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FINAL REPORT RTI/2072/00-08F

VENTILATION HOST AND RISK AREA TECHNIQUES

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DETACHABLE SUMMARY

FINAL REPORT RTI/2072/00-08F

April 1982

Ventilation: Host and Risk Area Techniques

by

S. B. York, III, K. J. Reeves, and R. J. Wallace

for

FEDERAL EMERGENCY MANAGEMENT AGENCY
OFFICE OF MITIGATION AND RESEARCH
Washington, D.C. 20472

under

Contract No. EMW-C-0336
FEMA Work Unit 1211C

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SUMMARY

I. INTRODUCTION AND OBJECTIVES

United States strategic nuclear forces include land-based intercontinental ballistic missiles (ICBMs), long-range bombers of the Strategic Air Command (SAC), and submarine-launched ballistic missiles (SLBMs). Populations of the "counterforce" areas associated with these strategic facilities are considered to be at a higher level of risk than the U.S. population as a whole. Under the concept of Crisis Relocation Planning (CRP), in a period of increasing international tensions, residents of areas having a high risk of receiving direct weapons effects including those proximate to strategic facilities would be relocated to areas having less risk of incurring these effects. Only key workers would be sheltered in the risk areas. In both risk- and host-area shelters, adequate ventilation is needed to prevent carbon dioxide buildup, oxygen depletion, and the elevation of temperature and humidity to unbearable levels. Stockpiling is one option for ensuring that ventilation equipment is available during a crisis situation to shelters requiring mechanical ventilation. However, because of the long manufacturing lead time for the PVK and the program cost to purchase ventilators for stockpiling, deployment procedures and shelter facilities need to be evaluated to minimize the number of ventilators required.

The major objectives of this study are to review and evaluate concepts in allocating and deploying ventilation equipment to risk-area and host-area shelter facilities and to use the ventilating concepts to estimate the total number of ventilators needed to supply fresh air to all of the host-area and risk-area shelter facilities associated with counterforce areas. A secondary objective is to develop a priority system that can be used to choose shelter

stories in areas with surplus shelter spaces in a way that will minimize the total number of ventilating kits required.

II. VENTILATION CONCEPTS

The ventilating characteristics of the Package Ventilation Kit (PVK), the Kearny pump, and natural (wind and thermal) ventilation are briefly summarized. These ventilating characteristics are then used to estimate the number of ventilation kits required to supply and distribute air to a shelter story as a function of its location, size, configuration, and zonal ventilation requirement. In developing the estimates, optimal ventilation kit deployment (so as to minimize the number of devices required per shelter story) is assumed. Estimates are presented for both "best case" and "worst case" scenarios. Under the "best case" assumption, wind-drive ventilation will deliver 8,692 cfm to any aboveground story. No shelter story can be adequately ventilated by wind-driven ventilation under the "worst case" assumption.

III. COUNTERFORCE RISK AND HOST AREA VENTILATION KIT REQUIREMENTS

A methodology is developed to identify counties with counterforce risk areas and associated risk populations. Each county with counterforce risk and/or host areas is described in terms of the populations to be sheltered and zonal ventilation requirement. A computer program is developed to extract shelter availability and ventilating characteristics data by county from the NSS-CRP Master File. Another computer program estimates ventilation kit requirements by county, using the shelter ventilating characteristics data and the ventilation kit requirements in terms of these data. In computing the ventilation kit requirements, the numbers of shelter stories requiring no

ventilation devices, only Kearny pumps, only PVKs, and combinations of Kearny pumps and PVKs are compiled. Also, a record is kept of the numbers of additional host- and risk-area shelter spaces needed. In addition, the numbers of risk- and host-area spaces serviced by each Kearny pump and PVK are computed. These data are summarized by counterforce area and FEMA Region.

IV. CONCLUSIONS

The number of PVKs required by a shelter story is a function of the shelter story size, the zonal ventilation requirement, and the PVK capacity. Since the estiamtes of PVK requirements derived in this study are based on actual distributions of shelter story sizes and actual zonal ventilation requirements, their accuracy is subject mainly to the assumptions concerning PVK capacity (4,000 cfm for aboveground stories, 3,000 cfm for basement stories). The PVK capacities are based on the use of all of the duct packaged with the kit, therefore the estimates of requirements probably tend to be high.

The number of Kearny pumps required by a shelter story is a function of floor configuration in addition to shelter story size, zonal ventilation requirement, and Kearny pump capacity. Because of the absence of floor configuration data for CRP facilities and the unavailability of these data in the NSS-CRP Master File for NSS facilities, a random sample of NSS shelter stories drawn from a 10-year-old RTI research report was used to estimate distributions of floor configurations. Therefore, the Kearny pump requirement estimates are subject to greater inaccuracies than the PVK requirement estimates.

Ventilation kit procurements should be based on the "worst case" requirements. This conservative approach would recognize the uncertainties

associated with wind-driven ventilation and the site specific factors affecting its performance. In addition, if procurements are made, attention must be given to the large differences in requirements not only between FEMA Regions but even between counties in the same counterforce area.

For the purpose of minimizing ventilation kit requirements, aboveground shelter stories with complex configurations should be preferred (more apertures available to supply air and more partitions to distribute air) to simple configuration aboveground stories or belowground stories. If the choice is between belowground shelter stories, simple configurations should require fewer Kearny pumps than complex configurations (more dead-end rooms). However, if a shelter story is chosen simply on the basis of ventilation equipment requirements, other factors (such as blast protection) may be compromised.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This study consisted of an investigation into several aspects of providing ventilation in counterforce risk- and host-area shelter facilities. Ventilation concepts, including the characteristics of methods for providing ventilation and the shelter characteristics affecting ventilation, were reviewed. Ventilation kit requirements were developed as a function of shelter ventilating characteristics. In defining ventilation kit

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requirements, optimal ventilation kit deployment (so as to minimize the number of devices required per shelter story) was assumed.

Data derived from the NSS-CRP Master File and from a sample of NSS shelter facilities were employed to define the ventilating characteristics of the shelter facilities in each counterforce risk and host county. These data then were used along with pertinent counterforce risk- and host-area characteristics (shelter requirements and zonal ventilation requirements) to estimate the ventilation kit requirements by county, counterforce area, and FEMA Region. Estimates were computed under both "best case" and "worst case" assumptions. Under the "best case" assumption, wind-driven ventilation could deliver 8,692 cfm to any aboveground story. No shelter story could be adequately ventilated by wind-driven ventilation under the "worst case" assumption.

In computing the ventilation kit requirements, the numbers of shelter stories requiring no ventilation devices, only Kearny pumps, only PVKs, and combinations of Kearny pumps and PVKs were compiled. Also, a record was kept of the numbers of additional host- and risk-area shelter spaces needed. In addition, the numbers of risk- and host-area spaces serviced by each Kearny pump and PVK were computed. These ratios could be used to estimate equipment requirements for incompletely surveyed counties or to recalculate requirements when better data defining counterforce risk- and host-areas are available.

ABSTRACT

This study consisted of an investigation into several aspects of providing ventilation in counterforce risk- and host-area shelter facilities. Ventilation concepts, including the characteristics of methods for providing ventilation and the shelter characteristics affecting ventilation, were reviewed. Ventilation kit requirements were developed as a function of shelter ventilating characteristics. In defining ventilation kit requirements, optimal ventilation kit deployment (so as to minimize the number of devices required per shelter story) was assumed.

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I. INTRODUCTION

A. Report Overview

This is a final report by Research Triangle Institute (RTI) on Federal Emergency Management Agency (FEMA) Contract Number EMW-C-0336, Work Unit 1211C, "Ventilation-Host and Risk Area Techniques." In addition to the following subsection, which provides background information, this report consists of sections that cover objectives, scope, ventilation concepts, counterforce risk- and host-area ventilation kit requirements, and conclusions and recommendations. Section II, Objectives and Scope, provides a more detailed summary of the contents of each report section.

B. Background

United States strategic nuclear forces include land-based intercontinental ballistic missiles (ICBMs), long-range bombers of the Strategic Air Command (SAC), and submarine-launched ballistic missiles (SLBMs). The chief function of these forces is to deter nuclear attack under the concept of "mutually assured destruction." However, a strategic nuclear attack against the United States could be limited to strategic nuclear forces, in an attempt to preempt a retaliatory nuclear attack. Such a strategic attack is referred to as a "counterforce" attack. Populations of "counterforce" areas are considered to be at a higher level of risk than the U.S. population as a whole.

Recent planning for the protection of civilian populations has focused on the concept of Crisis Relocation Planning (CRP). Under this concept, in a period of escalating international tensions that could lead to nuclear war, the residents of areas having a high risk of receiving direct weapons effects from a nuclear attack would be relocated to areas (mostly rural in nature)

having less risk of incurring these effects. Only key workers (Critical Work Force) would be sheltered in blast-resistant structures in the risk areas. In the host areas, many people would be sheltered in non-NSS facilities (i.e., facilities with a Protection Factor less than 20) in which the fallout protection would be expediently upgraded.

A primary consideration in maintaining a habitable environment in a shelter occupied at the rate of 1 person per 10 square feet of floor area is the provision of adequate ventilation. Experimental data show that a minimum of 3 cubic feet per minute (cfm) per occupant of fresh air is needed to prevent carbon dioxide buildup and oxygen depletion. However, depending on the ambient temperature and humidity, between 2 cfm and 47 cfm per occupant is required to prevent the heat and moisture given off by shelter occupants from reaching unbearable levels. In some situations, natural, wind-driven ventilation will suffice. However, for situations requiring mechanical ventilation to supply and distribute air in shelters, researchers have developed a pedal-powered axial fan, referred to as a Package Ventilation Kit (PVK), and a hand-driven "flap valve" pump, referred to as a Kearny pump.

Stockpiling is one option for ensuring that ventilation equipment is available to risk-area blast shelters and host-area fallout shelters during a crisis situation. However, because of the long manufacturing lead time for the PVK and the program cost to purchase ventilators for stockpiling, deployment procedures and shelter facilities need to be evaluated to minimize the number of ventilators required.

II. OBJECTIVES AND SCOPE

A. Objectives

The major objectives of this research are (1) to review and evaluate concepts in allocating and deploying ventilation equipment to risk-area and host-area shelter facilities and (2) to use the ventilating concepts to estimate the total number of ventilators needed to supply fresh air to all of the host-area and risk-area shelter facilities associated with counterforce areas. A secondary objective is to develop a priority system that can be used to choose shelter stories in areas with surplus shelter spaces in a way that will minimize the total number of ventilating kits required.

B. Scope

This research report consists of the following chapters and appendices. Chapter 3 contains a summary of ventilation concepts, including characteristics of methods of providing ventilation as well as shelter characteristics affecting ventilation. Chapter 3 also presents ventilation kit requirements as a function of shelter ventilating characteristics. Chapter 4 includes a description of counterforce risk- and host-area characteristics, the approach followed in determining counterforce risk- and host-area shelter ventilating characteristics, and the estimated ventilation kit requirements. Chapter 5 presents conclusions and recommendations. Appendix A contains a detailed breakdown of ventilation kit requirements by county, estimated under "best case" assumptions. Appendix B is the same breakdown, estimated under "worst case" assumptions.

III. VENTILATION CONCEPTS

To define an optimized usage of ventilation kits for counterforce risk and host areas, it is necessary to review the characteristics of the available ventilating concepts and the shelter characteristics that affect ventilation. The following paragraphs briefly summarize the ventilating characteristics of the Package Ventilation Kit (PVK), the Kearny pump, and natural (wind and thermal) ventilation. These ventilating characteristics are then used to estimate the number of ventilation kits required to supply and distribute air to a shelter story as a function of its location, size, configuration, and zonal ventilation requirement.

