



**US Army Corps
of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2010-11

Issuing Office: CECW-CE

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Subject: External Spray-Applied Polyurethane Foam (SPF) Insulation on Tents and Temporary Structures in Contingency Locations

Applicability: Guidance

1. This ECB provides guidance for the application of external, spray-applied polyurethane foam (SPF) insulation to tents and temporary structures, located in contingency locations, such as Iraq and Afghanistan. SPF insulation will consist of a nominal 2-pound per cubic foot density, polyurethane (PU) closed-cell foam insulation. A weather resistant elastomeric coating will also be provided on the surface of the SPF insulation. External SPF is intended to achieve reduction in electrical demand and fuel consumption, and improve quality-of-life conditions for military personnel. There are certain inherent hazards associated with the use of SPF insulation, especially during the spraying application. Building codes, such as the International Building Code (IBC) (reference 2a), require a 15-minute thermal barrier to separate the SPF insulation from the interior. However, it is not practical to provide a 15-minute thermal barrier in tents and temporary wood structures erected in contingency locations. The safety measures listed herein provide an equivalent alternative to the code-prescribed thermal barrier.

2. References:

- a. 2009 International Building Code (IBC), published by the International Code Council.
- b. TACOM Life Cycle Management Command (LCMC) Safety of Use Message (SOUN) 10-002, "Operational", Spray Polyurethane (PU) Foam Insulation for Shelters, DTG 031536Z Nov 09. **(Appendix A)**

3. **Background:** The Army has had contracts to spray-apply polyurethane foam insulation to the exterior of tents and temporary wood structures in Iraq and Afghanistan for several years. The benefits are significant both in terms of energy savings and life safety. Transporting fuel to forward locations presents an enormous logistics burden and risk. Every day, hundreds of trucks transport fuel for hundreds of miles, exposing drivers and soldiers to attack and improvised explosive devices. Insulating the tents and temporary structures greatly reduces fuel consumption demand, number of fuel convoy treks and risk to drivers and soldiers. This bulletin provides engineering guidance and safety precautions that will be taken when tents and temporary structures are externally spray-applied with polyurethane foam insulation.

4. **AC377 Appendix X Compliant Spray-Applied Foam Plastic Insulation Without an Ignition Barrier:** In new Army contracts for external SPF insulation, the SPF will meet the International Code Council Evaluation Service (ICC-ES) Acceptance Criteria for Spray-Applied Plastic Foam Insulation (AC377) for Use in Attics and Crawl Spaces without a Code-prescribed

Subject: External Spray-Applied Polyurethane Foam (SPF) Insulation on Tents and Temporary Structures in Contingency Locations

Ignition Barrier (Appendix X Compliant). The SPF must also be AC377 Appendix X Compliant without the use of an ignition barrier or other coating. The Office of the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) will mandate this requirement in a policy memorandum. New Army contracts will be contingent on the winning vendor providing the appropriate documentation.

a. **AC377 Appendix X:** The International Building Code (IBC) requires a code-prescribed ignition barrier for plastic foam insulation that is installed in attic spaces and crawl spaces. The International Code Council (ICC), which publishes the IBC, approved an alternative to this code-prescribed ignition barrier through its subsidiary ICC-Evaluation Services (ICC-ES). The ICC-ES publishes AC 377, Acceptance Criteria for Spray-Applied Plastic Foam. In June 2009, AC377 was modified to include Appendix X. AC377 Appendix X provides a fire test method for plastic foam insulation to be used in attics and crawl spaces without a code-prescribed ignition barrier. SPFs that pass this test do not required a code-prescribed ignition barrier. However, manufacturers can pass this fire test by applying a coating or an ignition barrier which is not the code-prescribed type. These SPF products are not permitted for new applications. Only the SPF products that passed the ACC Appendix X test without using an ignition barrier or coating are permitted for new applications.

b. At the time of this bulletin, four SPF products have passed the AC377 Appendix X test without applying an ignition barrier or coating. They are Foam-LOK™ FL2000, manufactured by Lapolla Industries, Inc., STYROFOAM™ MX Polyurethane Insulation, manufactured by Dow Chemical Company, and COMFORT FOAM® 178 and SPRAYTITE® 178, manufactured by BASF Corporation.

c. **Weather Resistant Coating:** The exterior weather resistant elastomeric coating will be a silicon-based coating unless an alternate coating is approved by the contracting officer.

