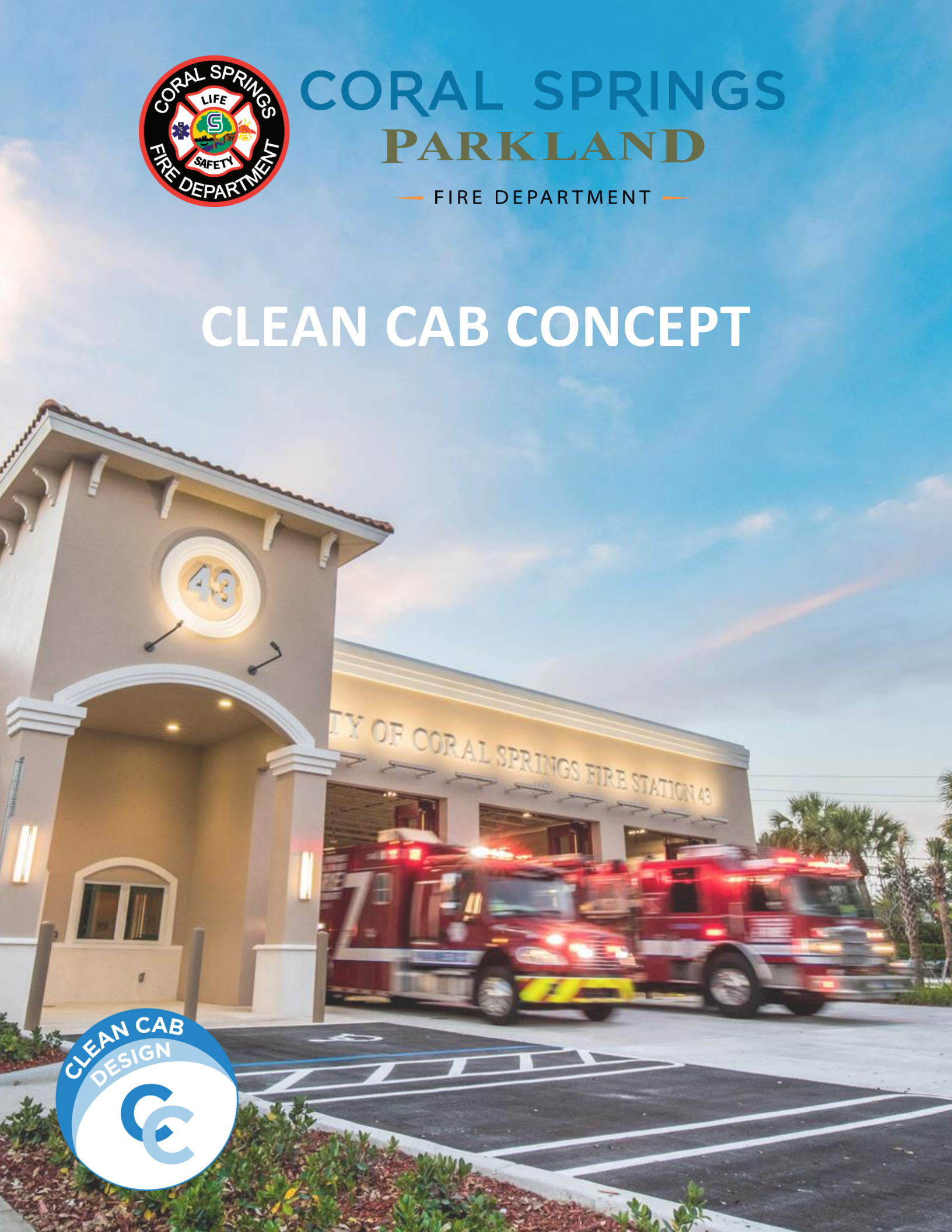
CORAL SPRINGS
PARKLAND
FIRE DEPARTMENT

CLEAN CAB CONCEPT



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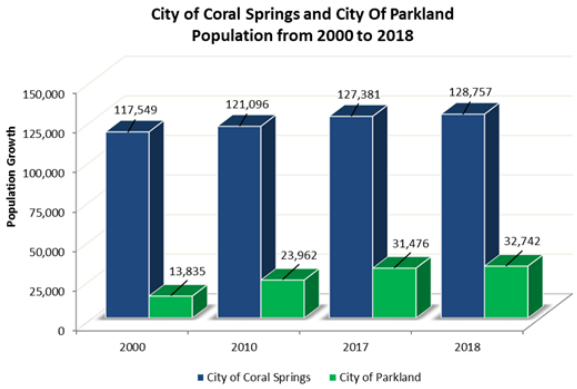
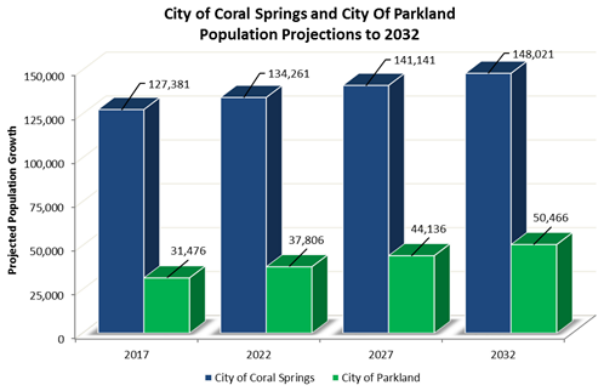
CORAL SPRINGS PARKLAND FIRE DEPARTMENT

Our Communities and Our Department

The City of Coral Springs was incorporated in July 1963 and encompasses a total land area of 23.97 square miles. We are the 15th largest city in the state of Florida by population, and the 5th largest in Broward County. According to data from the BEBR (Bureau of Economic and Business Research), by the end of 2018 the City of Coral Springs was projected to be home to 128,757 residents.

Just to the north of Coral Springs, the City of Parkland has a population of 32,742, within 14.32 square miles.





Of the 24-mile-long Sawgrass Expressway,11.2 miles run through the cities of Coral Springs and Parkland

CORAL SPRINGS PARKLAND FIRE DEPARTMENT

The department operates four primary divisions to further our mission: Fire, EMS, Training and Community Risk Reduction (CRR). Our Fire and EMS divisions operate a 24 hour shift every third day from 8 Fire Stations. Each shift operates under the command of an Assistant Fire Chief and a Battalion Chief, who are responsible for all aspects of running a shift of approximately 51 members that include Captains, Lieutenants, Driver Engineers, and Firefighter Paramedics. Further information on the Coral Springs-Parkland Fire Department can be found in our Annual Report at coralsprings.org/fire

Clean Cab Design Outline

A clean cab apparatus is an apparatus designed to facilitate a clean, healthy, and safe environment by reducing the exposure to contaminates associated with occupational exposures found in firefighting activities. Clean Cab may not be for every organization. Each organization has to determine what works best for them.

