear bags are provided for storage to help maintain the integrity of the fire protective ensemble. Gear should always be stored in these bags when clean, dry, and not in use.

The Hanford Rule

Remember to avoid taking any gear home because of possible off gassing of contaminants. All gear should be left in personnel lockers at your assigned station when not in use. Make every attempt to not take gear home, if you have to store gear at your residence, all gear needs to be stored in a secured and locked place. Taking your gear home should be a last resort.