5. **Surface Burning Characteristics:** The SPF insulation will have a flame spread index not greater than 25 and a smoke-developed index not greater than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials. The coating will also have a flame spread index not greater than 25 and a smoke-developed index not greater than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84. New Army contracts will be contingent on the winning vendor providing the appropriate documentation.

6. **Toxicity Clearance:** Only SPF insulation and coating that has received a toxicity clearance from the U.S. Army Public Health Command (Provisional) (a.k.a. U.S. Army Center for Health Promotion and Prevention Medicine) will be used on Army tents and temporary structures. SPF will only be applied by qualified personnel, certified and trained by the SPF insulation manufacturer. Installers will avoid inhalation by equipping themselves with respirators in accordance with (IAW) the manufacturer's requirements and recommendations, and IAW Occupational Safety and Health Administration (OSHA) standards for the SPF industry. Installers shall avoid skin and eye contact of the SPF chemicals by wearing appropriate protective clothing and eye protection IAW the manufacturer's requirements and recommendations, and IAW OSHA standards for the SPF industry. The recommendations of the toxicity clearance listed for each approved foam/coating system will be strictly followed. They will include establishing no-entry work areas, erecting windbreaks if weather conditions warrant, and not allowing entry into work area until foam and coating is fully cured (typically four

Subject: External Spray-Applied Polyurethane Foam (SPF) Insulation on Tents and Temporary Structures in Contingency Locations

to six hours after application). New Army contracts will be contingent on the winning vendor providing the appropriate toxicity clearance documentation.

7. TACOM LCMC SOUM 10-002 (reference 2b): On 3 November 2009, TACOM LCMC issued a Safety of Use Message (SOUM) that alerted Commanders and users to the potential hazards of SPF and provided safety requirements and retrofit procedures that must be implemented for tents and temporary structures that have already received SPF insulation under a previous contract or that will receive SPF insulation. The safety requirements and procedures listed in the SOUM will be followed for new and existing SPF applications. They include:

a. Two remote exits will be provided from each tent or structure. Access to each exit will be unobstructed. For tents, procedures are available for installing a “kick-out” panel as possible access points.

b. Smoke alarms will be provided in those tents and structures that are used for sleeping. Smoke alarms will have a maximum spacing of 20 feet per alarm.

c. Fossil fuel heaters/stoves will not be used. Stoves will not be used in sleeping structures. Other heaters will be used with caution and located away from exterior walls, ceiling and combustible materials.

d. Electrical power receptacles will not be located on exterior walls and ceilings of tents without interior protective covering such as gypsum wallboard.

e. Light fixtures will be shielded to prevent contact with exterior walls and ceilings. Electrical appliances will be located away from exterior walls and ceilings and receive plenty of ventilation. Underwriters Laboratory listed appliances are preferred.

f. Fire prevention measures such as fire extinguishers, no smoking inside or within 25 feet of any SPF insulated surface; no open flames policy; and good housekeeping practices will be maintained.

g. Inspections in accordance with the checklist contained in the SOUM 10-002 (Appendix A) will be conducted at least quarterly and upon change of occupants. A checklist will be used to ensure that all hazards mitigation measures are addressed. Checklists will be signed, dated, and kept on file for 2 years. Checklist items discrepancies identified will be corrected immediately. A sample of the checklist is provided in the SOUM 10-002.

8. Ventilation Air and HVAC Unit:

a. SPF insulation reduces infiltration of fresh air. This can lead to reduced indoor air quality and to buildup of contaminants in the conditioned space. Conditioned ventilation air should be continuously supplied while the tent or structure is occupied. Conditioned ventilation air can control indoor humidity and airborne contaminants. Ventilation air will be provided per ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality.

b. SPF insulation reduces the thermal load of the structure by more than 50%. The HVAC system must be properly sized to address this reduced thermal load. It is important not to

Subject: External Spray-Applied Polyurethane Foam (SPF) Insulation on Tents and Temporary Structures in Contingency Locations

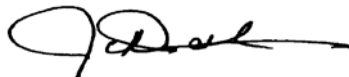
oversize an HVAC System. An oversized HVAC unit will not run efficiently, will not allow for optimal energy and fuel savings and will experience excessive wear and tear. In addition, an oversized HVAC unit will "short-cycle" and not operate long enough to remove excessive moisture. This can also contribute to poor air distribution. HVAC systems that short cycle during air conditioning will deliver cold air in short bursts but not adequately dehumidify the air. The resulting cold, clammy environment can encourage mold and mildew growth. The HVAC system must be engineered to control the indoor temperature and humidity, maintain adequate indoor air quality and provide for optimal energy savings. A good rule of thumb for planning purposes is one ton of HVAC for every 500 sq. ft. of floor space in an SPF insulated structure. This planning factor includes those structures located in harsh climates.

