

Initial Actions (should-do items before occupation) and Follow-on Actions (can be done after occupation) – EXECUTIVE SUMMARY

1. Initial actions as soon as the tent is sprayed (should be done before soldiers are allowed to move back into the tent):

a) local contractors install sufficient smoke detectors in each tent. Preferred detectors should run on 9V batteries only; avoid detectors hard wired into electrical system. This will avoid time and effort to hard wire; if hard wired detector is used, then insulated wiring is mandatory. There are several commercial detectors on Wal-Mart website (search entire site using keyword smoke detector).

b) immediately turn off half of HVAC units (if tent has more than one unit). Turn the remaining HVAC units to the "on" position to insure that forced air is continuous.

c) immediately turn on oscillating fans to insure better air mixing. These fans should be located at opposite end of the tent from the active HVAC. Note that steps b and c are temporary measures and may not provide sufficient air exchange for a sleeping tent full of soldiers. Suggested permanent air exchange procedures are described in the follow-on actions paragraph (below) and in the Exponent Fresh Air Ventilation Report, pp. 4-14 (at Tab B).

d) immediately move any heat-generating appliances (such as refrigerators, supplemental space heaters, printers, etc) away from tent wall to avoid heat build-up and to reduce potential for fires. This is described on p. 7 of the Exponent Fresh Air Ventilation report at Tab B.

e) immediately remove any bare light bulbs, bare electrical wiring and outlets away from tent wall. Any wiring in contact with the tent walls should be insulated; uninsulated wiring should go in conduit. Outlets should be floor-mounted and away from tent walls. This greatly enhances fire safety. This is also described on p. 7 of the Exponent Fresh Air Ventilation report at Tab B.

f) insure certified fire extinguishers are in tent, IAW local safety SOP.

2. Follow-on actions (can be done after soldiers move back in, but should be done quickly to leverage savings):

a) local contractors modify HVAC, and install exhaust fan, as required, to provide sufficient air exchange. Suggested air exchange modifications are described in the Exponent Fresh Air Ventilation Report, pp. 4-14 (at Tab B). NOTE: the Exponent report is not the only way to provide sufficient air exchange; local contractors may suggest alternatives. The point of the Exponent report is to highlight air exchange as an issue that local commander must consider and implement.

b) local experimentation should be pursued to find the optimum balance between air exchange and power consumption needed to run HVAC. Insulated tents provide more comfortable living conditions for Soldiers (less dust, less power – and fuel – required to cool or heat the tent), but sufficient air exchange is also important. Local SOPs should be considered, such as: if tent is empty during the day, then exhaust fan should be turned off to prevent exhausting conditioned air when tent is not in use.

c) digital thermostats, preferably programmable, should be considered to run the remaining HVAC. Local SOPs should be considered, such as: if tent is empty during the day, then digital thermostat can be programmed to raise temperature inside the tent to reduce HVAC cycles.

d) if not already implemented, local commander should consider replacing any incandescent bulbs with Compact Fluorescent Bulbs (CFB) or LED (halogen or fluorescent). This should be considered not just for tent lighting, but for spotlights, streetlights, etc...fuel savings potential is significant. DLA already has NSNs for excellent CFB and LED lighting in their lighting catalog: <http://www.dscp.dla.mil/gi/general/lightcat.htm>
Efficient lighting gives off much less heat than incandescents, which further reduces cycle time on HVAC units.

e) In a future version of your tent “Owner’s Manual,” REF will include specific suggestions on how to optimize size of HVAC, DLA NSNs for Energy-Star HVAC, refrigerators, etc....

3. Future Action recommendations for FOB: Each FOB provides power to users. There are similarities, but each FOB has unique variables. In general, largest fuel reductions are realized when Corps of Engineers and/or LOGCAP installs a local power grid and off-grid tactical generators are turned off (except as back-up to grid interruptions). Given this goal, emerging TTP to reduce power on grid and off grid:

On-grid:

Task 100: Insulate tents and other temp structures.

Task 200: When tent is insulated, immediately turn off one HVAC unit.

Task 300: Local commander completes fresh air ventilation upgrades IAW Tent "Owner's Manual"

Task 400: Local commander replaces any old lighting with efficient lighting (CFB or LED) IAW Tent "Owner's Manual"

Task 500: Local commander replaces any old HVAC and appliances with efficient HVAC and appliances IAW future version of Tent "Owner's Manual"

Task 600: These tasks will reduce power consumption and demand on grid will go down (assumes steady state population) with no adverse impact on mission. Less prime power generators will be required to provide power resulting in significant fuel savings.

Off-grid:

Same tasks as above plus...

Task 250: If tent insulation drives down demand 50%, then half of any off-grid generators that power HVAC may be immediately turned off, provided sufficient wiring and distribution box resources are available. Re-wiring and adjusting distribution boxes will be required to allow multiple tents to run off one generator vice original two generators. If tent insulation drives down demand 75%, then it follows that 3 of 4 off-grid generators may be immediately turned off. Re-wiring and adjusting distribution boxes may become a limiting factor, so local expertise must be used IAW local METT-T. Bottom line is that fewer off-grid generators should be running at peak load (100% load) to allow multiple tents to run off one generator vice multiple generators at partial loads. TQG are designed for optimum performance at 100% load.