633 CES/CEX Emergency Management **7 Jul 15**

Joint Base Langley-Eustis

Guide to Sheltering In-Place

NOTICE: This publication is available on the 633 CES/CEX EM Sharepoint.

This guide contains information on what to do if you are directed to "Shelter-in-place" in the event of a hazardous materials (HAZMAT) emergency, terrorist use of chemical, radiological, biological, or nuclear materials (CBRN), or if an improvised explosive device (IED) is discovered.

All unit Emergency Management (EM) representatives will include this guide as part of their unit training program and ensure unit members are familiar with the specific shelter in-place procedures for their workcenter.

Hazardous Materials Emergencies including Chemical, Radiological, Biological, or Nuclear Attacks

Joint Base Langley-Eustis is vulnerable to the health and safety impacts of a hazardous materials emergency. Hazardous material emergencies can result from accidents or sabotage that occurs at a wide variety of locations or from terrorist use of chemical, radiological, biological, or nuclear materials. There are numerous hazardous materials on base as well as those that pass by the base each day. Please reference the Joint Base Emergency Management Plan (JBEMP) 10-2 for detailed and complete Hazardous Material (HAZMAT) response.

If a hazardous material event were to ever occur, emergency response officials have two basic tools to protect personnel. One is to evacuate personnel out of the area affected by the toxic cloud. The other is to direct "sheltering in-place", that is, go indoors close up the building and wait for the danger to pass. Either way, everyone must follow directions exactly, use good common sense, and act quickly to ensure everybody's safety.

While evacuation has long been used to move the public away from danger during emergency situations, it can take a very long time to complete and can actually expose some people to more danger than if they just sheltered in place.

For a HAZMAT release of limited duration it is faster and usually safer to shelter in-place than to evacuate. **In all real-world HAZMAT emergency case studies done by the National Institute for Chemical Studies, there were no fatalities associated with sheltering in-place.**

Shelter- in-place is used if a migrating toxic vapor cloud could quickly overtake unprotected or evacuating personnel, or if evacuation would create problems that would outweigh its usefulness. The amount of protection from sheltering in-place depends mainly on the air tightness of the building and the length of time the building is exposed to a hazardous plume.

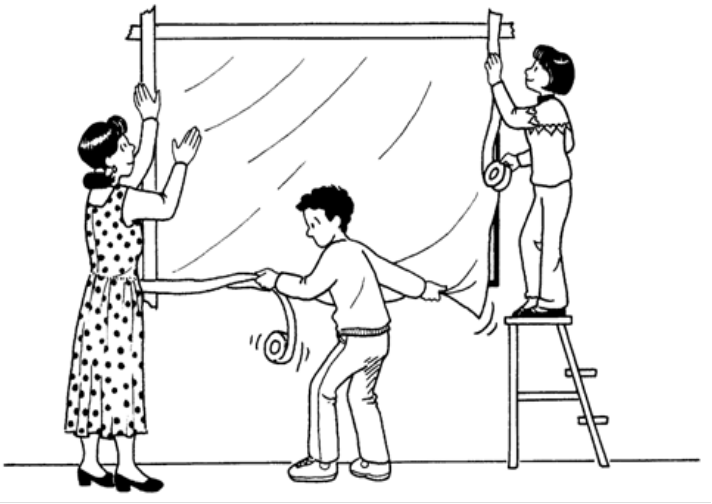
Modern, energy efficient/weatherized homes and workplaces provide the most effective air movement barrier. Even a solidly built older building will offer more protection than open air if it has been maintained. However, due to the porous nature of building materials, cracks in the exterior, and poorly sealed doors and windows, even the most weather-tight structure will slowly allow contaminated air to enter. Sealing windows, doors, and vents with plastic sheeting and duct tape can further reduce infiltration of contaminated air into a building. Other factors affecting the level of protection provided by sheltering-in-place are weather conditions, age of the structure, and behavior of the threatened population.

The most important factors during a HAZMAT release are the actions of personnel. To maximize the protective value of sheltering in-place, individuals at risk must know where and how to shelter quickly and effectively. Therefore, Unit EM Representatives **must** include this guide in their education program.