c. **Vestibules:** Prior to spraying the foam onto the exterior tent surface, a vestibule (approximately 4 feet long x 6 feet wide) should be provided at each point of entry to limit the exchange of air with the ambient and to reduce rain, dust, and sand intrusion into the tent when the door is opened. Vestibules are typically pre-constructed with plywood and will have a 36-inch minimum width door at both ends of the vestibule. The vestibule will also be foamed and "foamed into" (connected to) the envelope of the tent or temporary structure.

9. **Disposal:** Waste resulting from SPF operations, such as components of the SPF, uncured SPF and coating, etc. will be handled and/or disposed per the manufacturer's recommendations, host nation environmental regulations and best waste management practices. Typical disposal guidance for cured SPF includes four options:

- a. Turn structure over to the host nation, if applicable.
- b. Turn SPF and structure over to a local waste-to-energy plant, if applicable.
- c. Incinerate in a commercial-grade incinerator with a scrubber to mitigate the thick, black smoke. Open pit burning is not permitted.
- d. Deposit in a landfill.
 - 1) If in CONUS, dispose in accordance with federal, State and local regulations.
 - 2) If OCONUS, dispose in compliance with applicable host nation environmental regulations. This requirement implies one-time coordination at Government to Government level with follow-up documentation to avoid pushing this requirement down to the unit level.

10. Point of contact for this ECB is Robert M. DiAngelo, 202-761-0703.



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Appendix A: TACOM LCMC Safety of Use Message (SOUM) 10-002

***** UNCLASSIFIED// FOR OFFICIAL USE ONLY (FOUO) *****
Subject: TACOM LCMC SOU 10-002, Spray Polyurethane (PU) Foam Insulation for Shelters
Originator: /C=US/O=U.S.
GOVERNMENT/OU=DOD/OU=ARMY/OU=ORGANIZATIONS/L=CONUS/L=WARREN
MI/OU=TACOM/OU=TACOM SAFETYOFUSE(UC)
DTG: 031536Z Nov 09
Precedence: PRIORITY

UNCLASSIFIED//
Subject: Safety Of Use Message (SOUM), TACOM Life Cycle Management Command, (TACOM LCMC) Control No. SOU 10-002, "Operational", Spray Polyurethane (PU) Foam Insulation for Shelters.

D XXX D
A X "WARNING" X A
N X DEATH OR SERIOUS INJURY TO SOLDIERS, OR DAMAGE X N
G X TO ARMY EQUIPMENT WILL OCCUR IF THE INSTRUCTIONS X G
E X IN THIS MESSAGE ARE NOT FOLLOWED. X E
R XXX R

1. DISTRIBUTION:

a. This is an "Operational" Safety of Use Message. Commanders/Directors of Army Commands (ACOM)/Army Service Component Commands (ASCC)/Direct Reporting Units (DRU), Army National Guard (ARNG), US Army Reserve (USAR) Command, US Navy (USN), US Air Force (USAF), US Marine Corps (USMC) and other Service Commanders and Responsible Offices will retransmit this message to all subordinate Commanders/Activities within 24 hours of receipt and will, within 5 working days, acknowledge receipt by e-mail to DAMI_safety.of.use@conus.army.mil or by telephoning DSN 273-2623, Commercial (586)239-2623 or in writing to Commander, TACOM Life Cycle Management Command (TACOM LCMC), ATTN: AMSTA-LCL-MPM, 6501 E. 11 Mile Rd., Warren, MI 48397-5000.

b. Commanders/Directors of Army Commands (ACOM)/Army Service Component Commands (ASCC)/Direct Reporting Units (DRU), Army National Guard (ARNG), US Army Reserve (USAR) Command, other Service Commanders and other Responsible Offices, will track compliance of this message for all subordinate Commands/Activities.

2. PURPOSE: This SOUM serves as a continuous alert to users of Spray PU Foam structures in order to ensure awareness of hazards associated with application and use, and provides guidance to mitigate those hazards. This SOUM is not intended to stop or delay ongoing efforts throughout the Army to apply Spray PU Foam insulation to temporary structures in order to improve quality of life, reduce energy footprint, and take trucks off the road, thereby reducing risks to soldiers and contractors delivering fuel to isolated outposts on dangerous terrain.