A. Package Ventilation Kit (PVK)

The PVK currently being considered by the Federal Emergency Management Agency (FEMA) for use in ventilating fallout shelters was developed by the General American Research Division (GARD) and consists of a four-bladed, 30-inch diameter axial fan and shroud. Figure III-1 is an illustration of a PVK. It is operated manually by one operator with a pedal-crank and chain arrangement similar to a bicycle drive. An average operator would apply a 0.1 HP input, at a crank speed of approximately 55 RPM, with a resultant fan velocity of 423 RPM [1]. Detailed specifications and performance charateristics of the PVK are described in a research report published by GARD [1].

In most shelter applications, it is necessary to use ducting attached to the fan to direct the air through the shelter along the proper path and to ensure that stale air is exhausted from the shelter. The duct used with the PVK is 30 inches in diameter and is made from polyethylene plastic film. Fifty feet of duct are supplied with each PVK. Because the duct is not self supporting, the PVK should be used only to exhaust stale air from a fallout

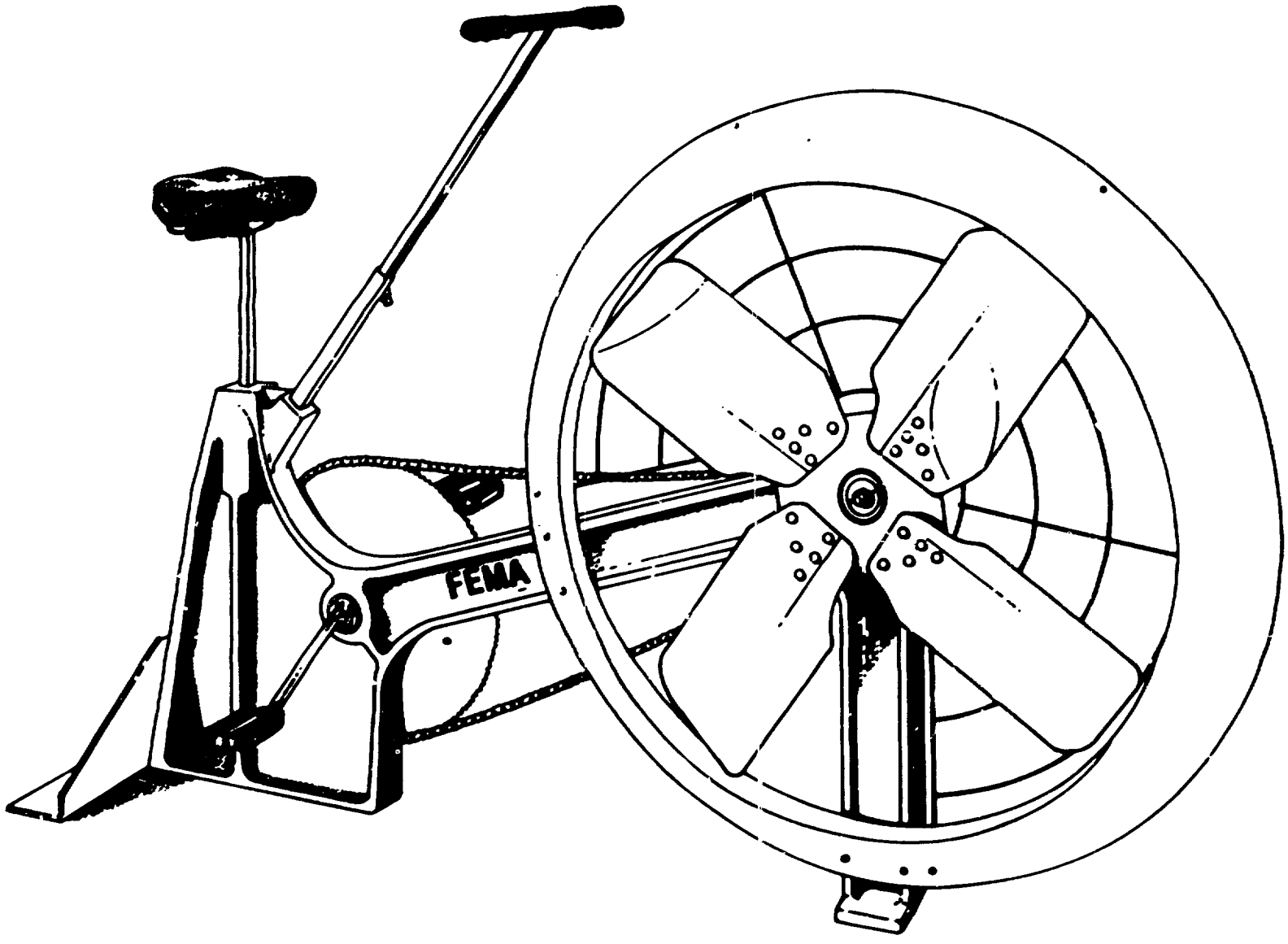

Figure III-1. A Package Ventilation Kit Without Duct.

shelter and can be placed to aid in air distribution. When the duct is attached to the fan, the capacity of the fan is lowered by varying amounts depending on the length of duct used and the number of bends in the duct. GARD [2] performed evaluations of the ducting with different quantities of air moving through different lengths of duct to establish the pressure loss in the duct. By applying the curves developed from the duct evaluation to the curves of the PVK (operated at 0.1 HP input), a relationship between fan capacity and duct length can be established. This relationship is shown in Figure III-2. Bends in the duct also reduce the air delivered by the PVK. This reduction is accounted for by determining the length of straight duct that would cause a reduction in airflow (an increase in pressure) equivalent to that caused by a bend. These equivalent duct lengths (edl) have also been determined by GARD [3] and are reported as follows:

- 45° bend, 50 feet
- 90° bend, 100 feet
- 120° bend, 150 feet

To determine the amount of air delivered by a PVK in a particular application, the total equivalent duct length must be determined by adding the straight duct length and the equivalent duct length of any bends in the duct. The total equivalent duct length is then used to determine the air delivery rate from the graph in Figure III-2.

Aperture availability is an additional factor that must be evaluated in determining the usefulness of a PVK for shelter ventilation. When a PVK is to be used, an aperture area equal to the cross-sectional area of the duct (4.9 square feet) must be available as an air inlet [4]. This is of course in addition to the outlet aperture area required to accommodate the duct. If

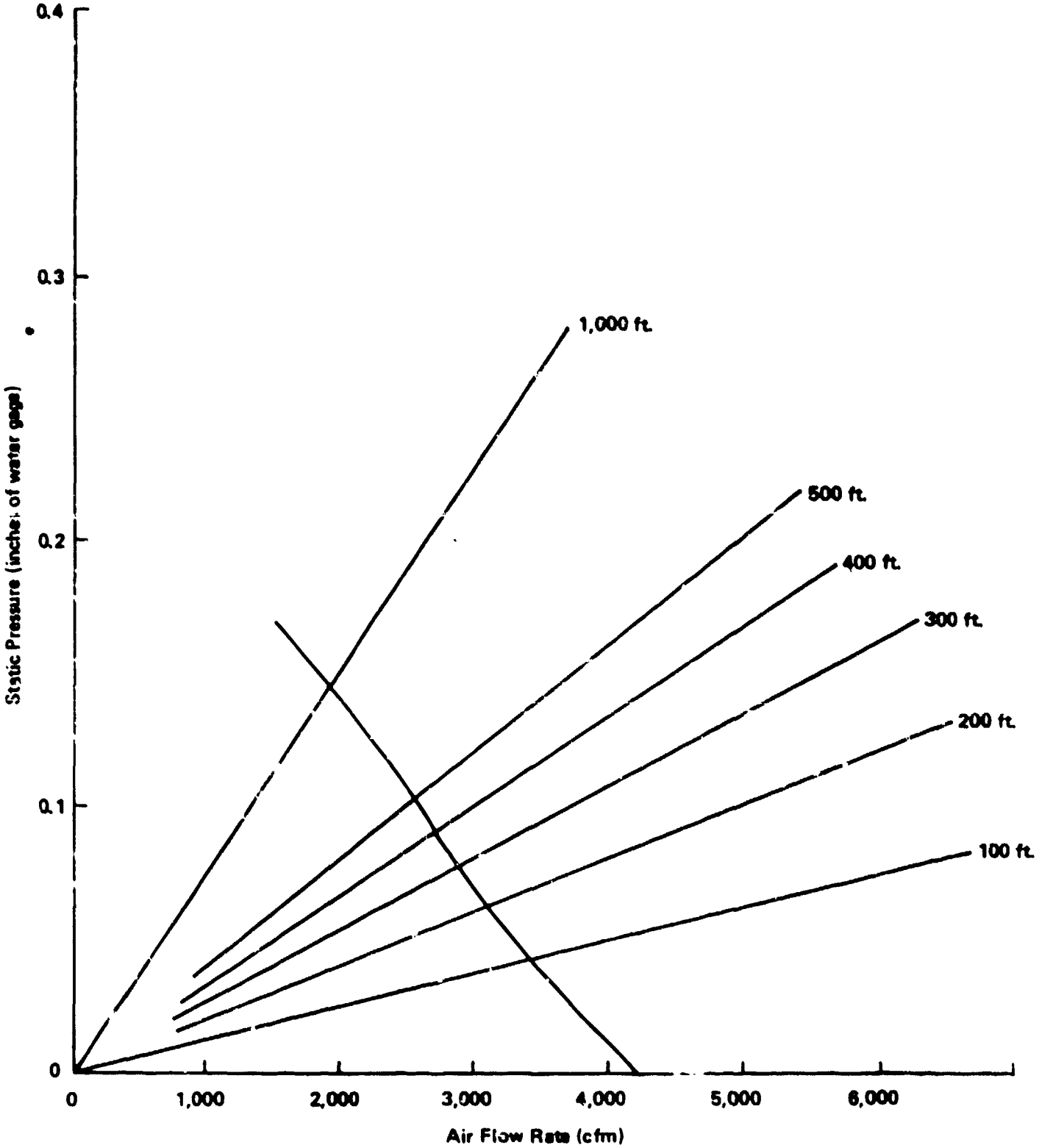

Figure III-2. PVK Performance and 30-inch Duct System Curves.

insufficient aperture area is available, it may be possible to create expedient openings.

b. Kearny Pump

The Kearny pump being considered for ventilating small shelters and for distributing air to stagnant areas within shelters was also developed by GARD. It consists of a two-piece rectangular frame within which are mounted 16 polyethelene, one-way flap valves. The frame is covered by a coarse wire mesh screen. The Kearny pump is designed for doorway mounting and is suspended from an expandable doorway support bar that provides the pivot hinges for the unit. Detailed specifications of the Kearny pump are contained in the GARD report referenced earlier [1].

Air is moved unidirectionally by a Kearny pump without the use of ducting. An operator manually swings the Kearny pump by means of a rope attached to the pivot end. The flaps open as the pump swings away from the operator, and the flaps are closed during the power stroke, as the operator pulls it towards him. The Kearny pump is composed of two, 3-foot-long sections. It can be deployed as a full-length, 6-foot pump, with upper and lower sections intact, or as a half-length, 3-foot pump, with the lower section detached. Figure III-3 illustrates a 6-foot Kearny pump mounted in a doorway.