Before an emergency occurs:

- Ensure all assigned personnel have access to this guide and are familiar with the concept of sheltering in-place.
- Select a room or rooms to serve as a shelter during HAZMAT emergencies. The rooms should be large enough to provide at least 10 square feet per person sheltered. A shelter room should have as few windows, vents, and doors as possible. A windowless room is best.
- Ensure selected rooms are labeled with appropriate Shelter-In-Place signs for quick identification. On building information boards identify the locations of all Shelter-In-Place rooms within that building, suggest using a floor plan with appropriate rooms labeled.
- Break rooms or conference rooms with few or no windows can be used for shelters and are often the best choice. Hallways are sometimes used if there are no better options, such as a hanger or a large building with open offices.
- The shelter room should have a fire extinguisher in or very near the selected shelter area.

- The shelter room should have a telephone (either land line or cellular) to ensure communication with both on and off base agencies due to the sometimes volatile nature of the incident, along with a TV, radio, computer, or some other method of mass notification to ensure further instructions are received.



A shelter kit should include the following:

- Pre-cut plastic sheeting to fit over any windows or vents in the sheltering area.
- Rolls of duct tape to be used to secure the plastic over windows/vents and to seal doors.
- Battery operated radio with fresh batteries.
- Flashlight and fresh batteries.
- Bottled water.
- Cloth Towels
- Fire extinguisher (in the room or nearby)
- First aid kit.
- Scissors.
- SIP Checklist or Continuity Binder

Check the units' shelter kit on a quarterly schedule. Duct tape and first aid supplies can sometimes disappear when all employees know where the shelter kit is stored. Batteries should not be stored in radios and flashlights.

During an emergency:

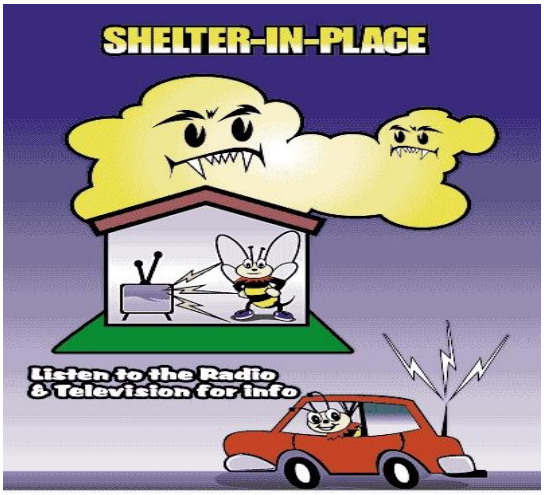
- The message will go out in any way possible to ensure maximum notification. Some methods include the base giant voice system, AtHoc, email, telephone, television, sending a runner, or any other means deemed necessary at the time.
- Make sure everyone gets the warning. If you are outside, seek shelter indoors immediately.
- Unless the unit has an emergency in their shelter, everyone needs to stay off the phone, including personal cell phones. It is critical to keep all lines free for fire, police, medical and other responders, as well as for people reporting emergencies to 911.
- Shelter-in-place procedures should last no more than 2-3 hours. Long enough for the hazards outside to either be mitigated or be blown clear of the area.

These are the basic steps that must be taken to make a building an effective shelter. Use a checklist for the work center during an actual emergency. See example below:

1) Shut and latch all windows and doors.
2) Turn off all air handling equipment (heating, ventilation, and/or air conditioning).
3) Go to a pre-determined sheltering room (or rooms).
4) Seal window and vents with sheets of plastic and duct tape as required.
5) Seal the door(s) with duct tape around the top and sides.
6) Turn on a TV, check e-mail and/or radio for further instructions.
7) When the "all clear" is announced, open windows and doors, turn on ventilation systems, and go outside until the building's air has been exchanged with the now clean outdoor air.