3. BACKGROUND:

a. Polyurethane (PU) Foam is a commercially available product that was introduced to the field in 2007. PU Foam is applied through a spraying process and hardens when cured. When applied, a rigid insulated structure is created. Over 1,500 structures have been foamed in Iraq and foaming operations are ongoing in Afghanistan.

b. An AMSAA study completed in July 2009 determined that Spray PU Foam reduces risks to Soldiers and contractors by significantly reducing fuel requirements and getting trucks off the road; the study quantified over 1,000 less fuel delivery trucks were required annually and documented over \$750M in JP8 cost avoidance.

c. The SECARMY, CSA and VCSA were briefed on the Spray PU Foam initiative in the Army Energy Council in since Aug 08, and it is a key element of the OSD and Army energy conservation strategy.

d. Spray PU Foam significantly improves quality of life for Soldiers. Unfortunately, deployed Soldiers are so anxious for this capability that they are buying cans of spray foam and applying it themselves; this is not authorized.

e. The following hazards have been identified for Spray PU Foamed structures.

[1] Potential decrease in fire evacuation time. Polyurethane Spray PU Foam structures improve insulation and, as a result, will contain heat and smoke generated by fire; this may reduce an occupant's evacuation time to less than a minute under certain conditions once a fire begins. However, Spray PU Foam contains the heat and smoke to the originating fire location and prevents fires from spreading to adjacent temporary structures.

[2] Potential increase in Smoke Toxicity Hazard. When polyurethane foam insulation burns, it gives off toxic gasses, very high temperatures and large amounts of thick, black smoke. Many items within temporary structures such as blankets, sleeping bags, equipment, and clothing burn with similar results and will contribute to the smoke.

[3] Need for two Points of Egress (exits). It is a long-standing good safety practice to provide two exits for most structures, especially those used for sleeping. In some cases, foaming operations may have eliminated the second means of egress from the structure.

4. COMMANDER/USER ACTIONS: Mitigations identified in this document will be implemented in order to minimize risk.

a. Immediately upon receipt of this message, Commanders/users will direct inspection of all Spray PU Foamed structures using the below checklist (after LAR Paragraph) as a start point, and retrofit all structures that lack the requirements identified in this Safety Of Use Message (SOUM).

[1] Units must ensure foamed structures are outfitted with a minimum of two egress points, a working smoke detector/alarm, and unobstructed access to each egress point. Smoke detectors will have a maximum spacing of 20 feet between detectors and a minimum of one detector per 400 square feet. Additionally, procedures are available for applying "kick-out" panels as a third egress point in tent structures.

[2] Fossil-fueled heaters/stoves will not be used. Stoves will not be allowed in sleeping structures. Other heaters will be used with caution and located away from exterior walls and ceilings.

[3] Electrical power receptacles will not be located on exterior walls and ceilings without interior protective covering such as wallboard.

[4] Light fixtures will be shielded to prevent contact with exterior walls and ceilings. Electrical appliances will be located away from exterior walls and ceilings and receive plenty of ventilation.

[5] All electrical devices will be used with extreme caution. Underwriters Laboratory-listed appliances are preferred. Commanders are encouraged to work with their local Army Air Force Exchange Service staff, if available, to stock these devices.

[6] Fire prevention measures such as fire extinguishers; no smoking allowed inside or within 25 feet of any foamed surface; no open flames policy; and good house-keeping practices will be maintained.

[7] Develop a Fire Evacuation Plan for each individual Spray PU Foam structure. Evacuation plan must be briefed to all occupants, posted in a visible location within the structure, and rehearsed on a periodic basis.

[8] To prevent the buildup of carbon dioxide, ensure that Spray PU Foamed structures have a ventilation system that has been modified to provide fresh (make-up) air and a carbon dioxide alarm.

b. Inspections in accordance with the below checklist (after LAR paragraph) will be conducted at least quarterly and upon change of occupants. A checklist will be used (sample below) to ensure that all hazard mitigation measures are addressed. Checklists will be signed, dated and kept on file for 2 years. Checklist item discrepancies identified will be corrected immediately.

c. Spray PU Foam will only be applied by qualified contract personnel. Soldiers will not apply spray foam themselves. Further, ensure military personnel remain 150 feet away from any outdoor foam spraying operation. See the contracting section for more information.

d. Units requesting application of Spray PU Foam insulation to any structure will ensure that contracted actions meet the requirements of the attached checklist. All actions must be completed prior to occupancy of the structure.

