

Field Facilities for Human Waste Disposal

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Human waste disposal becomes a problem for both the individual and the unit in the field. Local, state, federal, and host-nation regulations or laws may prohibit burning or burial of waste. Chemical latrines are the preferred human waste disposal devices for use during field exercises or missions. When chemical latrines are not available, individuals and units must use improvised devices as discussed in paragraph c, below. During short halts when troops are on a march, each soldier uses a brief relief bag or a "cat-hole" latrine. The cat-hole latrine is dug approximately 1-foot (30-centimeters) deep and is completely covered and packed down after use. In temporary bivouac areas (1 to 3 days), the straddle trench latrine is used unless more permanent facilities are provided for the unit. When setting up a temporary camp, a deep pit latrine and urine soakage pits are usually constructed. Alternate devices, which may be used to dispose of human waste in the field, are the burn-out, mound, bored-hole, or pail latrines (see FM 21-10). The burn-out latrine is the preferred method for improvised devices. If possible, urinals should be provided in these facilities to prevent soiling the toilet seats. The numbers of latrines are based on one commode or urinal per 25 male soldiers and one commode per 17 female soldiers.

1. Latrines are so constructed to prevent the contamination of food and water. They are located at least 100 yards (90 meters) downwind (prevailing wind) and down gradient from the unit food service facility and at least 100 feet (30 meters) from any unit ground water source. They should never be placed above gradient of the unit food service facility. For further protection, latrines are not dug to the ground water level or in places where pit contents may drain into the water source. Usually they are built at least 30 yards (30 meters) from the border of the unit area but within a reasonable distance for easy access. A drainage ditch is dug around the edges of the latrine enclosure to keep out rainwater and other surface water. A handwashing device is installed outside each latrine enclosure; these devices should be easy to operate and kept full of water. Each individual must wash his hands after he uses the latrine.

2. When a latrine is filled to within 1 foot (30 centimeters) of the ground surface or when it is to be abandoned, it is closed in the following manner. The pit is filled to the ground surface in 3-inch (8-centimeter) layers; each layer is compacted. This is to prevent fly pupae from hatching and gaining access to the open air. Dirt is then compacted over the pit to form a mound at least 1-foot (30-centimeters) high. A sign is posted with the date and the words "closed latrine," if the tactical situation permits.

Chemical Latrines:

1. Chemical latrines are used in the field when federal, state, or local laws prohibit the use of other field latrines. These toilets are self-contained in that they have a holding tank with chemical additives to aid in decomposition of the waste and for odor control. The number of such facilities required is established by the surgeon or other medical authority in the AO.

2. The facility must be cleaned daily, and the contents pumped out for disposal in a conventional sanitary waste water system. The frequency of emptying is determined by the demand for use of the device

Improvised Devices: When chemical latrines are not available, the following improvised devices can be used.

1. **Burn-out Latrine.** The burn-out latrine may be provided when the soil is hard, rocky, or frozen, making it difficult to dig a deep pit latrine. It is particularly suitable in areas with high water tables because digging a deep pit is impossible. The burn-out latrine is not used when regulations prohibit open fires or air pollution. Personnel should urinate in a urine disposal facility rather than the burn-out latrine, as more fuel is required to burn out the liquid.

1. To construct a burn-out latrine, an oil drum is cut in half, and handles are welded to the sides of the half drum for easy carrying. A wooden seat with a fly-proof, self-closing lid is placed on top of the drum.

2. The latrine is burned out daily by adding sufficient fuel to incinerate the fecal matter. A mixture of 1 quart (1 liter) of gasoline to 4 quarts (4 liters) of diesel oil is effective, but must be used with caution. If possible, have two sets of drums, one set for use while the other set is being burned clean. If the contents are not rendered dry and odorless by one burning, they should be burned again. Any remaining ash should be buried.

DANGER Highly volatile fuel such as JP4 (jet propulsion fuel, grade 4) should not be used because of its explosive nature.

2. **Straddle Trench Latrine.** The trench is dug 1-foot (30-centimeters) wide, 2 1/2-feet (75-centimeters) deep, and 4-feet (120-centimeters) long. Two feet (60 centimeters) of length are allowed per person. These trenches, which are constructed parallel to one another, are spaced at least 2-feet (60-centimeters) apart. Since there are no seats on this type of latrine, boards may be placed along both sides of the trench to provide sure footing. As the earth is removed, it is piled at one end of the trench, and a shovel or paddle is provided so that each soldier can promptly cover his excreta. Toilet paper is placed on suitable holders and protected from bad weather by a tin can or other covering. The straddle trench latrine is closed, using the same method described in a(2) above.

3. **Deep Pit Latrine.** The deep pit is used with the standard latrine box which is issued to or built by the unit. The two-seat box is 4-feet (120-centimeters) long, 2 1/2-feet (75-centimeters) wide at the base, and 18-inches (45-centimeters) high. A four-seat box 8-feet

(240-centimeters) long, 21/2-feet (75-centimeters) wide at the base, and 18-inches (45-centimeters) high may be built by the unit using scrap lumber or other material.

1. The pit is dug 2-feet (60-centimeters) wide and either 31/2- or 71/2-feet (105- or 225-centimeters) long, depending upon the size of the latrine box. This allows 3 inches (8 centimeters) of earth on each side of the pit to support the latrine box. The depth of the pit depends on the estimated length of time the latrine will be used. As a guide, a depth of 1 foot (30 centimeters) is allowed for each week of estimated use, plus 1 foot (30 centimeters) of depth for dirt cover. Generally, it is not desirable to dig the pit more than 6-feet (2-meters) deep because of the danger of the walls caving in. Rocks or high ground water levels may also limit the depth of the pit. In some soils, supports of planking or other material may be necessary to prevent the walls from caving in.