After an Emergency:

It is extremely important to ventilate and/or leave a structure once the hazard has passed and when directed to do so. Any HAZMAT vapors that may have entered the structure during its exposure will leave the building very slowly. Chemicals that have adsorbed onto building surfaces will also gradually desorb. If an occupant remains in the facility for a long period of time, without radically increasing the air exchange rate, exposure to the hazardous chemical will continue. By opening windows and turning on air moving equipment, the air exchange rate of the building will be substantially increased and hazardous vapors will be removed at a greater rate.



Improvised Explosive Devices (Bombs)

If an IED (bomb) is identified before it is detonated, emergency response officials will use two basic tools to protect personnel: evacuation, and shelter in-place. The procedures for sheltering in-place from blast and fragmentation hazards from an IED are somewhat different from those for hazardous materials.

Basically, the idea is to put as much of the building (or buildings) between affected personnel and the suspected IED as possible, and stay away from the windows. Even when evacuating from a suspected IED, personnel should try to keep a building between themselves and the IED to reduce the chance of being hit by fragments. Sheltering in-place from IEDs is not as complicated as sheltering in-place from hazardous

materials. Personnel may be told that they are far enough away from the IED that they only need to stay away from the windows on the side of the building facing toward the bomb. **Follow instructions from emergency officials, the chain of command and use common sense.**

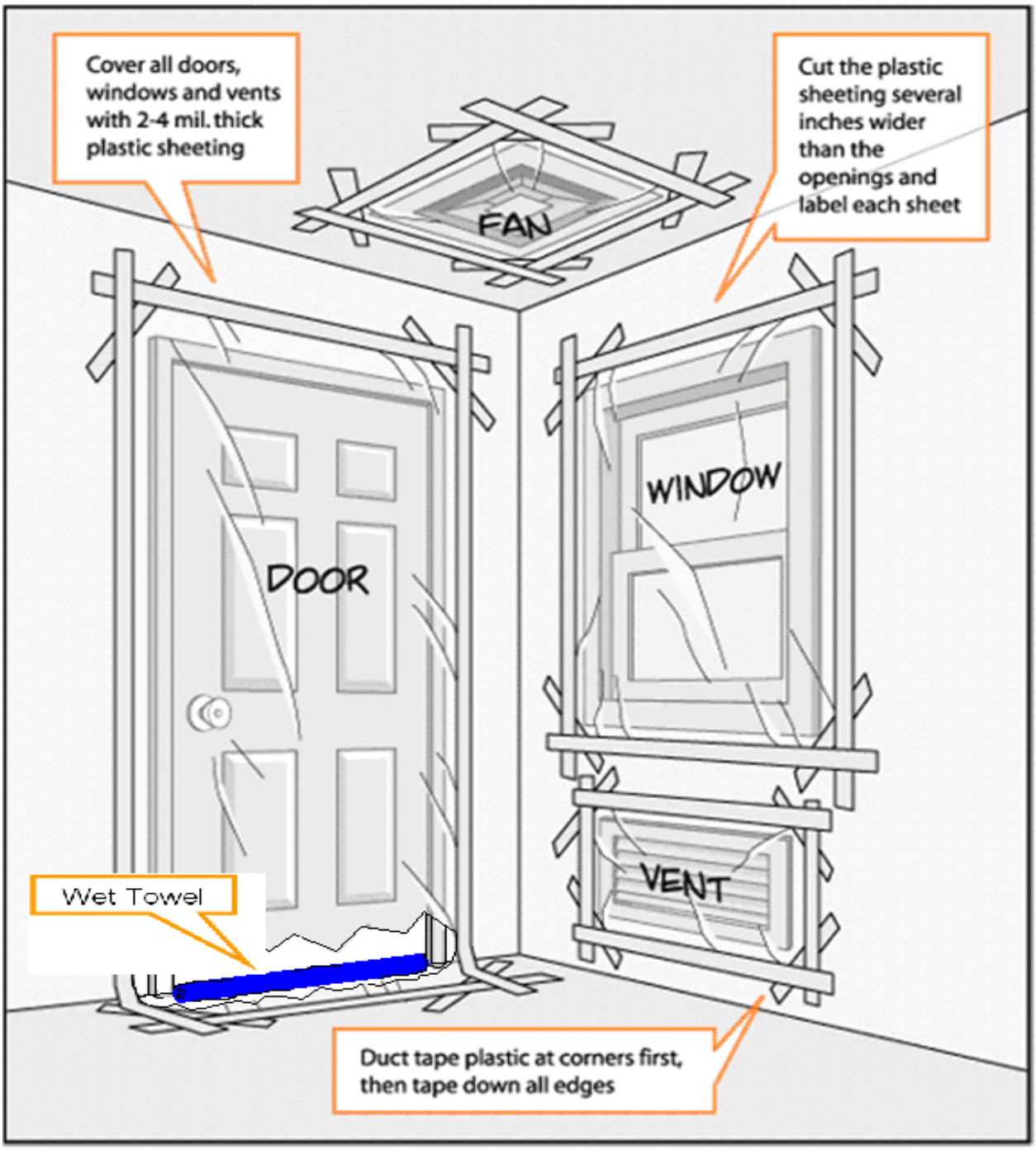
Officials will consider several factors to decide whom to evacuate and who should shelter in-place, including the size of the IED, how close the units facility is to the device and how strong the facility is. For example, people in modular and temporary buildings will not see much protection. However, personnel in a hardened facility may be safe even if the device is very close to their facility. Protecting oneself from an IED is similar to seeking cover from a tornado.