Acceptance

- This is a different way of thinking and a big change within the fire service. As a culture, the fire service is a bit resistant to change, especially a change of this scale. The overall goal is reducing the exposure to contaminants that are proven to cause cancer among firefighters. In other words, this is a commitment to protect your life in the same way you have dedicated yours to protecting others. Coral Springs-Parkland Fire Department want to make sure firefighters have a long and rewarding life after the work is done.
- As emergency responders we must understand that there are risk factors associated with our profession. Some we can control (lifestyle and environment) and others we cannot (family and age). We now know that the occupational exposure associated with our profession contributes to a higher risk of cancer. It is also known that the materials firefighters are exposed to today are more toxic in nature than ever before. There are higher rates of foams, plastics, resins coatings and flame retardants used in construction of buildings, vehicles and furnishings. Because of this the burn rates are faster, hotter, and produce more toxic by-products.

Apparatus Cab Environment

I. Other than the firehouse, firefighters spend the majority of their day in the cab of their apparatus. It is within this environment, as well as the station environment, that change needs to happen. These environments must stay clean and safe for all our responders. The misconception that the only time firefighters may be at risk is when they are in a fire must change. We now know that exposures can occur while donning gear, in the apparatus responding to and from the scene, outside of the structure in the hot zone, during maintenance and cleaning, and in rehab. The other misconception of how an exposure takes place must be addressed as well; we now know that the routes of exposure are not only through inhalation but through dermal exposure and ingestion. So just protecting our respiratory system is no longer acceptable. We must do all we can to keep the cab of the apparatus and the interior of our stations as contaminant-free as possible.

When designing the Interior cab of the apparatus, it is important to keep decontamination in mind:

II. Use as many smooth surfaces as possible

III. Keep electronics as high off of the floor as possible to facilitate wash down of the floor
IV. Use non-absorbent surfaces such as vinyl for the seats with little to no seams, when possible.
V. No firefighting equipment to be stored in the cab.
VI. No SCBAs, no Irons, no TIC, etc. in the interior of the cab. The exception to this is bunker gear that has been cleaned in accordance with department policy and manufacturers recommendations. Some organizations have chosen to have extra SCBAs. They decon them, and then return them to the cab after proper decon. In all instances, no contaminated SCBAs go in the cab.
VII. The cab should have adequate lighting for nighttime operations, and for decontamination efforts.
VIII. Two color flashlight system: one color for hazardous environments (orange) and one for non-IDLH operations (yellow). *IDLH = Immediately Dangerous to Life and Health*
IX. A policy should be in place that allows for the cleaning/decontamination of the cab once per month.
X. Work with manufacturers to incorporate a reminder in the truck's current technology at 30-day intervals to do a full and thorough cleaning of the interior of the apparatus.
XI. As you put the truck in pump, the windows may go up if in the down position.
XII. The air conditioning system will go into recirculation mode so as not to pull in contaminated air.
XIII. Use specialized filtration systems for the cab proven to clean the air.
XIV. Seamless smooth flooring systems that allow for easy decon/wash down where available.
XV. Use lighter colored interiors to easily identify dirt and particulates.
If department decides to use a spray-on liner such as Rhino liner, it is important to choose a grit size that will allow for easy wiping and cleaning.

When designing the exterior of the apparatus, it is important to keep decontamination in mind:

XVI. Equipment that will help facilitate decontamination is a booster reel or a garden hose outlet on the truck (a reducer may be used). Keep in mind that decon of a firefighter should not be done with high pressure lines.
XVII. A compartment that houses standard tools and equipment that will be brought into most fires; SCBAs, flashlights, thermal imaging camera, gas meters and irons. This area also serves as a rally point for the firefighters and officers to get on the same page by sharing the IAP. It is crucial that this compartment be easily accessible.
XVIII. Compartment space to store contaminated gear outside the cab.
XIX. Compartment space for decon equipment.

Diesel Exhaust is a known carcinogen. Incorporate vertical exhaust to minimize the exposure to personnel on scene.

The following is a decontamination SOG that shows full procedures for Post Fire Decontamination.

Clean Cab Interior

Interior Cab - Command Zone – Options will be created within the Command Zone to incorporate a reminder in the truck's current technology at 30-day intervals to do a full and thorough cleaning of the interior of the apparatus.

Close up of Command Zone

Interior Cab –

Smooth surfaces vinyl coverings

CORAL SPRINGS PARKLAND FIRE DEPARTMENT

Interior Cab – Non IDLH environment. Used for lighting and EMS Calls. Does not go into a fire.

Two color flashlight system: one color for hazardous environments (orange) and one for non-IDLH operations (yellow). IDLH = Immediately Dangerous to Life and Health

Interior Cab - Seamless smooth flooring systems that allow for easy decon/wash down where available.

Use lighter colored interiors to easily identify dirt and particulates.

If department decides to use a spray-on liner such as Rhino liner, it is important to choose a grit size that will allow for easy wiping and cleaning

Use specialized filtration systems for the cab proven to clean the air.

Interior Cab –

Use non-absorbent surfaces such as vinyl for the seats with little to no seams, when possible.

Interior Cab –

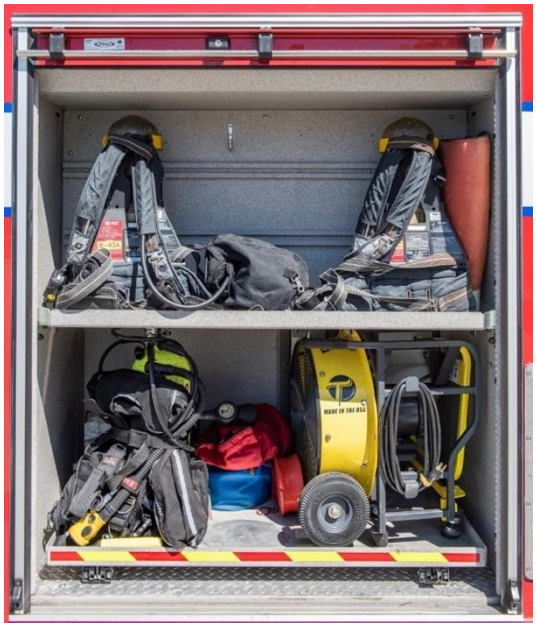
Keep electronics as high off the floor as possible to facilitate wash down of the floor

New Clean Cab AC filter with knobs to easily open and clean filter.