5. CONTRACTING/PROCUREMENT ACTIONS:

a. Applying Spray Polyurethane Foam to structures will be in accordance with guidelines provided via ATEC, Office of the Surgeon General and the U.S. Army Combat Readiness/ Safety Center to assure compliance with AR 40-5, AR 385-10 and the associated MSDSs to maximize protection of our military, civilian, contractor personnel and other potential claimants. The Spray PU Foam can only be applied by properly qualified and trained personnel, equipped with the required personnel protective equipment. See the specifications sheet for more details.

b. Contracting officials shall search the Contingency Acquisition Support Model (CASM) database to identify a standard statement of work for the application of spray foam insulation to structures. The standard statement of work contains requirements that assure that fire safety requirements (as defined in the attached checklist) will be completed. Contracting officials are not authorized to issue contracts for spray foam application to the exterior of any structure without assurance that fire safety requirements will be met prior to occupancy.

c. The manufacturer has stated that no unauthorized personnel should be within 150 feet of any outdoor spraying operation.

6. ACTIONS:

a. Combat Readiness Center (CRC). Develop, assess and validate future risk mitigation techniques. Provide risk mitigation techniques and any other follow-up actions required to unit commanders.

b. Assistant Secretary of the Army (Acquisition, Logistics, and Technology). Provide validated risk mitigation techniques to be written into the Scope of Work of contracts awarded to apply spray polyurethane foam.

7. REFERENCES:

a. Memorandum to US ARMY Rapid Equipping Force (REF)(VCFA-REF), 10236 Brubeck Road, Fort Belvoir, VA 22060-5820; from HQ ATC, TEDT-TMS, APG, MD 21005-5055, Subject: Amendment 1 to the Safety Confirmation for the Gaco Western Polyfoam(tm) System 193 (GWPS-193) in Support of Rapid Equipping Force Fielding, dated: 5 Oct 09.

b. MEMORANDUM to US Army Center for Health Promotion and Preventive Medicine (CHPPM), MCHB-TS-OHH, 6 MAR 07, SUBJECT: Toxicity Clearance for the Gaco Western PolyfoamTM System 193, dated 8 March 2007

c. USAMSAA Study, Cost Benefit Analysis of Spray Foam Insulation in Iraq, Troy Wilke and Brad Frounfelter authors, dated 14 July 2009,

8. Points of Contact (POCs):

a. MAJ(P)Dean Klopotoski, APM Shelter Systems, PM Force Sustainment

Systems, Natick, DSN 256-5250, COMM (508) 233-5250, email:
dean.klopotoski@us.army.mil

b. Mr. Donald Stewardson, PM Soldier Support Shelters, DSN 256-5251, COMM (508) 233-5251, email: Donald.stewardson@us.army.mil

c. To find your TACOM LCMC LAR, you must be a registered user in the Army Electronic Product Support (AEPS) database. If you are a registered user, then click on this link:

<https://aeaps2.ria.army.mil/Services/Lars/Tacom/larmap/LARlocate/larmap.cfm>

Then select the appropriate region; i.e. CONUS, Europe, Far East, and SWA. Select the location nearest you and click on a name. This will give you a LAR's name, DSN and commercial phone number, email address, and photo.

(1) If you are not a registered user, request access at the public page: <https://aeaps.ria.army.mil/aeapspublic.cfm> then click on "Access Request Form" and follow the instructions for obtaining an AEPS userid. If you don't have access to AEPS, you can also obtain this information by contacting the TACOM LCMC Senior Command Representative (SCR) for your area.

(2) CONUS-East Region includes all Active Duty, National Guard and Reserve Units in Wisconsin, Illinois, Michigan, Indiana, Ohio, Kentucky, Tennessee, Mississippi, Alabama, Georgia, Florida, Louisiana, South Carolina, North Carolina, Virginia, West Virginia, Maryland, Delaware, Pennsylvania, New Jersey, Connecticut, Rhode Island, Massachusetts, New York, New Hampshire, Vermont, Maine and FORSCOM. CONUS-East SCR can be reached at DSN 236-6921, Commercial 910-396-6921.

(3) CONUS-West Region includes all Active Duty, National Guard and Reserve Units in North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Missouri, Kansas, Oklahoma, Arkansas, Texas, Colorado, Montana, and Wyoming. CONUS-West SCR can be reached at DSN 737-0263, Commercial 254-287-0263.