Several experimental ventilation studies have been performed to evaluate the effectiveness of the Kearny pump. In studies conducted at the Protective Structures Development Center, Fort Belvoir, Virginia [5], Svaeri and Stein determined that one Kearny pump without baffles will deliver 3,700 cfm to a flow-through room. With side baffles on both the inlet and discharge sides, one Kearny pump will deliver 4,600 cfm. They further determined that one Kearny pump will deliver 590 cfm to a dead-end room or can distribute air over

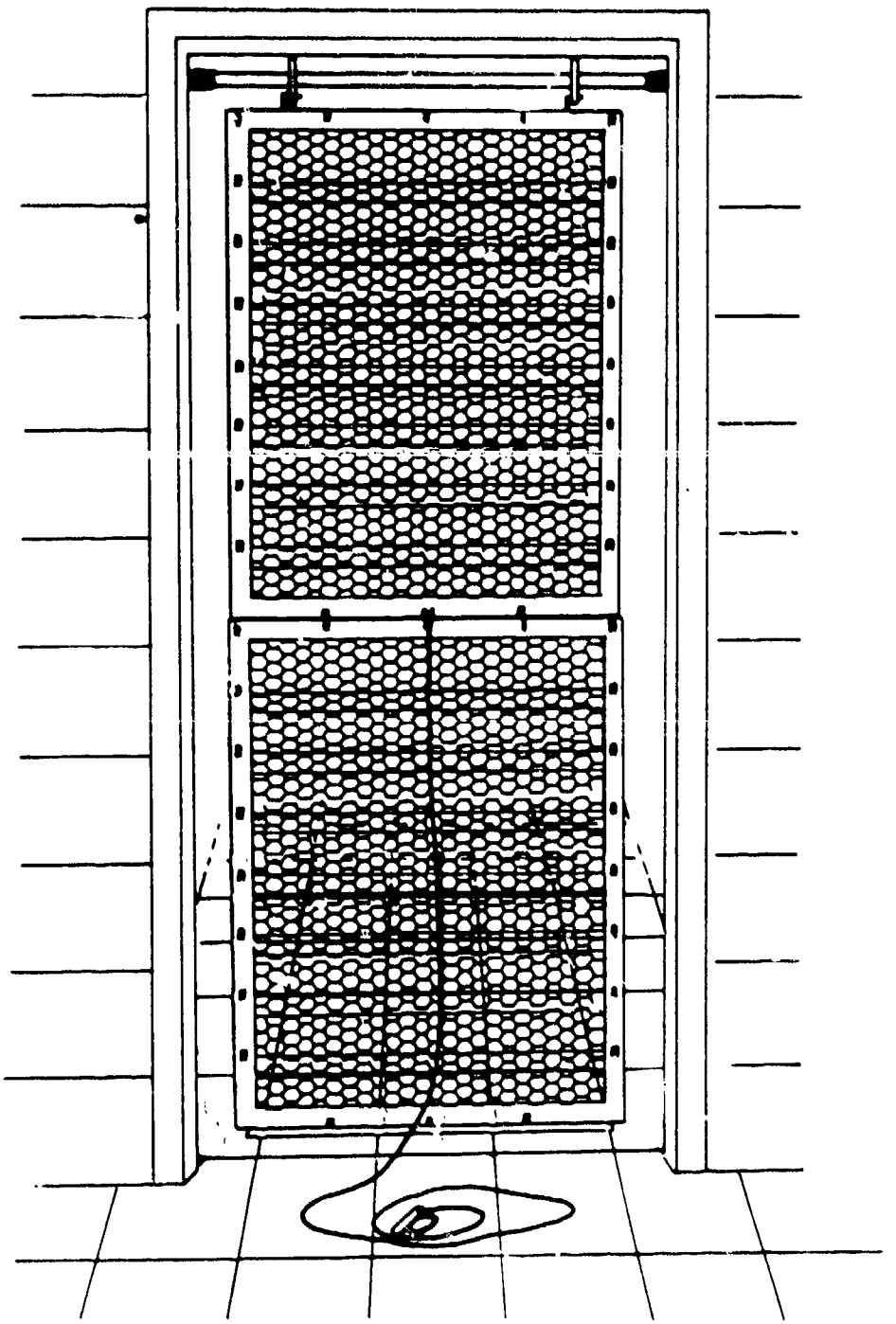

Figure III-3. A 6-foot Kearny Pump Mounted in a Doorway.

1,000 square feet of floor area. Later experimental studies performed by Wright of the Research Triangle Institute (RTI) [6] also showed that one Kearny pump can deliver 3,700 cfm to a flow-through room. Kapil and Rathman of GARD [7] measured airflow rates up to 4,600 cfm from one Kearny pump in a flow-through room. Figure III-4 contains the Kearny pump performance curve generated by Kapil and Rathman. They suggest that although the curve indicates deliveries in excess of 4,000 cfm, a more realistic delivery would be closer to 3,000 cfm, due to potential pressure losses not present in the test setup.

If a Kearny pump is to be used to supply air to a small shelter story, an aperture area equal to one-half the area of the Kearny pump must be available as an air inlet [4]. For the 6-foot Kearny pump, this represents an area of 7.5 square feet. If this aperture area is not available, it may be possible to create an expedient opening, or it may be necessary to employ a PVK in place of a Kearny pump.

C. Natural Ventilation

In a recently completed experimental study, GARD [8] assessed the adequacy of wind-induced ventilation for shelters having full earth berms with at least 6 inches of earth overhead. Factors affecting the wind-induced ventilation through a building include wind speed, wind direction, boundary layer profile of the approaching wind, building geometry, areas and locations of windows and doors, internal obstacles within the building, and the nature and proximity of neighboring buildings and obstructions. GARD performed a series of tests in a low-speed wind tunnel on scaled model buildings of relatively simple geometry. Internal flow resistances were excluded, though the remainder of the above factors were taken into account. From the experimental results, GARD concluded that, for a shelter occupant density of

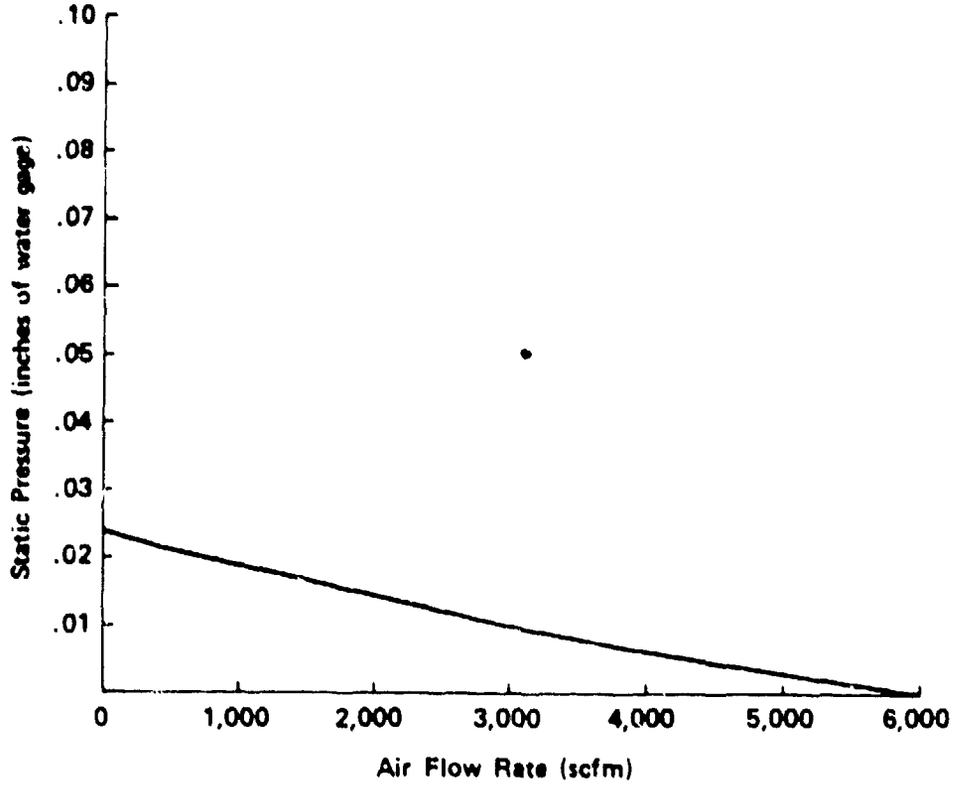

Figure III-4. Kearny Pump Performance Curve.

10 square feet per person, sizeable ventilation rates (> 40 cfm per person) are achievable at low wind speeds (> 5 mph). A ventilation rate of at least 41 cfm per occupant was measured for every opening configuration and angle-of-wind incidence combination except one case. Where the only exterior apertures were in opposite walls and the wind flow was parallel to the walls with the apertures, no ventilation was measured in the shelter. The total exterior aperture area ranged from a minimum of 84 square feet (1 aperture each in opposite walls) to a maximum of 208 square feet (1 aperture in each of 4 exterior walls). The use of wind-induced ventilation may be limited by shelter story size, aperture area or configuration, wind speed and direction, building geometry, internal obstacles, or the nature and proximity of neighboring buildings and obstructions.

A number of theoretical and experimental studies have dealt with thermally induced natural ventilation in buildings. Flow due to the thermal (or stack) effect alone depends on the presence of at least two openings (an inlet and an outlet) in an enclosed structure. The outlet must be higher than the inlet. In addition, a source of heat must be present within the structure. The volume of natural ventilation is directly proportional to the indoor-outdoor temperature differential. Furthermore, according to J. M. Bruce [9], "the ventilation rate and the temperature difference are virtually independent of the external temperature, i.e., the stack effect is the same winter and summer for the same outlet area, height, and heat load." Therefore an inherent problem in relying on thermal ventilation in a fallout shelter environment is the potential buildup of shelter temperature to intolerable levels.

D. Optimal Ventilation Kit Allocation

Factors that affect the ventilating characteristics (and therefore the requirement for ventilation kits) of a shelter story include floor plan (room configuration), story size, aperture configuration and size, and the zonal ventilation requirement for the county in which the shelter is located. A shelter's floor plan affects the distribution of air and, therefore, the need for Kearny pumps. The total volume of ventilation required by a shelter story is a function of the story size and zonal ventilation requirement. Aperture configuration affects air distribution, and a mimimum inlet and outlet area is required for adequate ventilation. Shelter story location (basement or aboveground) is probably the major factor influencing aperture configuration and size.

Figure III-5 illustrates six basic shelter configurations identified by RTI in an earlier study [10]. In a subsequent RTI study [11], the distribution of NSS shelter stories requiring ventilation was estimated according to configuration. Table III-1 presents this distribution and shows general subcategories of configurations. RTI recently completed a project [12] in which ventilation kit allocation and deployment methodologies were developed such that the total number of ventilators needed would be minimized. Based on these methodologies, tables were developed showing the number of Kearny pumps needed per shelter story as a function of shelter configuration, zonal ventilation requirement, story size, and story location (basement or first-floor story). For the purpose of estimating the number of PVKs and Kearny pumps needed in counterforce risk and host areas, these tables have been slightly modified for this study. The size categories have been changed to correspond to the capacity of natural ventilation, of a Kearny pump, or of one or more PVKs as a function of zonal ventilation requirement and story