CLEAN CAB EXTERIOR

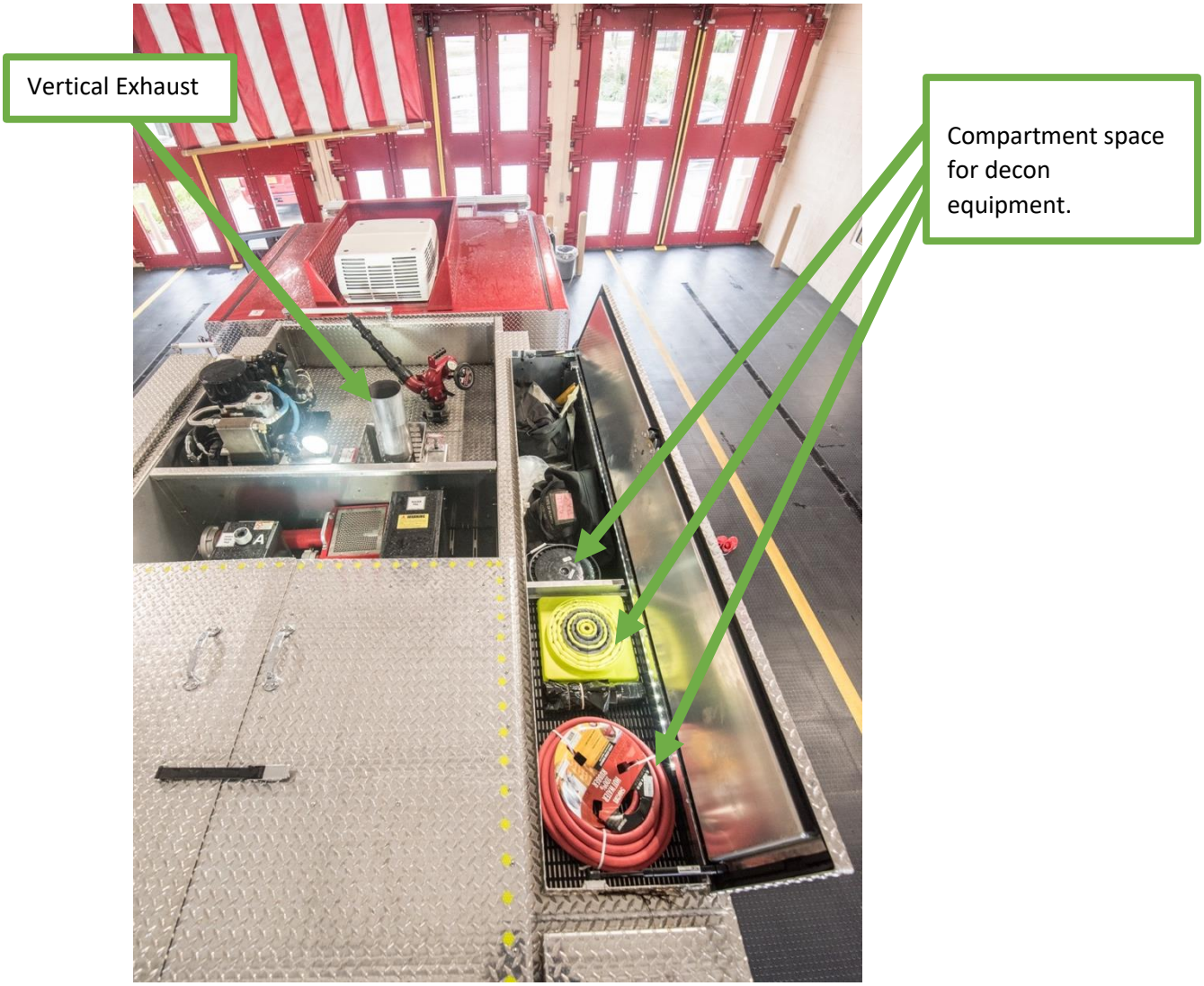
Exterior – An easily accessible compartment that houses standard tools and equipment that will be brought into most fires; SCBAs, flashlights, thermal imaging camera, gas meters and irons. This area also serves as a rally point for the firefighters and officers to get on the same page by sharing the IAP

Exterior – Close up of tool/SCBA compartment



Exterior – Driver Side D/E SCBA

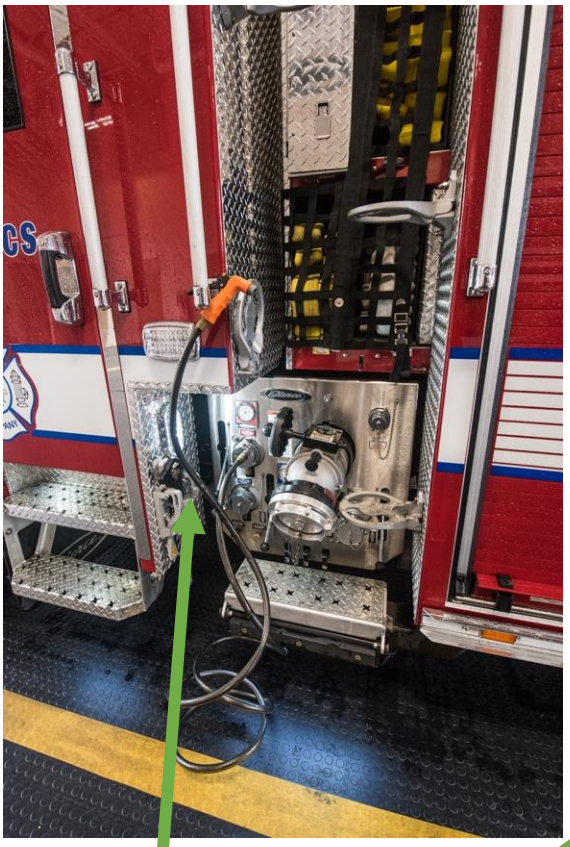
Exterior – Flashlight

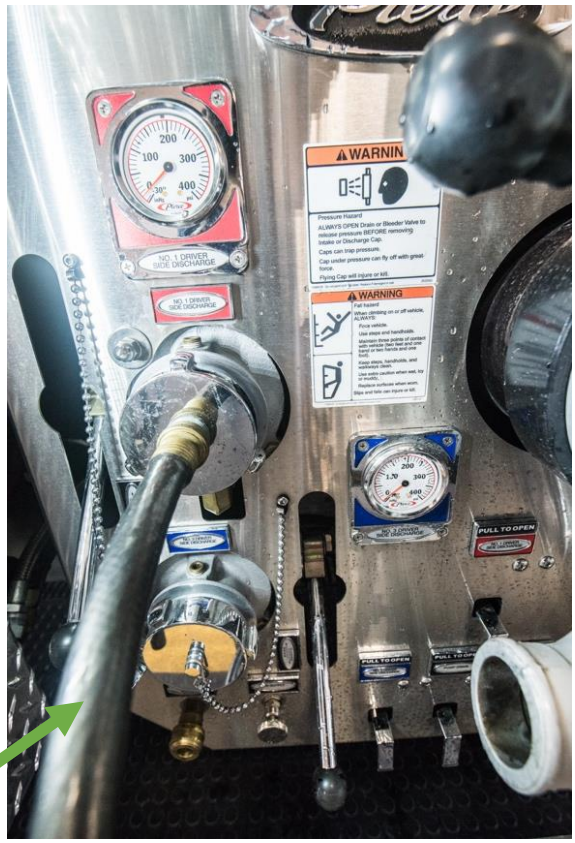


Exterior - Diesel Exhaust is a known carcinogen. Incorporate vertical exhaust to minimize the exposure to personnel on scene. Also include Decon Kit as noted.