If told to Shelter In-place from an IED Follow These Steps:

- Stay away from windows. Simple Rule of Thumb: If the device is visible it can affect the individual.
- Try to get as much of the building's structure (and other buildings if possible) between personnel and the device.

NOTE: If there is a modular or temporary building, the occupants may be directed by responders to seek shelter in a stronger facility nearby.

HOW TO PROPERLY SEAL A ROOM



Developing Shelter in-place Plans and Checklists for Hazardous Materials Emergencies

Unit EM Representatives will assist facility managers in developing shelter in-place plans and checklists. All Facility Managers on Langley AFB must develop specific procedures to implement shelter in-place protection within their facility. Use the sample plan available on the JBLE EM Sharepoint, as a template. Additional information as well as case studies of hazardous materials incidents where "shelter-in-place" was used to protect the public can be found on the National Institute for Chemical Studies web site at http://www.nicsinfo.org/sipcenter.asp

Facility Managers must carefully review the floor plan of their building and identify an area or areas that will serve as temporary shelter for personnel working within the facility. See "Before an emergency occurs", in Part I of this guide for more information.

Additional steps to consider:

1. Personnel should be assigned specific duties during an emergency. Alternates should be assigned to each duty.
2. It is important that personnel assigned to each facility are familiar with this plan and have participated in a "shelter-in-place" exercise.
3. Develop a personnel accountability system for use during shelter operations.
4. Drills should be planned and executed on a semi-annual. Afterwards, the drill should be critiqued by those involved and lessons learned should be incorporated into every units Shelter-In-Place plan.

As anyone can see, these requirements are fairly basic, require minimal equipment and supplies, and are easily implemented. Yet taking these few steps may make the difference between surviving an incident...and not.

The office of primary responsibility (OPR) for this document is the 633d Civil Engineer Squadron, Emergency Management Flight (633 CES/CEX).

If additional assistance or information with any portion of the Shelter In-place program is required, please contact Emergency Management at 878-5578 or 878-6801.

TEAM LANGLEY SAMPLE CHECKLISTS

Below are example checklists to assist you in understanding your roles and responsibilities during a shelter-in-place situation. SIP plans will be drafted for each facility using the JBLE SIP plan draft available on the JBLE EM Sharepoint.

In the event personnel in this facility or area are directed to shelter-in-place, all persons in the facility will be notified to prepare to shelter-in-place and that all doors will locked in 3 minutes, unless an immediate lock-down is necessary/directed. All personnel will report to their assigned shelter area, initiate ventilation shutdown and room sealing procedures (as required). They will remain in that area until the "all clear" is given.