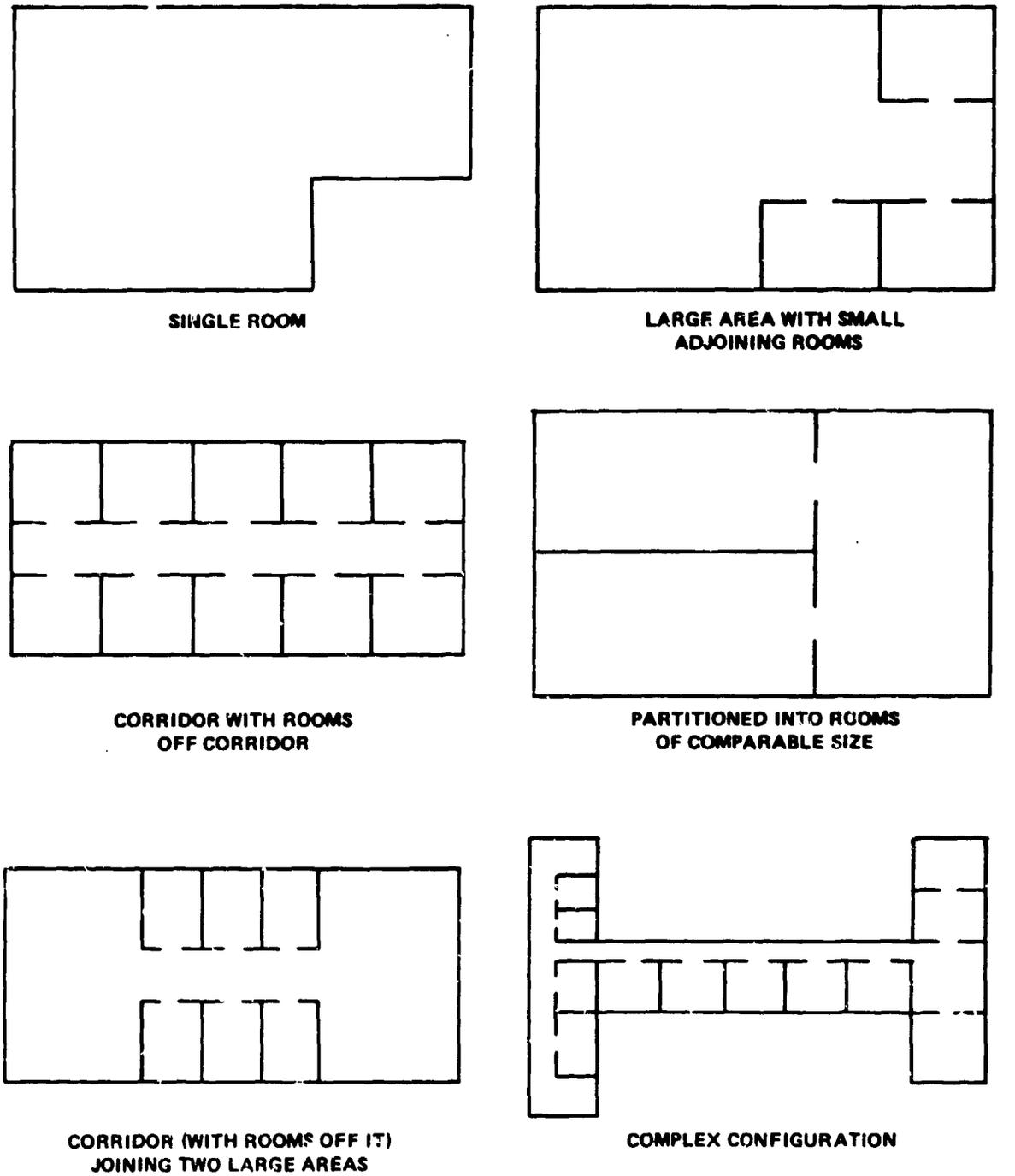

Figure III-5. Six Basic Shelter Configurations

TABLE III-1. ESTIMATED DISTRIBUTION OF NSS SHELTER STORIES REQUIRING VENTILATION ACCORDING TO SHELTER CONFIGURATION

Shelter Configration Category	Estimated Percent of Total Stories
1. Basic single room	
a. Single room	0.2517
b. Sigle room and 1 much smaller room	0.0699
c. Winding corridor	0.0070
2. Large area with small adjoining rooms	0.1469
3. Partitioned into rooms of comparable size	
a. Two rooms	0.0629
b. Three rooms	0.1469
c. Four room	0.0070
d. More than four rooms	0.0280
4. Corridor with rooms off corridor	0.0909
5. Corridor (with rooms off it) joining 2 large areas	0.1329
6. Complex configuration with large number of rooms that form combinations of the preceeding categories	0.0559
TOTAL	1.0000

location. Also, columns have been added showing the number of PVKs required and the exterior aperture area required.

Tables III-2 through III-22 are the modified tables presenting the numbers of ventilation kits required to supply and distribute air to a shelter story as a function of zonal ventilation requirement, shelter story location, story size, and the shelter configurations shown in Table III-1. Within each zonal ventilation requirement are three sets of tables--one for belowground shelter stories and two ("best case" and "worst case") for aboveground shelter stories. Under the "best case" assumption, wind-driven ventilation could deliver 8,692 cfm to any aboveground story. No aboveground story could be adequately ventilated by wind-driven ventilation under the "worst case" scenario. It was assumed that no belowground stories could be naturally ventilated.

The following general guidelines were adhered to for all room configurations and zonal ventilation requirements:

- Only a shelter story requiring one Kearny pump to supply air can be ventilated by Kearny pumps alone.
- One Kearny pump will deliver 3,000 cfm to a shelter story with sufficient aperture availability.
- One PVK will deliver 4,000 cfm to an aboveground shelter story with sufficient aperture availability (this assumes a duct length of approximately 10 to 20 feet).
- One PVK will deliver 3,000 cfm to a belowground shelter story with sufficient aperture availability (this assumes a straight duct length of 50 feet plus two 45° bends and one 90° bend).
- One Kearny pump per 2,000 square feet of unpartitioned area is needed to distribute air in a first-floor story (this assumes widely separated apertures of adequate size are or can be made available).
- One Kearny pump per 1,000 square feet of unpartitioned area is needed to distribute air in a basement story.
- Basement rooms off large areas or corridors are dead-end rooms.

Table III-2. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 5 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-600	1	2	1	4	2	3	4	4	3	5	4	0	22.5
601-1200	6	6	0	9	6	5	6	5	5	9	9	2	19.6
1,201-1,800	12	12	0	15	12	11	12	7	7	15	17	3	29.4
1,801+	23	23	0	26	23	23	21	11	11	25	30	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-3. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 5 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-1,738	0	0	0	0	0	0	0	0	0	0	0	0	84.0
1,739-2,400	4	3	0	0	4	2	4	0	0	0	0	3	29.4
2,401+	8	8	0	0	7	8	5	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-4. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 5 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-375	1	1	1	1	1	1	1	1	1	1	1	0	22.5
376-800	2	1	0	0	1	1	1	0	0	0	0	1	9.8
801-1,600	3	2	0	0	2	3	1	0	0	0	0	2	19.6
1,601-2,400	4	3	0	0	4	2	4	0	0	0	0	3	29.4
2,401+	8	8	0	0	7	8	5	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-5. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 8 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-375	1	2	1	4	2	3	4	4	3	5	4	0	22.5
376-750	3	3	0	6	3	2	2	3	4	6	5	2	19.6
751-1,125	6	6	0	9	6	5	6	5	5	9	9	3	29.4
1,126-1,500	9	9	0	12	10	10	9	6	6	12	13	4	39.2
1,501-1,875	12	12	0	15	12	11	12	7	7	15	17	5	49.0
1,876*	23	23	0	26	23	23	21	11	11	25	30	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-6. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 8 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-1,086	0	0	0	0	0	0	0	0	0	0	0	0	84.0
1,087-1,500	3	2	0	0	2	3	1	0	0	0	0	3	29.4
1,501-2,000	4	3	0	0	4	2	4	0	0	0	0	4	39.2
2,001+	8	8	0	0	7	8	5	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-7. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 8 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-375	1	1	1	1	1	1	1	1	1	1	1	0	22.5
376-500	1	0	0	0	1	0	0	0	0	0	0	1	9.8
501-1,000	2	1	0	0	1	1	1	0	0	0	0	2	19.6
1,001-1,500	3	2	0	0	2	3	1	0	0	0	0	3	29.4
1,501-2,000	4	3	0	0	4	2	4	0	0	0	0	4	39.2
2,001+	8	8	0	0	7	8	5	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-8. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 10 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-300	1	2	1	5	2	3	4	5	3	5	4	0	22.5
301-600	2	2	0	5	2	1	2	3	3	5	4	2	19.6
601-900	5	4	0	7	4	4	3	4	4	6	7	3	29.4
901-1,200	7	7	0	10	7	6	5	5	5	9	10	4	39.2
1,201-1,500	9	8	0	12	8	8	8	5	5	11	12	5	49.0
1,501-1,800	11	11	0	14	11	11	11	6	6	14	15	6	58.8
1800+	22	22	0	25	22	22	20	10	10	24	29	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-9. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 10 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-869	0	0	0	0	0	0	0	0	0	0	0	0	84.0
870-1,200	2	1	0	0	1	0	1	0	0	0	0	3	29.4
1,201-1,600	3	2	0	0	2	2	0	0	0	0	0	4	39.2
1,601-2,000	4	3	0	0	3	2	3	0	0	0	0	5	49.0
2000+	7	7	0	0	6	7	4	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-10. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 10 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-300	1	1	1	1	1	1	1	1	1	1	1	0	22.5
301-400	0	0	0	0	0	0	0	0	0	0	0	1	9.8
401-800	1	0	0	0	0	1	0	0	0	0	0	2	19.6
801-1,200	2	1	0	0	1	0	1	0	0	0	0	3	29.4
1,201-1,600	3	2	0	0	2	2	0	0	0	0	0	4	39.2
1,601-2,000	4	3	0	0	3	2	3	0	0	0	0	5	49.0
2,000+	7	7	0	0	6	7	4	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-11. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 15 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-200	1	2	1	3	2	2	3	4	2	4	3	0	22.5
201-400	1	1	0	4	1	1	1	2	3	5	3	2	19.6
401-600	3	3	0	5	2	1	2	2	3	5	5	3	29.4
601-800	4	3	0	6	3	3	1	3	3	5	6	4	39.2
801-1,000	5	4	0	7	4	4	4	3	3	7	7	5	49.0
1,001-1,200	6	6	0	9	6	5	4	4	4	8	9	6	58.8
1,201-1,400	7	6	0	10	7	7	7	4	4	10	10	7	68.6
1,401-1,600	9	8	0	11	8	8	6	4	4	10	12	8	78.4
1,601-1,800	10	9	0	13	9	9	9	4	4	12	13	9	88.2
1,801+	18	18	0	21	18	18	16	6	6	20	25	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-12. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 15 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-579	0	0	0	0	0	0	0	0	0	0	0	0	84.0
580-798	0	0	0	0	0	0	0	0	0	0	0	3	29.4
779-1,064	1	1	0	0	0	0	0	0	0	0	0	4	39.2
1,065-1,330	1	0	0	0	1	1	0	0	0	0	0	5	49.0
1,331-1,596	1	1	0	0	0	0	0	0	0	0	0	6	58.8
1,597-1,862	2	1	0	0	1	0	1	0	0	0	0	7	68.6
1,863+	3	3	0	0	2	3	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-13. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 15 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-200	1	1	1	1	1	1	1	1	1	1	1	0	22.5
201-266	0	0	0	0	0	0	0	0	0	0	0	1	9.8
267-532	0	0	0	0	0	0	0	0	0	0	0	2	19.6
533-798	0	0	0	0	0	0	0	0	0	0	0	3	29.4
799-1,064	1	1	0	0	0	0	0	0	0	0	0	4	39.2
1,065-1,330	1	0	0	0	1	1	0	0	0	0	0	5	49.0
1,331-1,596	1	1	0	0	0	0	0	0	0	0	0	6	58.8
1,597-1,862	2	1	0	0	1	0	1	0	0	0	0	7	68.6
1,863+	3	3	0	0	2	3	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-14. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 20 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-150	1	1	1	3	1	2	3	4	3	5	3	0	22.5
151-300	0	0	0	3	0	0	0	2	2	4	2	2	19.6
301-450	1	1	0	3	0	1	0	1	2	4	3	3	29.4
451-600	2	2	0	4	1	0	1	2	2	4	4	4	39.2
601-750	2	1	0	5	2	2	0	2	2	4	4	5	49.0
751-900	3	2	0	6	3	1	3	2	2	5	5	6	58.8
901-1,050	4	3	0	6	3	4	3	2	2	6	6	7	68.6
1,051-1,200	5	4	0	7	4	3	2	2	2	6	8	8	78.4
1,201-1,350	5	4	0	8	5	5	5	2	2	7	8	9	88.2
1,351-1,500	6	5	0	9	6	4	4	2	2	8	9	10	98.0
1,501-1,650	7	7	0	9	6	7	5	2	2	8	11	11	107.8
1,651-1,800	7	7	0	10	7	6	7	2	2	10	11	12	117.6
1,801+	14	14	0	17	14	14	12	2	2	16	21	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-15. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 20 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-434	0	0	0	0	0	0	0	0	0	0	0	0	84.0
435-600	0	0	0	0	0	0	0	0	0	0	0	3	29.4
601-800	0	0	0	0	0	0	0	0	0	0	0	4	39.2
801-1,000	0	0	0	0	0	0	0	0	0	0	0	5	49.0
1,001-1,200	0	0	0	0	0	0	0	0	0	0	0	6	58.8
1,201-1,400	0	0	0	0	0	0	0	0	0	0	0	7	68.6
1,401-1,600	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,601-1,800	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,801+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-16. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 20 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-150	1	1	1	1	1	1	1	1	1	1	1	0	22.5
151-200	0	0	0	0	0	0	0	0	0	0	0	1	9.8
201-400	0	0	0	0	0	0	0	0	0	0	0	2	19.6
401-600	0	0	0	0	0	0	0	0	0	0	0	3	29.4
601-800	0	0	0	0	0	0	0	0	0	0	0	4	39.2
801-1,000	0	0	0	0	0	0	0	0	0	0	0	5	49.0
1,001-1,200	0	0	0	0	0	0	0	0	0	0	0	6	58.8
1,201-1,400	0	0	0	0	0	0	0	0	0	0	0	7	68.6
1,401-1,600	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,601-1,800	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,801+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-17. The number of ventilation kits required to supply and distribute air to a belowground shelter story requiring 25 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-125	1	2	1	2	2	3	2	3	1	3	3	0	22.5
126-250	0	0	0	2	0	1	1	2	2	4	2	2	19.6
251-375	1	1	0	3	0	1	0	1	2	4	3	3	29.4
376-500	1	1	0	4	1	0	1	0	2	4	3	4	39.2
501-625	1	1	0	3	0	0	0	1	1	3	3	5	49.0
626-750	2	1	0	5	2	2	0	2	2	4	4	6	58.8
751-875	2	1	0	5	2	0	1	1	1	4	4	7	68.6
876-1,000	3	2	0	5	2	3	2	1	1	5	5	8	78.4
1,001-1,125	3	3	0	6	3	2	1	1	1	5	6	9	88.2
1,126-1,250	3	2	0	6	3	2	2	1	0	5	6	10	98.0
1,251-1,375	4	3	0	6	3	3	3	0	0	6	7	11	107.8
1,376-1,500	4	3	0	7	4	2	2	0	0	6	7	12	117.6
1,501-1,625	5	5	0	7	4	5	2	0	0	6	9	13	127.4
1,626-1,750	5	4	0	8	5	4	1	0	0	8	9	14	137.2
1,751-1,875	5	5	0	8	5	5	1	0	0	8	9	15	147.0
1,876+	10	10	0	13	10	10	8	0	0	12	17	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-18. The number of ventilati kits required to supply and distribute air to an aboveground shelter story (best case) requiring 25 CFM per occupant, as a function story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-347	0	0	0	0	0	0	0	0	0	0	0	0	84.0
348-480	0	0	0	0	0	0	0	0	0	0	0	3	29.4
481-640	0	0	0	0	0	0	0	0	0	0	0	4	39.2
641-800	0	0	0	0	0	0	0	0	0	0	0	5	49.0
801-960	0	0	0	0	0	0	0	0	0	0	0	6	58.8
961-1,120	0	0	0	0	0	0	0	0	0	0	0	7	68.6
1,121-1,280	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,281-1,440	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,441-1,600	0	0	0	0	0	0	0	0	0	0	0	10	98.0
1,601-1,760	0	0	0	0	0	0	0	0	0	0	0	11	107.8
1,761-1,920	0	0	0	0	0	0	0	0	0	0	0	12	117.6
1,920+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-19. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 25 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Clearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-120	1	1	1	1	1	1	1	1	1	1	1	0	84.0
121-160	0	0	0	0	0	0	0	0	0	0	0	1	9.8
161-320	0	0	0	0	0	0	0	0	0	0	0	2	19.6
321-480	0	0	0	0	0	0	0	0	0	0	0	3	29.4
481-640	0	0	0	0	0	0	0	0	0	0	0	4	39.2
641-800	0	0	0	0	0	0	0	0	0	0	0	5	49.0
801-960	0	0	0	0	0	0	0	0	0	0	0	6	58.8
961-1,120	0	0	0	0	0	0	0	0	0	0	0	7	68.6
1,121-1,280	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,281-1,440	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,441-1,600	0	0	0	0	0	0	0	0	0	0	0	10	98.0
1,601-1,760	0	0	0	0	0	0	0	0	0	0	0	11	107.8
1,761-1,920	0	0	0	0	0	0	0	0	0	0	0	12	117.6
1,920+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-20. The number of ve. ilation kits required to supply and distribute air to a belowground shelter story requiring 30 CFM per cccupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-100	1	2	1	2	2	3	2	3	1	3	3	0	22.5
101-200	0	0	0	2	0	1	2	3	2	4	2	2	19.6
201-300	0	0	0	3	0	0	0	1	2	4	2	3	29.4
301-400	0	0	0	2	0	0	0	0	1	3	2	4	39.2
401-500	0	0	0	3	0	0	0	0	1	3	2	5	49.0
501-600	1	1	0	3	0	0	0	1	1	3	3	6	58.8
601-700	1	0	0	4	1	1	0	1	1	3	3	7	68.6
701-800	1	0	0	3	0	0	0	0	0	2	3	8	78.4
801-900	1	0	0	4	1	0	1	0	0	4	3	9	88.2
901-1,000	1	0	0	3	0	1	0	0	0	3	3	10	98.0
1,001-1,100	2	2	0	5	2	1	0	0	0	4	5	11	107.8
1,101-1,200	2	1	0	4	1	0	0	0	0	3	5	12	117.6
1,201-1,300	2	1	0	5	2	2	2	0	0	5	5	13	127.4
1,301-1,400	2	1	0	4	1	1	1	0	0	4	5	14	137.2
1,401-1,500	2	1	0	5	2	0	0	0	0	4	5	15	147.0
1,501-1,600	3	3	0	5	2	3	0	0	0	4	7	16	156.8
1,601-1,700	3	2	0	6	3	2	0	0	0	6	7	17	166.6
1,701-1,800	3	2	0	6	3	2	0	0	0	6	7	18	176.4
1,801+	6	6	0	9	6	6	4	0	0	8	13	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-21. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (best case) requiring 30 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required: Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-289	0	0	0	0	0	0	0	0	0	0	0	0	84.0
290-399	0	0	0	0	0	0	0	0	0	0	0	3	29.4
400-532	0	0	0	0	0	0	0	0	0	0	0	4	39.2
533-665	0	0	0	0	0	0	0	0	0	0	0	5	49.0
666-798	0	0	0	0	0	0	0	0	0	0	0	6	58.8
799-931	0	0	0	0	0	0	0	0	0	0	0	7	68.6
932-1,064	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,065-1,197	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,198-1,330	0	0	0	0	0	0	0	0	0	0	0	10	98.0
1,331-1,463	0	0	0	0	0	0	0	0	0	0	0	11	107.8
1,464-1,596	0	0	0	0	0	0	0	0	0	0	0	12	117.6
1,597-1,729	0	0	0	0	0	0	0	0	0	0	0	13	127.4
1,730-1,862	0	0	0	0	0	0	0	0	0	0	0	14	137.2
1,863+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