Example of a Post Fire Exposure Decon Kit. Wipes should be included; however, Fire departments should evaluate and determine the best product for their needs.

Exterior - Equipment that will help facilitate decontamination is a booster reel or a garden hose outlet on the truck (a reducer may be used). Keep in mind that decon of a firefighter should not be done with high pressure lines.





Exterior – Examples of garden hose outlet on the truck for firefighter decon

CORAL SPRINGS PARKLAND FIRE DEPARTMENT

Engine Retrofit for Clean Cab

Converting an existing, older apparatus to comply with Clean Cab standards can present some unique challenges. Since our newer units were designed with sufficient compartment space, moving equipment outside was not an issue. Other retrofitting components, such as seat replacement, have been more difficult. Smaller units have been more of a challenge. In retrofitting our units, we completely replaced the exterior air conditioning units, and deconned interior units with approved products.

Retrofitting apparatus for Clean Cab

The process to retrofit a truck for Clean Cab has several components, and the labor indicated is our city garage shop hours. It should also be noted that the City of Coral Springs operates with a Pierce fleet that includes the following models: Dash, Velocity, and Impel, manufactured during the years 2005-2019.

We begin by replacing 2 evaporators and 2 expansion valves on the main air conditioning unit, and we clean the blowers and vents. The cost of the parts is **$900**, and the labor is approximately 6 hours.

We replace all seating in the truck as well as seatbelts. We also perform a full decon of the cab in accordance with our decon policy. The labor for this is approximately 10 hours, and the cost of the seating replacement is a little over **$4,000**. The seatbelts are $180 each. The rear and officer PS6 seats are $852 each, and the driver seat is $1,155. Costs may vary depending on the seat manufacturer chosen and the model manufacturer of the apparatus. In the totals below, freight costs are also taken into account.

After the airpacks have been removed, the configuration of the truck has to be adjusted so all of the equipment that enters an IDLH environment initially would be placed in the Officers Side first compartment, behind the cab, which includes all charging units for orange flashlights and thermal imaging camera, along with the gas detector. We put 2 yellow LED streamlights in the cab for the non-IDLH use, i.e. medical calls, car accidents, etc. These run about **$200** each. The labor for the reconfiguration is approximately 5 hours.

A/C parts:	$900
Seating:	$4,376
Freight to ship seats:	$260
Streamlights:	$200
Total:	**$5,736**

Approximate labor hours: 21

Relocation of SCBA and tools to outside compartments (Pierce Dash – 2007) Picture 1

Relocation of SCBA and tools to outside compartments (Pierce Dash – 2007) Picture 2

Relocation of SCBA and tools to outside compartments (Pierce Dash – 2007) Picture 3


PARAMEDICS
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Rescue Apparatus

CORAL SPRINGS PARKLAND FIRE DEPARTMENT


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Staff Vehicles – Chiefs

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ASSISTANT CHIEF
EMERGENCY
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FIRE
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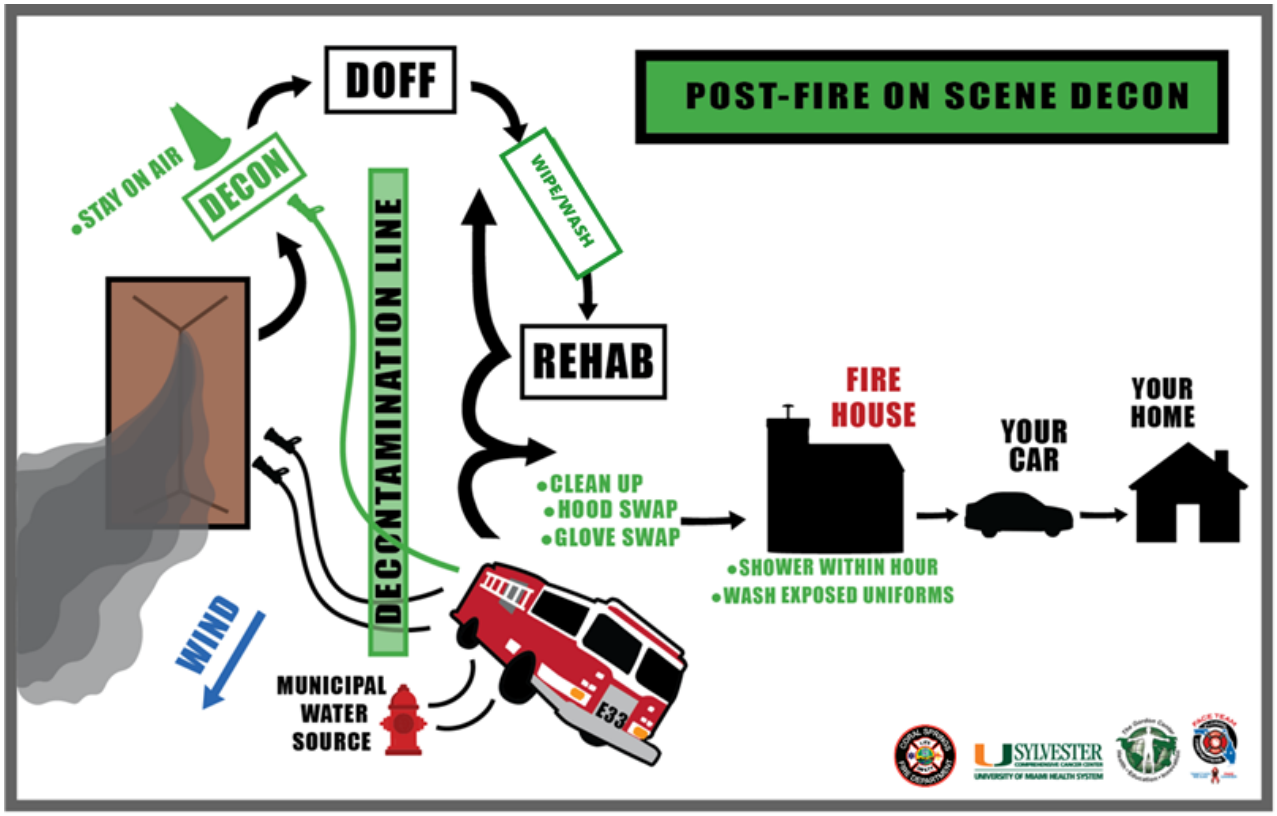
Staff Vehicles – Fire Inspectors


POST-FIRE ON SCENE DECON
DOFF
STAY ON AIR
DECON
DECONTAMINATION LINE
WIPE/WASH
REHAB
CLEAN UP
HOOD SWAP
GLOVE SWAP
FIRE HOUSE
SHOWER WITHIN HOUR
WASH EXPOSED UNIFORMS
YOUR CAR
YOUR HOME
WIND
MUNICIPAL WATER SOURCE
F33
SYLVESTER

CSPFD Standard Operating Guideline G-02 Decontamination of Protective Ensemble

PURPOSE

The purpose of this SOG is to establish a safe and effective practice of removing toxic particulates from equipment and the fire protective ensemble after their exposure to products of combustion. This guideline will aid in reducing firefighter exposures and subsequently have a short and long-term health impact.