Procedure	**Responsible Individual**	**Needed Supplies/Equipment/ Rules**
Receive announcement via Giant Voice, radio, TV, PC, phone, or from an Emergency Responder	First person notified, All assigned	Crash phone, LMR, Giant Voice speaker, TV, PC
Initiate facility warning procedures and advise all personnel to report to designated shelter area	Facility Manager, designated personnel, all assigned	Facility intercom, bull horns, air horns, runners, LMR, as necessary
Turn off ventilation systems in the shelter area	Designated shelter area monitors	Checklist, diagram, flashlight
Turn off all main air handling equipment switches	Facility Manager or designated personnel	Checklist, instructions for shutdown, flashlight, keys to utility room
Make sure all doors and windows to the shelter area are closed	Designated shelter area monitors	Checklist, diagram, flashlight, signs
Seal windows, doors, vents and electrical outlets using plastic and duct tape.	Designated shelter area monitors	Checklist, precut plastic sheeting and duct tape
Place moistened towels at bottom of doors.	Designated shelter area monitors	Towels & Water
Have all personnel in the area sign in.	Designated shelter area monitors	Clipboard, sign-in roster pen/pencil
All Clear is Given: Open all windows and doors and then leave the facility and report to pre-designated assembly area. Follow directions of emergency response personnel.		

**** NOTE ****

Checklists supplied within this guide are provided as a starting point to assist personnel with shelter-in-place operations. All are subject to and may require "incident specific" modification during contingency operations.

SHELTER IN-PLACE AREA MONITOR CHECKLIST

Primary Monitor _____Alternate Monitor _____

When a shelter-in-place advisory is issued:

- Announce, "A shelter-in-place advisory has been issued. All personnel should leave your current area and proceed to the _____, which is our shelter area. Ensure all windows and doors are closed before leaving.
- Locate a phone and employee/visitor sign-in sheets and take them to the shelter-in-place room.
- Secure ventilation systems and seal room as much as possible.
- Establish contact with your Group or Unit Control Center, Wing Command Post or Emergency Operations Center.
- When the "All Clear" is issued, take the sign-in sheets and leave the shelter room. Proceed to the pre-designated meeting area outside the building.

Your Pre-designated meeting areas are:

Primary -- _____

_____

Alternate -- _____

_____

- Once at the meeting area, quickly account for all personnel using sign-in sheets. Immediately report any discrepancies to emergency response personnel.
- When the building has been ventilated, return to the building and replace the cellular phone and sign-in sheets.

FACILITY MANAGER SHELTER IN-PLACE CHECKLIST

Primary _____Alternate_____

When a shelter-in-place advisory is issued:

- Immediately proceed to the mechanical room and turn off all air handling equipment (HVAC).
- Proceed to the shelter area and remain there until released.
- At the "All Clear" proceed to the mechanical room. Turn all ventilation equipment on.
- Leave the building and go to the pre-designated meeting area outside.

SHELTER IN-PLACE CHECKLIST FOR ALL FACILITY #_____ PERSONNEL

When a shelter-in-place advisory is issued:

- Upon hearing the shelter-in-place announcement, make sure all office windows are closed and locked. Close your office door when you leave. Immediately go to your shelter area and ensure any visitors accompany you.
- Remain in the shelter area until the "All Clear" is announced. Immediately go outside to the pre-designated assembly area. Make sure any visitors are escorted to the meeting area as well.
- After the building is thoroughly ventilated and upon instruction from emergency response personnel, return to your office.

SHELTER-IN-PLACE CHECKLIST FOR SEALING WINDOWS AND DOORS (as Required/Directed)

When a shelter-in-place advisory is issued:

- Close and lock office windows and close doors on the way to the shelter area.
- Remove plastic sheets and duct tape from shelter kit.
- Place plastic over window and seal edges with long strips of duct tape. Be sure tape securely overlaps all edges of the plastic.
- Place plastic over all vents and seal with long strips of duct tape. Be sure tape securely overlaps all edges of the plastic.
- Lock door to shelter room and seal edges with long strips of duct tape. Be sure tape securely overlaps all edges of the door.
- When the "All Clear" is announced, immediately remove the plastic from the windows and vents. Open all windows and exterior doors.
- Go outside to the pre-designated assembly area.
- When the building is thoroughly ventilated and you are instructed to return by emergency response personnel, return to your office area.