Table III-22. The number of ventilation kits required to supply and distribute air to an aboveground shelter story (worst case) requiring 30 CFM per occupant, as a function of story size and configuration

Size Category (spaces/shelter story)	Kearny pumps required — Shelter Story Configuration											PVKs required	Exterior Aperture Area Required (ft^2)
	1a	1b	1c	2	3a	3b	3c	3d	4	5	6		
0-100	1	1	1	1	1	1	1	1	1	1	1	0	22.5
101-133	0	0	0	0	0	0	0	0	0	0	0	1	9.8
134-266	0	0	0	0	0	0	0	0	0	0	0	2	19.6
267-399	0	0	0	0	0	0	0	0	0	0	0	3	29.4
400-532	0	0	0	0	0	0	0	0	0	0	0	4	39.2
533-665	0	0	0	0	0	0	0	0	0	0	0	5	49.0
666-798	0	0	0	0	0	0	0	0	0	0	0	6	58.8
799-931	0	0	0	0	0	0	0	0	0	0	0	7	68.6
932-1,064	0	0	0	0	0	0	0	0	0	0	0	8	78.4
1,065-1,197	0	0	0	0	0	0	0	0	0	0	0	9	88.2
1,198-1,330	0	0	0	0	0	0	0	0	0	0	0	10	98.0
1,331-1,463	0	0	0	0	0	0	0	0	0	0	0	11	107.8
1,464-1,596	0	0	0	0	0	0	0	0	0	0	0	12	117.6
1,597-1,729	0	0	0	0	0	0	0	0	0	0	0	13	127.4
1,730-1,862	0	0	0	0	0	0	0	0	0	0	0	14	137.2
1,863+	0	0	0	0	0	0	0	0	0	0	0	*	†

*Calculated on basis of average size of shelter stories in last Size Category.

†Calculated from number of PVKs required.

- One Kearny pump or PVK ventilates at most two adjacent dead-end rooms (an aperture can be made in the wall between them).

- A PVK can be placed to distribute air (instead of a Kearny pump) as well as to exhaust stale air, reducing the requirement for Kearny pumps in shelters needing several PVKs.

The following assumptions pertaining to specific room configurations were made:

- The small room in Configuration 1b consists of 25 percent of the area of the large room.

- The large area in Configuration 2 consists of 50 percent of the total area of the story.

- The remaining 50 percent of Configuration 2 is partitioned as follows: 100 spaces, 3 rooms; 200 to 300 spaces, 4 rooms; 400 to 500 spaces, 5 rooms; 600 to 700 spaces, 6 rooms; 800 to 900 spaces, 7 rooms; 1,000 to 1,100 spaces, 8 rooms; 1,200 to 1,300 spaces, 9 rooms; 1,400 to 1,500 spaces, 10 rooms; 1,600 spaces, 11 rooms; and 3,000 spaces, 18 rooms.

- Configuration 3d is partitioned as follows: 100 to 500 spaces, 5 rooms; 600 to 700 spaces, 6 rooms; 800 to 900 spaces, 7 rooms; 1,000 to 1,100 spaces, 8 rooms; 1,200 to 1,300 spaces, 9 rooms; 1,400 to 1,500 spaces, 10 rooms; 1,600 spaces, 11 rooms; and 3,000 spaces, 18 rooms.

- The hall in Configuration 4 contains 20 percent of the area of the story, and the remainder of the story is divided into rooms in the same manner as in Configuration 2.

- The large areas in Configuration 5 contain 50 percent of the area of the story, and the remainder of the story is divided into rooms in the same manner as in Configuration 2.

- Configuration 6 consists of 10 percent corridor, 20 percent large area, and 70 percent partitioned into rooms of comparable size as follows: 100 spaces, 2 rooms, 200 spaces, 3 rooms; 300 spaces, 4 rooms; 400 spaces, 5 rooms; 500 spaces, 6 rooms, etc., up to 3,000 spaces, 31 rooms.

The "Exterior Aperture Area Required" column in Tables III-2 through III-22 reveals on interesting paradox. Shelter stories with limited aperture area (e.g., belowground stories) require greater equivalent duct lengths than

shelter stories with adequate aperture area to aid in distributing fresh air. The greater equivalent duct lengths lower the capacity of the PVK, which in some cases results in more PVKs being required, leading to a greater exterior aperture requirement. It may not be possible to use some shelter stories to their fullest capacity because of a lack of exterior aperture area or because of exterior aperture configuration. Similarly, a factor to consider in fallout upgrading is the provision of sufficient inlet and outlet apertures. It is conceivable that the capacity of shelter stories requiring a great deal of fallout upgrading could be limited because of insufficient exterior aperture area.

IV. COUNTERFORCE RISK AND HOST AREA VENTILATION KIT REQUIREMENTS

Counterforce risk- and host-area ventilation kit requirements are a function of the counterforce area characteristics (the populations to be sheltered and the county zonal ventilation requirements) and the ventilating characteristics of the available risk- and host-area shelter facilities. The following subsections include a description of the counterforce risk- and host-area characteristics, the methodology followed in determining shelter availability and ventilating characteristics, and the calculation of ventilation kit requirements.