SCOPE

This Standard Operating Guideline (SOG) shall apply to all members of the Coral Springs-Parkland Fire Department (CSPFD).

PROCEDURES

I. **Definitions**

A. Hot Zone – Any area with high risk. Any area within the immediate perimeter of any fire or products of combustion (which include smoke and soot).

B. Warm Zone – The area between the hot and cold zone. The area not in the immediate vicinity of any fire or products of combustion. Gross Decontamination and cleaning of the body shall be located in the warm zone.

C. Cold Zone – Any area without risk. Any area outside of the hot and warm zone, ideally uphill and upwind. Rehabilitation (Rehab) shall be located in the cold zone.

D. Decontamination – (Emergency/Gross Decontamination) – to make safe by eliminating or reducing poisonous or otherwise harmful substances, such as noxious chemicals or radioactive materials.

II. **Overview**

a. All members of Coral Springs-Parkland Fire Department shall protect themselves and their co-worker's health and safety by adhering to the following procedures. These guidelines provide a basic framework for most incidents. The Coral Springs-Parkland Fire Department recognizes that Company Officers and Chief Officers have the training and experience to make modifications to this guideline based on the nature and extent of the incident.

b. Decontamination may be necessary for exposed or contaminated civilians and/or emergency responders. There are two types of Decontamination (Emergency/Gross Decontamination and Technical/Secondary Decontamination). The decontamination process described in this SOP strictly refers to a Gross Decontamination following exposure to productions of combustion.

c. To provide for an orderly and systematic process this Gross Decontamination process shall be utilized for all fires where Personal Protective Equipment (PPE) is worn and exposed to products of combustion. This shall include brush fires, vehicle fires, training fires and/or any other emergency or non-emergency incident where the combustion process occurs. The marking of formal isolation or control zones may not occur at every fire incident. Some incidents will require different levels of "decon" and the IC and Company Officers will determine the level of decontamination to be utilized.

d. However, all personnel should be aware that isolation or control zones still exist. Research has shown modern day fires produces harmful toxins (which may include Polycyclic Aromatic Hydrocarbons, Volatile Organic Compounds, Carbon Monoxide, Hydrogen Cyanide etc.). It is important to keep in that mind many of these toxins are colorless odorless gases.

III. Procedure

A. Gross Decontamination - Post Fire - On Scene

1. Preparation

a) Personnel shall be ready at all times to implement these health improving and protective procedures. Personnel may find it beneficial to assemble and maintain a personal "Go-Bag" with a clean uniform that can be accessed after any incident where they've been exposed to harmful substances. Recommended items would include: Class D uniform or jumpsuit (where applicable), socks, clean footwear, "boonie" style hat, towel, sun protection, etc. The Driver Operator shall ensure that the apparatus tank water or any water used in the decon process is from a clean municipal (hydrant) water source and is not stagnant or contaminated water.

2. Set-up

a) Generally, Gross Decontamination should be setup by the first arriving suppression apparatus closest to the incident where products of combustion exist. It shall be the Driver Operators responsibility to establish and oversee the Gross Decontamination area and process. The Gross Decontamination area shall be designated by deploying an approved decon Hose Line and marking the nozzle location with a green safety cone. The decon Hose Line shall include a booster nozzle from the initial suppression apparatus to not embed toxins into any fabrics, the nozzle shall be set to high flow and low pressure. To facilitate Gross Decontamination of multiple personnel, additional decon Hose Lines from other suppression apparatus in proximity is encouraged.

3. Process

a) All combat personnel that were exposed to products of combustion shall perform Gross Decontamination prior to entering Rehab or leaving the scene. After exiting the Hot Zone, it is recommended that crews will remain on air when possible and report directly to the designated Decon Hose Line. While remaining on air when possible, personnel shall rinse off debris and products of combustion in a systematic and thorough manner from the collar-line down, being mindful of higher potential collection points like the armpit and groin areas. Personnel shall be careful to not saturate the inner lining of the PPE. The goal is to keep the PPE operationally dry on the interior but rinsed as clean as possible on the exterior. Soft bristle scrub brushes and department approved soap/cleaner may be used to facilitate a cleaner process. In all cases follow NFPA 1851 and the manufacturers recommendations when cleaning PPE.

b) After rinsing the exterior portion of the PPE, personnel may go off air and begin to doff their PPE. All PPE, other than bunker pants and fire boots, shall be left in a prepared Drop Zone. The Drop Zone shall be located in the warm zone. The Drop Zone shall be remote and downwind of Rehab due to off gassing PPE. Next, personnel will use department approved wipes and/or individual soap bars for a gross cleaning of their head, neck, face, hands and any other exposed areas as deemed necessary.

4. Reporting to Rehab – If exposed personnel are to report to Rehab, they shall first go through the Gross Decontamination process. Once in Rehab, personnel shall lower their bunker pants to allow for rapid cooling and increase the distance between off gassing contaminated gear and their groin and respiratory system.

5. Reporting for an Assignment – There will be times that crews will be called from Rehab back into operations. Personnel shall report ready for assignment as requested. If any new assignment involves further exposure to products of combustion (i.e. Overhaul, Secondary Search, retrieving hose lines, etc.), the crew shall then go back through the Gross Decontamination process as stated above.

6. Release from the Scene – To keep the cab of the apparatus as clean as possible and avoid transferring toxins and harmful products back to the fire house, it is extremely important to perform these Gross Decontamination processes prior to leaving the scene.
   Once released by command and prior to leaving the scene, it is recommended that bunker pants, bunker coats and bunker boots be bagged at the scene using department approved bags (at least 6 mil thickness). The bag opening will be twisted and taped closed, then "goosenecked "(folded over on itself, and twisted and taped a second time). This procedure will prevent off gassing to occur into the apparatus cab or in the "Clean-Cab areas.
   All other equipment (helmets and liners, SCBA packs and cylinders, tools, radio straps, etc...) will be thoroughly cleaned using water and any available department approved cleaner. Soft bristle scrub brushes should be used to facilitate a cleaner process. Radios shall be wiped with department approved wipes. Once the gear is cleaned it may then be loaded into the apparatus cab.

7. Personal Protection Equipment Exchange – Personnel determined by the Incident Commander and/or Incident Safety Officer to have been exposed shall have their hood exchanged prior to leaving the scene

B. Decontamination - Post Fire - At the Fire Station

1. It is highly recommended that all personnel exposed to the products of combustion, or any potentially harmful chemical (or biological) toxins, complete a full personal decontamination as soon as possible after the exposure.
2. Showering within the hour shall be a priority. Showering with the department approved cleaner or soap and water at a minimum will reduce the absorption rate of toxins into the body.