(4) Pacific Region includes all Active Duty, National Guard and Reserve Units in Washington, Oregon, Idaho, Nevada, Utah, Arizona, Alaska, Hawaii, California, New Mexico and Guam. Pacific SCR can be reached at DSN 357-2991, Commercial 253-967-2991.

(5) Europe Region includes all Active Duty, National Guard and Reserve Units in Great Britain, Germany, Belgium, Luxemburg, Italy, Bosnia, Kosovo, and Macedonia. Europe SCR can be reached at DSN 314-375-3461, Commercial 01149 621-487-3461, in Germany, 0621-487-3461.

(6) Far East Region includes all Active Duty, National Guard and Reserve Units in Korea, Okinawa, Kwajalein, and Japan. Far East SCR can be reached at DSN 31 5-721-7101, commercial 011-82-2-2270-7101.

(7) SWA OIF Region (Iraq) SWA, Region OIF includes all Active Duty, National Guard and Reserve Units in Iraq. SWA Region OIF SCR OIF Balad Iraq can be reached at DSN 312-987-5130, ext 6416 commercial 732-427-5130 ext 6416. Joint Base Balad is DSN 312-987-5130, ext 6427 commercial 732-427-5130 ext 6427.

(8) SWA OEF Region (Afghanistan) SWA, Region OEF includes all Active Duty, National Guard and Reserve Units in Afghanistan. SWA Region TF Victory OEF SCR OEF can be reached at DSN 318-481-6836/6834. Alternate is DSN 312-987-5130 Commercial 732-427-5130 ext 3821.

(9) Integrated Readiness Maintenance Team (IRMT) Region (Kuwait) SWA Region includes all Active Duty, National Guard and Reserve Units in Kuwait, Qatar, Saudi Arabia and UAE. IRMT Region IRMT Team Leader can be reached at DSN 318-430-7460, Commercial 011-965-389-7460.

Spray Polyurethane Foam Insulation Shelter
Safety Inspection Checklist

1. Are a minimum of two egress points available in sleeping tents?
Y/N
2. Are egress points unobstructed?
Y/N
3. Do door closure devices hamper opening door in the event of fire?
Y/N
4. Smoke detectors/alarms installed 1 per 400 sq ft and operational?
Y/N
5. Is a Fire Evacuation Plan posted and visible within the structure?
Y/N
6. Are fire drill periodically practiced?
Y/N
7. Are cooking appliances limited to coffee pots? Is the coffee pot a non-combustible surface and equipped with an automatic shut off?
Y/N
8. If Commander permits microwave ovens, are they limited to dedicated receptacle and overload device
Y/N
9. Confirm the proper use or routing of the following:
 - a. Are electrical outlets away from walls?
Y/N
 - b. Electrical cords are free of cuts and scrapes, appropriately sized, and protected from metal/sharp edges. Is the cord warm to the touch?
Y/N
 - c. Are electrical devices such as printers, copiers, and other heat producing appliances at least 6 inches from walls?
Y/N
 - d. Are light bulbs shielded and spaced far enough from the foam that the foam is cool to the touch?
Y/N
 - e. Is conduit or shielding cable used everywhere wiring penetrates of touches foam?
Y/N
 - f. Are ABC Fire extinguishers available, unobstructed, and located at the exit?
Y/N

10. Fire prevention measures are in place to include:

a. Is smoking prohibited inside structures or within 25 ft of any foamed surface? Are No Smoking polices briefed at reception and enforced?

b. Y/N

c. Are designated smoking areas marked, at least 25 feet from any foamed surface, and self closing non-combustible receptacles provided?

Y/N

c. Are Fire Safe House keeping practices followed:

1) Trash and other debris disposed of daily or as needed?

Y/N

2) Are aisle ways and other walking surfaces clear of obstacles?

Y/N

3) Are flammable liquids stored properly?

Y/N

11. Are locks, hasps, and other security devices arranged in such a way that individuals will be able to depart from any occupied area?

Y/N

12. Are carbon dioxide detectors installed and has the HVAC unit been modified to allow for intake of fresh air as directed in TEDT-TMS memorandum 5 Oct 2009, para 5b(7e)?

Y/N

Inspector Signature/Date

Approved/Reviewer Signature/Date

Corrective Action Completed/Date:

Classification: UNCLASSIFIED

Caveats: FOUO