A. Counterforce Area Characteristics

Table IV-1 presents counterforce risk- and host-area characteristics. Counterforce installations were drawn from the Category I risk areas listed in the unclassified TR-82 High Risk Areas [13], which the Federal Emergency Management Agency (FEMA) revised in the spring of 1981 to include 13 additional target installations and to delete 6. Table IV-2 shows these revisions. Military personnel figures in Table IV-1 came from the Department of Defense [14] and do not include the counterforce civilian risk population. County zonal ventilation requirements (ZVRs) were obtained from the PVK Survey Instructions [15]. Counties with counterforce risk populations listed in Table IV-1 were identified by plotting critical overpressure boundaries (2 psi or greater) on topographic maps as described below. The Rapid Enhancement Plan A, 1980 Conglomerate Listing was the source of conglomerate host counties, hosting ratios (note that many counties contain both risk and host areas), and the conglomerate 1980 risk population estimates. The Conglomerate Listing contains data for all high-risk areas in the United States, including counterforce military installations, other military installations, basic

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Loring AFB	ME	Aroostok	11,518	0.33	23,869	3,819	3,250	8
Portsmouth NF	ME	York	23,462	0.36	20,174	7,862	235	8
Westover AFB	MA	Hampden	248,744	2.57	370,464	767	80	10
		Hampshire	23,447	3.71	63,419			
		Franklin		3.57				
	CT	Hartford	80,666					
		Tolland	18,291					
		Litchfield		4.73				
	NY	Essex		2.57				
	VT	Lamoille		3.71				8
Otis AFB	MA	Barnstable	37,066	3.94	34,514	657	111	10
Groton NF	CT	New London	75,921		129,161	7,121	4,434	10
		Fairfield		4.73				
	VT	Windsor		4.55				8
Pease AFB	NH	Rockingham	54,269		117,339	4,101	3,408	10
		Strafford	7,663	1.74	33,562			
		Merrimack		8.34				
		Carroll		8.52				
		Hillsborough		2.34				
McGuire AFB	NJ	Burlington	65,872		342,541	6,862	4,801	10
		Camden			476,657			
		Gloucester			165,829			
		Cape May		8.49				
	PA	Centre		3.58				
		Clearfield		4.99				
Plattsburgh AFB	NY	Clinton	41,466	1.49	56,811	4,280	3,849	8
Griffis AFB	NY	Oneida	62,406	3.68	204,176	6,536	3,718	10
		Herkimer		3.28	11,189			
Norfolk NF	VA	Norfolk City	240,281		263,149	30,236	15,565	15
		Chesapeake City	34,268		120,295			
		Va. Beach City	26,220		275,343			
		Portsmouth City	104,577		105,118			
		Isle of Wight		1.32	9,109			

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Norfolk NF (continued)	VA	Suffolk City		2.74				15
		Brunswick		1.63				
		Charles City		0.85				
		Emporia City		3.18				
		Franklin City		1.66				
		Greensville		1.81				
		Halifax		1.69				
		Lunenburg		1.62				
		Mecklenburg		2.69				
		Northampton		1.10				
		South Boston City		4.59				
		Southampton		1.28				
		Surry		1.08				
		Sussex		1.48				
	NC	Dare		6.03				
		Hertford		1.55				
		Bertie		1.54				
		Halifax		1.55				
		Warren		1.10				
		Vance		1.61				
Homestead AFB	FL	Dade	109,734		1,632,494	300	275	30
		Collier		1.94				
		Charlotte		2.58				
		DeSoto		2.06				
		Glades		2.30				
		Hardee		2.37				25
		Hendry		2.42				30
		Highlands		2.41				
		Manatee		2.40				25
		Polk		2.96				
		Sarasota		2.94				25
MacDill AFB	FL	Hillsborough	13,932		696,620	6,801	5,905	25
		Pinellas		0.99	459,121			
		Citrus		1.51				
		Hernando		1.51				
		Marion		1.51				
		Pasco		1.78				
		Sumter		1.49				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Eglin AFB	FL	Okaloosa	83,065		67,205	11,956	8,300	20
		Santa Rosa			26,555			
		Walton		1.97				
		Holmes		1.87				
		Washington		1.97				
Kings Bay NF	GA	Camden	4,687	0.09	6,156	516	363	20
		Charlton		0.09				
	FL	Nassau		3.24	17,174			
Robins AFB	GA	Bibb	5,928		142,079	17,766	3,948	20
		Peach	2,029	1.39	2,155			
		Houston	62,291	1.37	64,368			
		Twiggs	2,802	1.01	2,153			
		Baldwin		1.69				
		Bleckley		1.56				
		Dodge		0.56				
		Laurens		1.57				
		Monroe		1.13				
		Pulaski		0.97				
Columbus AFB	MS	Clay	1,589		12,739	3,206	2,721	20
		Lowndes	14,073		50,426			
		Monroe	1,118	0.08	2,680			
		Oktibbeha		1.42				
		Lee		0.25				
Seymour Johnson AFB	NC	Wayne	62,459	0.54	64,152	5,376	4,985	15
		Pitt		0.70				
Charleston NF	SC	Berkeley	280	1.73	42,547	16,566	4,772	20
		Charleston	236,140	0.08	238,708			
		Colleton		1.62				
		Dorchester		1.34				
		Georgetown		1.17				
		Williamsburg		1.28				
Grissom AFB	IN	Cass	6,463	0.14	4,760	2,682	1,987	10
		Miami	24,450		12,727			
		Howard		0.14				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
K I Sawyer AFB	MI	Marquette	11,944	0.28	37,736	4,125	3,761	8
		Dickinson		0.47				
		Alger		1.58				
Wurtsmith AFB	MI	Alcona	108	3.45	1,960	2,964	2,704	8
		Iosco	13,750	4.60	18,176			
Rickenbacker AFB	OH	Fairfield	4,090	1.45	16,565	1,120	478	10
		Franklin	32,735		898,390			
		Pickaway	9,111	1.77	28,580			
		Delaware		2.08	20,727			
		Licking		1.74	14,026			
		Madison		2.04	9,762			
		Hocking		1.83				
		Monroe		1.97				
		Morgan		2.17				
		Noble		1.61				
		Perry		1.87				
		Ross		1.43				
		Union		2.10				
		Washington		1.88				
		Fayette		2.24				
Wright-Patterson AFB	OH	Clark	8,363	0.05	119,197	23,876	7,690	10
		Greene	60,700	1.72	79,900			
		Miami	1,413	2.18	14,408			
		Montgomery	116,153		538,737			
		Butler		5.92	225,201			
		Warren		1.71	56,326			
		Champaign		1.59				
		Logan		1.59				
		Clinton		2.17				
		Darke		2.17				
		Preble		2.36				
		Shelby		2.17				
Blytheville AFB	AR	Mississippi	30,759	0.10	31,214	2,931	2,572	20
		Clay		0.17				
		Craighead		0.18				
		Greene		0.11				
		Lawrence		0.19				
		Randolph		0.22				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Little Rock AFB	AR	Conway	19,376		18,580	6,844	6,225	20
		Cleburne	13,535		18,769			
		Faulkner	46,192		46,815			
		Independence	1,034	0.23	2,286			
		Jackson	1,033		2,159			
		Lonoke	1,948		36,341			
		Perry	3,273		8,198			
		Pope	7,396		15,252			
		Pulaski	27,599		365,887			
		Van Buren	9,326		11,572			
		White	48,376		54,252			
		Woodruff	2,547	0.96	3,922			
		Pope		0.28				
		Baxter		0.15				15
		Boone		0.19				
		Fulton		0.46				
		Izard		0.57				20
		Jackson		1.09				
		Johnson		1.71				
		Logan		2.00				
		Marion		0.21				15
		Newton		0.27				20
		Poinsett		1.02				
		Scott		0.68				
		Searcy		0.13				
		Sharp		0.37				
		Stone		0.18				
		Yell		0.15				
		Calhoun		1.15				25
		Clark		1.17				20
		Dallas		1.25				
		Garland		1.17				
		Grant		0.49				
		Hot Springs		0.72				
		Howard		1.28				
		Monroe		0.96				
		Montgomery		0.82				
		Nevada		1.22				
		Ouachita		1.27				25
		Pike		1.34				20
		Polk		1.28				
		Prairie		0.33				
		Saline		0.67				
		Sevier		1.27				
		Union		1.28				
		Phillips		0.79				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Barksdale AFB	LA	Caddo	177,005		218,726	6,352	5,477	25
		Bossier	31,814		62,945			
		Bienville		0.97				
		Claiborne		0.93				
		DeSoto		1.23				
		Jackson		0.89				
		Lincoln		1.89				
		Natchitoches		1.31				
		Red River		1.03				
		Webster		1.65				
		Sabine		2.72				30
Kirtland AFB	NM	Bernalillo	370,838	0.57	419,700	6,398	4,204	8
		Colfax		1.58				10
		Guadalupe		1.81				
		Los Alamos		1.45				8
		Mora		0.66				10
		Rio Arriba		1.31				8
		Sandoval		2.06				
		Santa Fe		1.06				
		Socorro		2.07				10
		Taos		1.39				8
		Torrance		1.79				10
		Valencia		2.00				
		San Miguel		0.80				
Altus AFB	OK	Jackson	24,461		32,398	4,061	3,467	15
		Kiowa		1.41				20
		Tillman		1.42				
Clinton Sherman AFB	OK	Washita	5,111		5,038			20
		Beckham		0.19				15
		Custer		1.42				
Tinker AFB	OK	Cleveland	17,532	5.12	98,955	22,388	5,088	20
		Oklahoma	85,040	0.30	472,536			
		Canadian			45,973			
		Blaine		0.26				
		Carter		0.96				25
		Custer		1.42				15
		Garvin		0.38				20
		Grady		0.90				
		Kingfisher		0.57				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Tinker AFB (continued)		Logan		1.34				20
		McClain		0.64				
		Murray		1.24				25
		Payne		1.99				20
		Pontotoc		1.75				
		Pottawatomie		1.14				
		Seminole		0.80				
Bergstrom AFB	TX	Travis	196,799	1.62	415,512	4,950	4,164	25
		Bastrop		2.48				
		Hays		3.03				
		Williamson		2.97				
Carswell AFB	TX	Tarrant	154,667	0.75	733,614	5,549	4,614	30
		Johnson		2.48	32			
		Parker		2.77	670			25
		Baylor		2.15				20
		Childress		3.37				15
		Comanche		1.89				20
		Cottle		3.00				15
		Crosby		1.49				
		Dickens		2.69				
		Eastland		3.91				20
		Erath		2.74				25
		Floyd		1.85				15
		Foard		2.31				20
		Hall		3.17				15
		Hardeman		2.18				20
		Haskell		3.20				
		Hood		2.84				25
		Kent		1.72				15
		Knox		2.75				20
		Motley		3.45				15
		Palo Pinto		2.76				25
		Shackelford		1.43				20
		Somervell		2.83				25
		Stephens		3.13				20
		Stonewall		2.58				15
		Throckmorton		2.37				20