3. The following steps shall be taken immediately upon arrival at the fire station (to include, but not limited to):

   a) Perform a more thorough decontamination of equipment (radio, tools, fire hose, etc…) following NFPA 1851 and manufacturers recommendations.
   b) Perform a more thorough decontamination of PPE (helmet, bunker gear, SCBA, etc…) following NFPA 1851 and manufacturers recommendations.
   c) Perform a thorough decontamination of the apparatus cab.
   d) Return apparatus to a state of readiness.
   e) Take a "shower within the hour" of being exposed to any products of combustion.
   f) Change into a clean Class D daily station wear
   g) Wash all station attire in an approved washing machine.

C. Post Decontamination

1. Ability to Respond - Cleaned PPE ensembles should be hung on a rack to improve drying times and allow for the continued off-gassing of the interior components. Fans should be used to facilitate this process when possible. A priority shall be placed on positioning PPE in such a way that it shall not hinder rapid turn-out times.
2. Maintaining Readiness - All personnel shall ensure there is a clean apparatus cab. The potential for secondary exposures during routine apparatus use is high and must be limited. To aide in reducing secondary exposures, apparatus cabs shall be cleaned and decontaminated on a regular basis.

CSPFD Standard Operating Guideline
G-09 PPE: Issue, Use, and Maintenance

PURPOSE

To establish procedures for issuing, using, and maintaining turnout gear.

SCOPE

This Standard Operating Guideline (SOG) shall apply to all members of the Coral Springs - Parkland Fire Department (CSPFD).

PROCEDURES

I. Definitions

Full Turnout Gear – Helmet with eye protection, fire retardant helmet liner, and chinstrap; turnout coat; turnout pants with suspenders; bunker boots; NFPA compliant fire gloves; and protective hood.

Immediately Dangerous to Life and Health (IDLH) – any condition that would pose an immediate or delayed threat to life, cause irreversible adverse health effects, interfere with an individual's ability to escape unaided from a hazardous environment.

II. Issuing and Replacing Turnout Gear

A. Each member shall be issued a complete set of full turnout gear by the department. Members assigned to operations will be issued a second turnout coat and pants. Members shall follow the procedure outlined in G-02 Decontamination of Protective Ensemble as it pertains to their first set of full gear and their second set of turnout coat and pants.

B. Members shall only wear turnout gear that is issued and/or approved by the Fire Chief or his/her designee:

1. Requests to use or wear non-issued turnout gear shall be submitted in writing through the chain of command, to the Officer responsible for uniform issuance. Final approval for the use of non-issue turnout gear shall be at the discretion of the Fire Chief or his/her designee.
2. All requests to wear non-issued turnout gear shall be accompanied by documentation certifying that the non-issue gear meets or exceeds the current edition of NFPA 1971, "Protective Ensemble for Structural Firefighting."
3. Members receiving permission to wear or use non-issued gear will be responsible for the maintenance, repair, and replacement of the gear at their own expense, in accordance with this SOG.
4. Members receiving permission to wear non-issued gear shall also maintain all similar gear issued by the department.

   Note: Both department issued and non-issued gear shall be made available for inspection upon request by a superior.

C. Turnout gear shall not be altered in any way (i.e., addition of sewn-in-harnesses, pockets, patches, unauthorized marking, etc.), except as authorized by the manufacturer and/or the Officer in charge of uniform issuance.

D. The Fire Chief or his/her designee may occasionally authorize the issue of new or innovative turnout gear to selected members to evaluate for possible future use.

E. The Officer in charge of turnout gear will manage the replacement or repair of turnout gear. Replacement gloves and fire resistive hoods shall be obtained from the Battalion Chief or logistics personnel. All gear replacement will be based on a demonstrated need for replacement (i.e., turnout gear is unserviceable due to damage or wear).

F. Members approved for replacement turnout gear shall coordinate with the Officer in charge of turnout gear to be sized for and receive new turnout gear. Members will be required to turn in the gear that has been approved for replacement.

III. Marking Turnout Gear for Identification Purposes

A. **Turnout Gear Identification Markings** - All turnout gear shall be clearly marked by members for identification purposes as follows:

1. **Helmets** - The member's name and/or CSPFD identification number shall be written on the helmet.
   a) The Officer in charge of equipment shall mark last name and members' department ID number under the brim of the helmet prior to issuance.
2. **Personnel are not permitted to mark or personalize the protective hood or structural firefighting gloves.**

B. **Helmet Identification Colors** - The following structural firefighting helmet color codes have been adopted for the identification of CSPFD ranks as follows:

1. **Black** – Firefighters and Fire Inspectors
2. **Red** – Lieutenants and Captains.
3. **White** - All Chief Officers.
4. **Blue** – Fire Explorers

IV. **General Responsibilities of Members, Company Officers, and Chief Officers**

A. All members shall be responsible for maintaining a complete set of approved turnout gear in serviceable condition at all times. Members shall have immediate access to their turnout gear at all times during duty hours. Company officers shall ensure that all members under their command have a full set of turnout gear in good condition at all times. Company officers shall inspect the condition of turnout gear during morning line up each shift.

B. All members issued personal protective equipment will be responsible for inspecting the issued equipment at the beginning of each shift and after each use.
   1. Prior to using PPE for the first time, members shall ensure that they do not have any manufacture defects or damage when being put into service.
   2. Members shall not attempt to repair damaged PPE. If damaged or in need of replacement, immediately report the damage or problem to your supervisor for replacement

3. All PPE shall be replaced when they are no longer compliant with NFPA standard 1971.
4. When conducting your routine inspections, if any of the following conditions exist, contact your immediate supervisor for replacement PPE.
    a) Soiling and/or contamination
    b) Physical damage such as, but not limited to;
        (1) Rips
        (2) Holes
        (3) Tears
        (4) Fraying
        (5) Cuts
    c) Thermal damage such as, but not limited to;
        (1) Charring
        (2) Burn holes
        (3) Melted stitches
    d) Ensure that the protective hood face piece elasticity is still intact and fits securely around the SCBA mask.
    e) The hood should overlap all portions of your SCBA mask, but it should not obscure your vision through the mask.
    f) The bib portion of your protective hood must be tucked underneath the collar and on top of your protective garment so that the bib does not pull out during use.

C. All members shall keep their gear clean and presentable at all times in accordance with this SOG and the manufacturer's instructions.

D. Any part of a member's turnout gear shall be prohibited from being in any sleeping and/or living areas of any CSPFD facility. Under normal circumstances, gear shall not be stored in patient compartments of any apparatus. The CSPFD shall not have contaminated equipment stored in crew passenger areas in accordance with SOG on Clean Cab Design. Under emergency conditions, where a member is wearing turnout gear but is tending to a patient, the care of the patient shall outweigh this portion of the SOG which prohibits such use. Factors to be considered will vary for each individual apparatus based upon vehicle type, design, and size; the availability or location of storage compartments; and monetary or budgetary limitations. As it pertains to this section, all CSPFD members shall comply with the SOG for Clean Cab Design.