2. To prevent fly breeding and to reduce odors, the latrine box must be kept clean, the lids closed, and all cracks sealed. If a fly problem exists, they may be controlled by the application of a residual pesticide. Control effects should be based upon fly surveys and pesticides applied in accordance with label directions. Pit contents should not be sprayed routinely since flies can develop resistance to pesticides if used over and over. The latrine boxes and seats are scrubbed daily with soap and water. Using lime in the pit or burning out the pit contents is not effective for fly or odor control; therefore, these methods are not recommended. The deep pit latrine is closed as described in a(2) above.

4. Mound Latrine.

1. This latrine may be used when a high ground water level or a rock formation near the ground surface prevents digging a deep pit. A dirt mound makes it possible to build a deep pit and still not extend it into the ground water or rock.

2. A mound of earth with a top at least 6-feet (2-meters) wide and 12-feet (4-meters) long is formed so that a four-seat latrine box may be placed on top of it. It is made high enough to meet the pit's requirement for depth, allowing 1-foot (30-centimeters) from the base of the pit to the level of the ground water or rock level. The mound is formed in approximately 1 foot (30 centimeters) layers. The surface of each layer is compacted before adding the next layer. When the desired height is reached, the pit is then dug in the mound. Wood or other bracing may be needed to prevent the pit walls from caving in. An alternate method is to construct a latrine pit on top of the ground, using lumber, logs, corrugated sheet metal, or whatever other material is available; to pile dirt around it and up to the brim, thus creating the mound around the latrine pit. The exact size of the mound base depends upon the type of soil; it should be made large to avoid a steep slope. It may be necessary to provide steps up the slope. The mound latrine is closed as described in a(2) above.

5. **Pail Latrine.** A pail latrine may be built when conditions (populated areas, rocky soil, and marshes) are such that a latrine of another type cannot be constructed. A four-seat latrine box may be converted for use as a pail latrine by placing a hinged door on the rear of the box, adding a floor, and placing a pail under each seat. If the box is located in a building, it should, if possible, be fitted into an opening made in the outer wall so that the rear door of the box can be opened from outside the building. The seats and rear door

should be self-closing, and the entire box should be made flyproof. The floor of the box should be made of an impervious material (concrete, if possible) and should slope enough toward the rear to facilitate rapid water drainage used in cleaning the box. A urinal may also be installed in the latrine enclosure with a drainpipe leading to a pail outside. This pail should also be enclosed in a flyproof box. The waste in pails may be disposed of by burning or by hauling to a suitable area and burying. Emptying and hauling containers of waste must be closely supervised to prevent careless spillage. The use of plastic bag liners for pails reduces the risk of accidental spillage. The filled bags are tied at the top; they then are disposed of by burning or burial.

6. Urine Disposal Facilities. Urine disposal facilities should be provided for the males in the command. Urine should be drained from the urinals into a soakage pit, into a standard deep pit latrine if the urinals are constructed in conjunction with the latrine, or into the chemical latrine. The urine may be drained into a pit latrine through a pipe, hose, or trough. If a soakage pit is used, it should be dug 4-feet (1.2-meters) square and 4-feet (1.2-meters) deep and filled with rocks, flattened tin cans, bricks, broken bottles, or similar nonporous rubble.

1. Urinal pipes. Urinal pipes should be at least 1 inch (2.5 centimeters) in diameter and approximately 39-inches (1-meter) long and placed at each corner of the soakage pit and, if needed, on the sides halfway between the corners. The pipes are inserted at least 8-inches (20-centimeters) below the surface of the pit with the remaining 28 inches (80 centimeters) slanted outward above the surface. A funnel of tar paper, sheet metal, or similar material is placed in the top of each pipe and covered with a screen.

2. Urinal trough. A urinal trough, about 10-feet (3.3-meters) long, is provided when material for its construction is more readily available than pipes. The trough is made of sheet metal or wood with either V- or U-shaped ends. If the trough is made of wood, it is lined with tar paper or metal. The legs supporting the trough are cut slightly shorter on one end where a pipe carries the urine into the soakage pit or latrine pit. A urinal trough about 12-inches (30-centimeters) long is attached to the inside wall of the chemical latrine. A pipe is connected to the trough to drain urine into the latrine holding tank.

3. Urine soakage pit. For the urine soakage pit to function properly, soldiers must not urinate on the surface of the pit. The funnels or trough must be cleaned daily with soap and water and the funnels replaced as necessary. Oil and grease must never be poured into the pit, as they will clog it. When a urine soakage pit is to be abandoned or it becomes clogged, it is sprayed with a residual insecticide and mounded over with a 2-foot (60-centimeter) covering of compacted earth.

4. Urinoil. In areas where the ground water level is more than 3-feet (1-meter) below the surface, the urinoil is an acceptable substitute for other types of urine disposal facilities. The urinoil is a 55-gallon drum designed to receive and trap urine and to dispose of it into a soakage pit. Urine voided through the screen onto the surface of the oil immediately sinks through the oil to the bottom of the drum. As urine is added, the level rises within the 3-inch diameter pipe and overflows into the 1 1/2-inch diameter pipe

through the notches cut in the top of this pipe. The oil acts as an effective seal against odors and against fly entrance. The screen on top of the oil is lifted by supporting hooks and cleaned of debris as necessary.