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Dyess AFB	TX	Taylor	74,847		98,702	5,530	4,881	20
		Jones		3.24	4,128			
		Callahan		1.37				
		Fisher		2.44				15
		Nolan		2.54				
Sheppard AFB	TX	Wichita	106,956		117,623	9,686	8,063	20
		Archer		2.94				
		Clay		1.54				25
		Wilbarger		4.87				20
	OK	Jefferson		2.42				
Forbes AFB	KS	Osage		1.24		354	2	15
		Shawnee	60,538	1.24	140,302			
		Wabaunsee		1.20				
		Morris		1.24				
		Lyon		2.84				
		Coffey		1.24				
McConnell AFB	KS	Butler	41,406		40,020	3,834	3,327	15
		Cowley	32,764	1.65	14,599			
		Harper	3,029	0.71	2,463			
		Harvey	1,257		29,887			
		Kingman	7,780	2.78	7,512			
		Sedgewick	338,689		335,667			
		Sumner	22,228		22,878			
		Reno	6,275		3,742			
		Ellis		2.69				
		Rush		2.78				
		Barton		2.78				
		Rice		2.78				
		McPherson		2.78				
		Marion		2.78				
		Pawnee		2.78				
		Stafford		2.78				
		Edwards		2.78				
		Kiowa		2.78				
		Pratt		2.78				
		Barber		2.60				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Blytheville AFB	MO	Pemiscot	1,602	0.26	5,539			15
		Dunklin		0.11	2,962			
Whiteman AFB	MO	Cass	16,943		57,532			15
		Clay	140,826					
		Jackson	623,820					
		Platte	44,689					
		Bates	15,873		16,419	3,594	3,111	
		Benton	8,810		13,533			
		Cedar	10,253		11,854			
		Cooper	13,545		14,397			
		Henry	19,672		19,134			
		Johnson	39,059		34,220			
		Lafayette	29,925		30,114			
		Moniteau	9,426		12,265			
		Morgan	10,921		14,708			
		Pettis			36,544			
		Saline	20,435		22,766			
		St. Clair	6,052		11,586			
		Howard		2.12				
		Laclede		2.12				
		Maries		1.76				
		Osage		2.01				
		Pulaski		0.75				
		Randolph		2.13				
		Texas		2.32				
		Barry		2.50				
		Barton		2.48				
		Christian		2.48				
		Dade		1.71				
		DeKalb		2.17				
		Gentry		2.14				
		Grundy		2.14				
		Harrison		2.16				
		Jasper		2.60				
		Lawrence		2.16				
		Linn		2.16				
		McDonald		2.51				
		Mercer		2.17				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Whiteman AFB (continued)	MO	Newton		2.66				15
		Putnam		2.12				
		Stone		2.52				
		Sullivan		2.20				
		Taney		2.47				
		Worth		2.17				
Offutt AFB	NE	Cass		1.41		13,176	11,526	15
		Douglas	39,297		419,579			
		Sarpy	61,082		73,135			
		Madison		1.72				10
		Stanton		1.25				
		Cuming		1.37				15
		Burt		1.28				
		Boone		1.46				10
		Greeley		1.23				
		Custer		1.33				15
		Colfax		1.26				
		Dodge		1.29				
		Washington		1.24				
		Nance		0.96				
		Sherman		0.67				10
		Howard		1.06				
		Merrick		1.36				15
		Polk		1.47				
		Butler		1.50				
		Saunders		1.25				
		Buffalo		1.75				10
		Hall		1.60				15
		Otoe		1.41				
		Wayne		1.82				10
Warren AFB	NE	Banner	918		782			8
		Cheyenne	10,057		10,807			
		Deuel		0.58				
		Kimball	4,882		4,828			
		Morrill		0.25				
		Scotts Bluff	9,036		19,981			
		Sioux		0.09				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Warren AFB (continued)	NE	Box Butte		0.93				
		Keith		0.60				10
		Lincoln		0.34				
		Dawes		0.49				8
Lowry AFB/ Buckley Field	CO	Adams	29,193	0.70	245,169	11,295	7,398	8
		Arapahoe	275,849	1.73	273,335			
		Denver	49,140		464,794			
		Boulder		2.10	153,285			
		Jefferson		0.83	307,833			
		Douglas		0.94	5,921			
		Moffat		3.12				
		Routt		3.12				
		Jackson		3.12				
		Larimer		2.64				
		Grand		3.12				
		Rio Blanco		3.12				
		Garfield		3.19				
		Eagle		3.12				
		Summit		3.23				
		Gilpin		2.71				
		Clear Creek		2.68				
		Mesa		2.49				
		Delta		2.55				
		Pitkin		3.19				
		Lake		3.19				
		Park		3.19				
		Montrose		2.55				
		San Miguel		2.55				
		Ouray		2.55				
		Dolores		2.55				
		San Juan		2.55				
		Montezuma		2.55				
Peterson AFB	CO	El Paso	279,768	0.86	284,075	2,448	1,648	8
		Teller		2.46				
		Gunnison		2.28				
		Chaffee		2.08				
		Fremont		1.85				
		Saguache		1.07				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Peterson AFB (continued)	CO	La Plata		2.01				8
		Mineral		1.44				
		Rio Grande		2.15				
		Archuleta		2.20				
Warren AFB	CO	Logan	17,745		18,990			
		Morgan	1,180	0.11	2,197			8
		Weld	1,256	0.96	81,489			
		Yuma		3.44				10
		Kit Carson		3.22				
Malmstrom AFB	MT	Cascade	80,696		87,561			8
		Chouteau	287	0.20	1,122			
		Fergus	13,076		13,102			
		Judith Basin	2,646		2,777			
		Lewis & Clark	671	0.86	1,780			
		Pondera	6,572		7,226		•	
		Teton	6,491		6,956			
		Toole	786		3,313			
		Wheatland	2,177		2,138			
		Hill		0.83				
		Glacier		0.95				
		Flathead		0.70				
		Musselshell		0.38				
Grand Forks AFB	ND	Benson			2,325			8
		Barnes	2,770		10,467	5,440	4,944	
		Cass	1,232		2,141			
		Eddy			691			
		Cavalier	7,473		17,741			
		Grand Forks	43,174		63,780			
		Griggs	3,714		3,900			
		Nelson	5,233		5,610			
		Ramsey	9,946		13,981			
		Steele	3,106		3,474			
		Walsh	9,519		16,234			
		Burleigh		1.36				
		Kidder		1.36				
		Stutsman		2.60				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Minot AFB	ND	Bottineau	905		10,258	5,889	5,305	8
		Burke	732		3,813			
		McHenry	1,174		8,387			
		McLean	1,972		11,833			
		Mercer		1..8				
		Mountrail	7,622		8,312			
		Renville	3,608		3,757			
		Sheridan	65		3,460			
		Ward	23,689		62,219			
		Divide		0.26				
		Williams		1.18				
		Oliver		1.18				
		Stark		1.86				
		Morton		1.70				
		Hettinger		1.12				
Ellsworth AFB	SD	Butte	8,372		8,964	6,507	5 934	8
		Haakon	825		2,637			
		Jackson	3,437		1,765			
		Lawrence	18,339		16,068			
		Meade	20,662		19,226			
		Pennington	27,427		76,395			
		Perkins	159		4,761			
		Brule		1.67				
		Charles Mix		1.79				10
		Hand		1.62				8
		Hyde		1.60				
		Stanley		1.95				
		Buffalo		1.83				
		Gregory		1.72				10
		Hughes		2.00				8
		Lyman		1.79				
		Tripp		1.71				
		Douglas		1.34				10
		Bon Homme		1.41				
Hill AFB	UT	Davis	126,652		129,751	18,645	5,145	8
		Weber	114,351	1.01	124,062			
		Tooele		2.55	19,355			
		Utah		1.38	175,042			

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Hill AFB (continued)	UT	Salt Lake			576,060			8
		Box Elder		3.86				
		Cache		3.66				
		Rich		3.74				
		Summit		3.37				
		Daggett		4.32				
		Duchesne		1.05				
		Uintah		1.05				
		Juab		2.20				
		Sanpete		3.33				
		Carbon		3.66				
		Millard		3.91				
		Sevier		3.04				
		Emery		2.86				
		Grand		2.05				
		Beaver		2.32				
		Piute		3.93				
		Wayne		1.05				
		San Juan		2.93				
		Iron		4.98				
		Garfield		3.39				
		Washington		5.53				
		Kane		3.48				
Warren AFB	WY	Goshen	8,564		12,073	4,028	3,711	8
		Laramie	10,119		71,290			
		Platte	9,393		5,461			
		Weston		1.16				
		Niobrara		1.16				
		Converse		0.77				
		Albany		1.43				
		Carbon		1.44				
Davis-Monthan AFB	AZ	Cochise	9,459	2.59	6,321	6,669	5,211	15
		Pima	525,285	0.44	506,896			
		Pinal	1,021	1.77	7,125			
		Santa Cruz		4.28	3,254			
		Greenlee		2.89				10
		Graham		2.48				15
		Gila		3.64				

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Mather AFB/ Beale AFB	CA	Sacramento	216,858	1.38	713,409	6,188	4,823	8
		Yuba	20,281	1.23	14,001	4,580	3,985	
		Placer		1.37	38,206			
		El Dorado		1.36				
		Alpine		1.82				
		Nevada		1.40				
		Sierra		2.28				
		Alameda		1.37				
		Butte		1.37				
Castle AFB/ Sunnyvale AFB	CA	Merced	72,866	2.00	80,431	5,653	5,200	10
		Monterey		2.64	213,461			8
		Santa Cruz		2.65	3,521			
		San Mateo		1.38	583,423			
		Santa Clara	448,932	1.69	1,172,422	1,840	853	
		San Benito		2.64				
		Madera		2.64				10
		Mariposa		2.60				
		Stanislaus		0.45				8
		Tuolumne		2.64				
		San Joaquin		0.60				
		Calaveras		0.88				
		Amador		2.64				
March AFB/ San Diego NF	CA	Riverside	103,412	5.59	323,558	5,097	4,146	15
		Los Angeles		5.57	6,792,166			10
		Orange		5.59	1,894,580			
		San Diego		5.42	1,522,840	58,715	40,021	
		San Bernardino		5.62	585,758			15
		Ventura		5.62	369,184			8
		Santa Barbara		3.99	168,853			
		San Luis Obispo		3.78				10
		Kern		4.48	233,149			
		Tulare		3.78				
		Kings		3.83	11,195			
		Fresno		4.12	331,965			
		Inyo		3.78				
		Mono		3.73				3
		Imperial		5.59	34,106			15

[a]ZVR = Zonal Ventilation Requirement.
Source: See note at end of table.

TABLE IV-1. COUNTERFORCE RISK AND HOST AREA CHARACTERISTICS (Continued)

Counterforce Installation	State	Conglomerate Risk/Host County	Civilian Counterforce Risk Population	Hosting Ratio	Conglomerate 1980 Risk Population Estimate	Military Personnel		ZVR
						Total DOD	Total Military	
Travis AFB/ Mare Island NF	CA	Contra Costa	37,078	2.54	586,318	1,746	1,746	8
		Solano	108,350	2.38	114,802	10,944	8,573	
		Alameda		2.36	904,585			
		Yolo		3.02	53,939			
		Colusa		2.58				
		Glenn		2.52				
		Shasta		2.27				
		Tehama		2.35				
Pearl Harbor NF	HI	Honolulu	445,570		365,300	15,308	7,043	20
		Hawaii		3.18				
		Kauai		2.86				
Nellis AFB	NV	Clark	124,603	33.55	398,264	8,697	7,765	15
		Lincoln		21.17				10
		Nye		26.87				
Eielson AFB	AK	Fairbanks-North Star Borough	5,537	0.15	5,000	2,637	2,637	5
Mountain Home AFB	ID	Elmore	3,721		19,275	4,616	4,110	8
		Twin Falls		0.37				
Bremerton NF	WA	Kitsap	108,726		133,555	12,852	1,268	8
		Clallam		2.43				
		Jefferson		1.45				
Fairchild AFB	WA	Spokane	38,147	0.62	301,537	4,766	3,895	8
		Pend Oreille		1.29				
		Stevens		1.29				
		Whitman		2.61				
	ID	Bonner		0.97				
		Latah		1.55				
		Nez Perce		0.93				
		Shoshone		0.96				

[a]ZVR = Zonal Ventilation Requirement.

NOTE: Conglomerate Risk/Host Counties, Hosting Ratios, and Conglomerate 1980 Risk Population estimates come from the Rapid Enhancement Plan A, 1980 Conglomerate Listing. Conglomerate counties with civilian counterforce risk population were identified by plotting 2 psi or greater overpressure boundaries or topographic maps and Civilian Counterforce Risk Populations were estimated from Advance Reports of the 1980 Census of Populations and Housing. Military Personnel came from Distribution of Personnel by State - by Selected Locations and the Zonal Ventilation Requirements are listed in the PVK Survey Instructions.