V. **Use of Turnout Gear at Emergency Incidents**

A. Full turnout gear shall be worn by all members, when performing firefighting duties or when operating within specified hazardous areas at incidents including, but not limited to:

1. Structure fires.
2. Vehicle fires.
3. Refuse fires.
4. Brush or grass fires.

B. Full turnout gear shall also be worn by all members when operating at other emergency incidents including, but not limited to:

1. Auto accidents with spilled fuel.
2. Auto accidents involving entrapments.
3. Gas and electrical emergencies.
4. Flammable or combustible liquid spills.
5. Carbon monoxide emergencies.
6. Hazardous materials emergencies.
7. Technical rescue incidents that present flammable or combustible hazards.
8. Investigation of any possible or confirmed hazardous condition.
9. Any atmosphere that is confirmed or is potentially immediately dangerous to life and health (IDLH).

C. The use of turnout gear by D/E Operators will be governed by the following:

1. During response to incidents, Operators (i.e., drivers of engines, ladders, squads, or rescue units) will not be required to wear turnout gear.
2. Upon arrival at an incident scene, Suppression and Aerial Operators shall don helmet, gloves, and a safety vest as a minimum protective ensemble when pumping the apparatus or operating the aerial device

3. Full turnout gear and self-contained breathing apparatus (SCBA) is required when any Operator enters a structure or incident safety zone and may be required when working at the apparatus during more hazardous incidents or an IDLH environment.
    a) When conducting driver engineer functions on scene and exposed to an oxygen sufficient smoke environment, the member shall don their issued Self-Contained Breathing Apparatus Mask with the Air Purifying Respirator (APR) adapter and issued P-100 filter cartridges at a minimum. The member is permitted to don their SCBA anytime during an incident where they feel the need.

D. The use of turnout gear by Chief Officers will be governed by the following:
    1. Full turnout gear and self-contained breathing apparatus (SCBA) is required when any Operator enters a structure or incident safety zone.
    2. Safety Officer shall don full turnout gear and (SCBA) when operating at structure fires or incident involving an IDLH environment.
        a) The level of PPE may be altered at the discretion of the incident commander.

E. Members may be required to wear full turnout gear or any portion thereof, based on confirmed or potential hazards at any emergency scene, at the direction of the Incident Commander (IC), Incident Safety Officer (ISO) or as prescribed by any other SOG of the CSPFD.

F. Members performing support operations outside specified hazardous areas at emergency incident scenes (i.e., transporting equipment, changing SCBA cylinders, etc.) shall wear as a minimum of helmet, gloves, and protective footwear.

G. The IC shall be responsible for ensuring that all members operating at an incident scene wear the appropriate level of protective equipment (i.e., turnout gear, SCBA, chemical protective clothing, etc.), based on the hazards present at an incident scene. The IC may allow members to remove certain turnout gear components when specific hazards have been controlled such as:

    1. Removal of SCBA is permitted only when IDLH environments are found to no longer exist.

H. Each member shall be issued a radio strap as a compliment to their turnout gear. There are only two approved methods for carrying the portable radio when turnout gear is required to be worn (as described in Section V):
    1. The radio shall be secured inside of the leather case, connected with the strap over either shoulder so the radio case sits below the opposite waist, with the shoulder microphone properly attached.

2. The radio shall be secured inside of the radio pocket of the bunker coat, with the snap and Velcro secured. Using this method, the radio speaker should face outward for best results. The shoulder microphone must be clipped to the bunker coat, using the material on the coat designed for this use, within easy reach of the user.

I. All turnout gear shall be worn in accordance with the manufacturer's instructions.

J. **Members who are injured as a result of the failure to wear appropriate turnout gear or the improper use of turnout gear will face disciplinary action in accordance with the CSPFD Administrative Policy pertaining to Disciplinary Procedures.**

VI. Rotation of Turnout Gear;

A. Turnout Gear currently has a ten (10) year life and will be switched out when it either, no longer meets the annual inspection and certification or reaches its ten (10) year life of service.

B. Each member assigned to operations are issued two (2) sets of turnout coat and pants. The intent of the CSPFD is to purchase each member a set of turnout coat and pants every five (5) years. This will allow for budget planning and having a replacement plan in place.

VII. **Limitations of Turnout Gear**

A. Turnout gear is not designed to provide protection from direct flame contact. Members should avoid direct contact with flame or molten metal.

B. Turnout gear is not designed to provide protection from hazardous chemicals, or biological or radiological materials. Specific, specialized chemical protective clothing shall be provided to trained members who enter into environments or atmospheres involving special hazards.

C. The materials used in the construction of turnout gear are not resistant to the effects of extended exposure to ultraviolet (UV) rays. Members shall not store their turnout gear in any location that is exposed to direct sunlight for extended periods of time. Storage in direct sunlight may substantially reduce the useful life of the garment and reduce protective qualities of the garment that might not be visually apparent.
Note: Color fading may be the beginning sign of UV degradation.

VIII. Care and Maintenance of Turnout Gear

A. Advanced Inspection and Cleaning shall be conducted at least every twelve (12) months or whenever there is a concern about the serviceability of PPE. This inspection and cleaning will be carried out by a certified industrial cleaning service.

1. When the annual advanced inspection and cleaning is posted, it is the responsibility of each member who is issued turnout gear to ensure that their gear is sent out, serviced, and inspected according to the instructions provided for servicing.

2. Each member of operations is issued a primary and back-up set of turnout gear. It is the responsibility of the member to send out the correct set; primary or back-up, based upon the email sent by the Chief Officer responsible for turnout gear cleaning.

B. **Helmets** - Helmets and face shields, chin-straps, helmet suspension, reflective markings, and helmet icons shall be kept clean and in serviceable condition at all times:

1. **Cleaning** - Helmets should be cleaned as follows:
   a) Helmets should be cleaned with warm water and mild detergent.
   b) The use of other materials such as strong (industrial strength) detergents, solvents, petroleum products, etc. will damage the shell and face-shield.

C. **Turnout Coats and Pants** – Coats and pants shall be washed at least twice per year, or more often if needed, in accordance with the following instructions:

1. Each member assigned to operations shall have one complete set of gear and a second turnout coat and pants.
   a) Following an IDLH exposure, members shall follow the procedures outlined in SOG: G-02 Decontamination of Protective Ensemble.
2. **Cleaning** – Turnout coats and pants should be cleaned as follows:
   a) Ensure that the procedures outline in G-02 Decontamination of Personal Protective Ensemble is adhered to following exposure to an IDLH environment.
   b) Turnout gear shall be washed using the station extractor machines. The following steps must be taken:
      (1) No chlorine bleach is to be used!
      (2) Only use department supplied turnout gear cleaning solution.
      (3) Use the gentle cycle on the machine.
      (4) All Velcro and snaps must be fastened.
      (5) Warm/ or cold water may be used
      (6) Garments can be hung to dry (out of direct sunlight) or placed in a dryer on the low heat cycle
   c) Heavily soiled spots can be removed with an approved cleaner.

D. Protective Hoods and Gloves – Exchange Program

1. At the conclusion of an incident where a member's protective hood and gloves have been contaminated, they will swap out their hood gloves for a clean set.
   a) There will be one secured and sealed box of laundered protective hoods and structural firefighting gloves kept with the on-duty Battalion Chief and a separate secured and sealed box on the Incident Support Unit.
      (1) If the Incident Support Unit is on scene, they will be the primary source for this exchange program.

(2) If the exchange is taking place with the Battalion Chief, the Battalion Chief is responsible for delivering the contaminated PPE to logistics, replacement of their cache through logistics and seal replacement on their cache box.

b) Members will be responsible for placing their contaminated protective hood or gloves in a sealed bag that will be provided.

E. **Boots** – Bunker boots are to be inspected and cleaned at least once a month.

1. **Cleaning** – Boots must be hand washed with warm water with a mild detergent. (In accordance with manufactures specifications)
2. **Drying** – Boots are to be air dried out of direct sunlight.

F. **Special Cleaning Information**

1. Clean turnout gear reduces health and safety risks to personnel; it is therefore recommended that clothing be cleaned frequently to reduce the potential for exposure to contaminants.
2. Gross contamination from products of combustion or fire debris, can be reduced by first flushing equipment with water as soon as practical, and followed by appropriate, thorough cleaning.
3. Commercial washing machines are available at certain CSPFD facilities for washing turnout gear.
4. When turnout gear becomes contaminated by blood or body fluids, decontamination and cleaning shall be conducted in accordance with the CSPFD SOG P-02 Infection Control Program.
5. Decontamination may not be possible when protective clothing is contaminated with chemical, radiological, or biological agents. When decontamination is not possible, garments should be discarded in accordance with local, state, and federal regulations.

IX. Personal Protective Equipment (PPE): Fire Investigations

A. The minimum level of PPE for any member conducting a Fire Investigation shall be:
1. Safety glasses or goggles
2. Department issued structural firefighting helmet or investigation helmet
3. Department issued structural firefighting boots
4. Full-face piece with adapter and issued P-100 filter cartridges. (Air Purifying Respirator – APR)
5. Department issued protective ensemble coat and pants compliant with NFPA 1951 and NFPA 1977.
6. Department issued gloves

**** NOTE: There are several stations that have machines specifically designated for washing bunker gear. All members, when washing their gear, shall ONLY use the machine designated for that specific use. No member shall wash their gear in the machines that are used specifically for standard items (bedding, station uniforms, etc.)*

CSPFD Standard Operating Guideline G-11 Clean Cab Design

PURPOSE

To provide guidelines for all members to follow which will aid in personnel protecting themselves from potential toxins and carcinogens by minimizing exposure from cross contamination through maintaining a "Clean Cab Environment".

SCOPE

This Standard Operating Guideline (SOG) shall apply to all uniformed members of the Coral Springs - Parkland Fire Department (CSPFD).

PROCEDURES

I. Definitions

A. **Immediately Dangerous to Life and Health (IDLH)** – any condition that would pose an immediate or delayed threat to life, cause irreversible adverse health effects, interfere with an individual's ability to escape unaided from a hazardous environment.

B. **Full Turnout Gear** – Helmet with eye protection, fire retardant helmet liner, and chinstrap; turnout coat; turnout pants with suspenders; bunker boots; NFPA compliant fire gloves; and protective hood. Also known as Personal Protective Equipment (PPE).

C. **Firefighting Equipment** – Any piece of equipment that is carried on a CSPFD apparatus.

II. Apparatus

All apparatus to include the following: Chief Officer Vehicles, Fire Investigators, Advanced Life Support Suppression (Engine, Aerial, Tanker) and Advanced Life Support Transport (Rescue)

A. Position apparatus to minimize exposure to smoke and other contaminants. Vehicle doors and windows shall remain closed unless in use and upwind if possible.

B. Any equipment used within the IDLH environment shall not enter the cab of any vehicle. Contaminated Turnout Gear (PPE) shall be stored outside of the cab in compliance with G-02 Disinfection of Personal Protective Ensemble. This include sealing the contaminated Turnout Gear in a minimum of a six (6) millimeter thick plastic bag.

C. All equipment used within the IDLH environment shall be properly decontaminated at the scene if possible or at the fire station after returning and immediately following personal protection decontamination measures have been taken. Once decontaminated, the equipment shall be placed back in service on the assigned apparatus.

D. In order for equipment to be placed back in-service on the apparatus, it must first be properly decontaminated. The member in charge of the apparatus is responsible for ensuring that the Clean Cab SOG is adhered to.

E. There are designated “Orange Flashlights” that are to be utilized for IDLH environments and “Yellow Flashlights” that are to be utilized in non-IDLH environments and are clearly marked.

F. Orange flashlights, axes, halogens, thermal imagers, or other equipment that enters IDLH environment shall not be mounted in the cab.

G. All members should assemble and maintain a personal “GO-Bag” with a clean uniform that can be accessed after any incident where they have been exposed to harmful substances. Recommended items to include; class “C” uniform (towel, pants and t-shirt, socks and under-garment). Any contaminated uniform shall not be transported in the cab unless properly Decontaminated.

H. Apparatus Cabs shall undergo a complete decontamination after any exposure or on a monthly basis in compliance with SOG covering Fire Department Apparatus Operation, Maintenance, Use, and Assigned Vehicles.

III. Fire Stations

A. Apparatus shall not sit at idle in the apparatus bays. Routine vehicle inspections and maintenance should occur outside the apparatus bay on the apron if the vehicle must be left running. The apparatus shall be a minimum of fifteen (15) feet from the bay opening and on the windward side when possible.

B. No PPE shall be present inside the living areas of the fire station. PPE shall only be present in designated storage locations.

C. It is highly recommended that all personnel shower within an hour of an exposure if possible and if not as soon as possible thereafter. This should be done using the department supplied decontamination solutions as the cleaning agent.

IV. **Other Recommendations**

A. It is not recommended to take contaminated uniforms or PPE home or store them in your personal vehicle. According to scientific research and studies, prior to cleaning, uniforms and PPE continue to off-gas for an undetermined amount of time. This may expose personnel and possibly family members to carcinogens and other toxins that are still on the uniforms and PPE. When PPE must be transported or stored, it should be placed in a protective case or bag to prevent cross contamination and off gassing.

1. Every attempt should be made to wash contaminated uniforms at the station in department provided washing machines.

Resources

Florida Firefighters safety and health collaborative
www.floridafirefightersafety.org

Sylvester Cancer Center Firefighter Cancer Initiative Research
https://umiamihealth.org/sylvester-comprehensive-cancer-center/research/firefighter-cancer-initiative
http://sylvesternewbadgeofhonor.com/

IAFC Volunteer and Combination Officers Lavender Report
https://www.iafc.org/about-iafc/sections/vcos/vcos-resource-detail/vcos-lavender-ribbon-report-best-practices-for-preventing-firefighter-cancer

Coral Springs-Parkland Fire Department

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