TABLE IV-2. REVISIONS TO THE TR-82 COUNTERFORCE LIST

Deletions		Additions	
State	Facility	State	Facility
Kansas	Shilling AFB	California	Mare Island NF
Louisiana	Fort Polk	California	Mather AFB
Michigan	Kenslow AFB	California	San Diego NF
Montana	Glasgo AFB	Colorado	Buckley ANGB
New Mexico	Roswell AFB	Colorado	Peterson AFB
Texas	Amarillo AFB	Connecticut	Groton NF
		Florida	Eglin AFB
		Nebraska	Offutt AFB
		Nevada	Nellis AFB
		New Jersey	McQuire AFB
		New Mexico	Kirtland AFB
		Oklahoma	Tinker AFB
		Virginia	Norfolk NF

industries, and population concentrations of 50,000 or greater. Table IV-3 is an example page from the Conglomerate Listing.

Since many of the counterforce installations are within conglomerates defined by population concentrations, the risk population in the Conglomerate Listing could not be used to represent the counterforce civilian risk population. Therefore, a procedure was developed to identify the counterforce risk areas and associated civilian risk populations. The procedure involved the use of an unclassified attack scenario developed by FEMA [16] to identify geographic areas subject to blast overpressures of 2 psi or greater. Census data were then used to estimate civilian risk populations within these geographic areas.

Military installations identified as counterforce targets are associated with U.S. strategic nuclear forces. Under the unclassified attack scenario, counterforce targets are assigned A1 and B1 codes, signifying the first two of six attack waves and reflecting the highest two degrees of urgency. A1 attacks are primarily targeted for ballistic missile fields, and B1 attacks are targeted for airfields and submarine bases. Each A1 attack represents a surface burst of a 20-megaton weapon, and each B1 attack represents either an air or surface burst of one 1-megaton weapon. The weapons of both attacks are assumed to have a fission fraction of 50 percent. While the A1 weapon yields are recorded as 20 megatons, each actually represents twenty 1-megaton weapons targeted against 20 separate missile silos. This is the case for the 126 A1 attacks contained in the revised list of counterforce areas.

Determining the geographic areas impacted by specific counterforce attacks was hampered by the unavailability of specific silo coordinates. To determine these areas, the 20-weapon clusters of the A1 attacks were disaggregated into a symmetric grid of 1-megaton weapons covering a circular

TABLE IV-3. EXAMPLE PAGE FROM 1980 CONGLOMERATE LISTING

Oakland Conglomerate (Travis AFB and Mare Island NF Counterforce Areas)

Risk County*	1980 Pop.	Risk Pop.	Host County*	Alloc.	Alloc/Host
Alameda	1,107,204	904,585	Alameda	478,890	2.36
Solano	201,408	114,802	Solano	206,364	2.38
Yolo	111,215	53,939	Yolo	172,945	3.02
Contra Costa	615,235	586,318	Colusa	33,415	2.58
			Glenn	51,246	2.52
			Shasta	229,439	2.27
			Contra Costa	73,366	2.54
			Tehama	82,050	2.35
		1,659,644			
		x 0.8			
TOTAL		1,327,715		1,327,715	

Sacramento Conglomerate (Mather AFB and Beale AFB Counterforce Areas)

Risk County*	1980 Pop.	Risk Pop.	Host County*	Alloc.	Alloc/Host
Placer	106,129	38,206	Placer	92,838	1.37
Yuba	45,165	14,001	Yuba	38,336	1.23
Sacramento	743,135	713,409	Sacramento	40,900	1.38
			El Dorado	108,579	1.36
			Alpine	2,388	1.82
			Nevada	61,400	1.40
			Sierra	6,513	2.28
			Sutter	69,198	1.37
			Butte	192,340	1.37
		765,616			
		x 0.8			
TOTAL		612,492		612,492	

* _____ indicates that the survey was completed before 1980 (all-effects survey in risk counties; host area survey in host counties.
_ _ _ _ indicates that survey was planned for 1980.

land area approximately 30 miles in diameter. The coordinates thus generated were recorded with those given for B1 attack centroids in a counterforce weapons file assuming each simulated silo site would receive a surface burst. All B1 attacks that were not surface bursts were automatically calculated for a scaled height of 2,290 meters (7,400 feet) which optimizes for 10 psi overpressure for a 1-megaton yield.

After two computerized attempts to extract at-risk population figures from existing 2-minute grid files such as LYDAY*75 SEQGRID, it was decided to use a manual tabulation method based on more recent 1980 Census figures, because the 2-minute cells for which data were missing were so numerous. The manual tabulation was performed in three steps. The first was to photocopy the portions of all U.S. Geological Survey (USGS) 2-degree topographic maps (1:250,000 scale) containing a counterforce site. Using the centroid coordinates of each counterforce weapon identified in the counterforce weapons file, a circle was inscribed to represent the critical overpressure (2 psi) boundary of a 1-megaton weapon at a height of burst (HOB), of zero (ground burst), or of 2,290 meters (7,400 feet), which optimizes a 1-megaton yield for 10 psi. The radii for the 2-psi boundary for the ground and 2,290-meter HOBs were 4.85 and 8.25 miles, respectively. Thus, the circles plotted on the topographic maps were 9.7 and 16.5 scaled statute miles in diameter. This was done for all 65 counterforce military installations. The 16.5-mile critical overpressure circles were used to obtain at-risk populations associated with all nonmissile military installations.

The second step was to reproduce the 2-psi overpressure circles on all the appropriate state maps in TR-82 [13] and to note each impacted Census County Division (CCD). The circles were accurately positioned by cross checking them against USGS topographic maps. CCDs were accurately identified

by cross checking them with Minor Civil Division (MCD) maps contained in the U.S. Township Atlas [17]. The CCDs and MCDs impacted by the nine missile fields were taken to be those covered in whole or in part by red (blast-at-risk) shading on the appropriate TR-82 maps. Where possible, these divisions were cross checked with census county listings.

The third step was to record the actual 1980 population figures found in the Advance Reports of the 1980 Census of Populations and Housing [18] for each CCD or MCD noted in Step 2. For each figure a weight was recorded in increments of 10 percent to indicate what proportion of an MCD was actually at risk from blast overpressure of 2 psi or greater. This risk was subjectively determined using visual judgment based on the location of major population centers and population density. As an example, a rural CCD or MCD in the Dakota missile fields might have half its land area at risk due to blast, but the major portion of its population might be located in a small city located far from the risk area. In this situation the CCD or MCD would receive a weight of 10 to calculate an actual population at risk figure. Conversely, an urban CCD or MCD might have only one-third its land area at risk, yet have the majority of its population concentrated in that risk area. This CCD or MCD would receive a 90 to 100 percent weight. The weighted population values for all at-risk intracounty MCDs and CCDs were summed to obtain the net risk populations for each county.

B. Shelter Availability and Ventilating Characteristics

The most comprehensive sources of nationwide data concerning shelter story availability and ventilating characteristics are the National Shelter Survey (NSS), conducted in both risk and host areas, and the Crisis Relocation Planning (CRP) Host Areas Facility Survey, conducted only in host areas. Both surveys are periodically updated, and current data from them are combined into

the NSS-CRP Master File, with only minor reformatting from the NSS-CRP Data Input Form (DIF) [19] and with some calculations based on DIF data. (Logically, the NSS-CRP Master File is a singular entity, but, because of the large number of records involved, there are 10 such files, one for each FEMA region.)

A computer program (the availability program) was developed to extract shelter availability and ventilating characteristics data from the NSS-CRP Master File for each county containing counterforce risk and/or host areas. Total numbers of NSS and CRP shelter stories and spaces were computed and distributed by shelter story size category (defined in Tables III-2 through III-22) and floor location (basement, first floor, or second floor and above for NSS facilities and basement or first floor for CRP facilities).

In a county with no risk areas (i.e., no risk population), the distributions of shelter stories and spaces can be used directly to estimate ventilation kit requirements. However, a county with counterforce civilian risk population may contain near-risk and host areas as well as risk areas. (Near-risk areas are those immediately adjacent to risk areas and are subject to massive fallout, but not to blast effects. Residents of these areas are sheltered in place, but no relocated population is allocated to be hosted. Double stocking of ventilation kits is not necessary in these areas.) Therefore, to calculate ventilation kit requirements in counties with risk areas, it is necessary to determine the NSS facilities are actually at risk. Since no distinguishing code exists on the NSS-CRP Master File, several approaches were attempted.

The first approach was to use locational data (latitudes and longitudes) on the NSS-CRP Master File to place each facility into one of the 2-minute cells on the Technique for Evaluation of National Operating Systems (TENOS)

grid file, where the blast overpressure value recorded for the cell could be used to determine risk. While this approach seemed straightforward, it was hampered by widespread lack of shelter facility latitude-longitude values on the NSS-CRP Master File. In addition, TENOS grid file blast overpressure values did not reflect risk areas shown in TR-82 [13] for a generalized attack. Specifically, high blast overpressure values were too sparse and too restricted to a few general locations to reflect a national counterforce attack. Constructing a new TENOS grid file to reflect such an attack might have been feasible, but the missing latitude-longitude values (by FEMA region, from about 10 to over 50 percent of the NSS-CRP records) ruled out such a procedure.

In addition, because the May 1980 NSS Instructions [19] maintain that the Direct Effects Data Collection Form should be used only in risk areas, consideration was also given to basing NSS facility risk-area location on direct effects data. It was felt the existence of a relative blast protection code could be used to judge whether a shelter facility were located in a risk area. However, examination of earlier NSS Instructions indicated that direct effects data collection was not always limited to risk areas.

The approach finally chosen was to apportion facilities on the basis of population. This approach is based upon the correlation of population distribution and such shelter facility characteristics as number and size of shelter stories. Some preliminary studies bore out this suspected correlation. However, time and funds did not permit a thorough statistical analysis to support the hypothesis nor development of an appropriate error term to show potential correlation inaccuracies.

The risk population contained in the Rapid Enhancement Plan A, 1980 Conglomerate Listing, was used to apportion risk county NSS facilities. For

each county with risk population, the number of shelter stories in each NSS size category and floor location was multiplied by the percentage of total county population at risk to estimate the number of shelter stories at risk. Each number of shelter stories computed in this manner was then multiplied by the average number of spaces in its size category and floor location to obtain an estimate of the total number of shelter spaces, indexed by size category and floor location. The remaining NSS shelter stories and spaces in each size category and floor location were assumed not to be at risk; i.e., double stocking of ventilation kits was assumed not to be needed.

While no statistics were kept on how often specific problems occurred in the NSS/CRP Master File, some appeared repeatedly in test runs. To handle special cases caused by these possible anomalies, the following assumptions were made in extracting CRP shelter availability and ventilating characteristics data on a facility-by-facility basis:

- Without the appropriate code, no facility was considered a special facility (special facilities were not included in the CRP or NSS totals).
- No facility without a basement code was considered to have a basement, unless basement upgradable spaces were recorded.
- No facility without an upgradability code was considered to be upgradable, unless upgradable spaces were recorded.
- A facility was considered to have 82 percent of the floor area usable (based on the average for a few typical counties) if no usable percentage of the floor area was recorded.
- A facility with no PF Categories 2 and up spaces recorded was not considered to have any spaces in these categories.
- If the basement upgradability code indicated that the basement was upgradable, but no basement upgradable spaces were recorded, the number of basement spaces was considered to be the greater of (1) the number of basement PF Categories 2 and up spaces and (2) the computed number of basement upgradable spaces (usable basement floor area divided by 10 square feet per space).

- If the total number of upgradable spaces was not recorded or was less than the number of upgradable basement spaces, but the upgradability code indicated that the first floor was upgradable, a comparison corresponding to that above for basement upgradable spaces was made to obtain first-floor upgradable spaces.

NSS facilities may have shelter spaces on the second floor and above. The number of spaces for all of these floors in each PF Category is only recorded as a sum. In order to estimate the number of shelter stories represented by the facility and the size category of each upper story, the following assumptions were made:

- Each floor had the same number of spaces.
- If the number of stories was not recorded or was less than two, but shelter spaces were indicated for floors two and above, the number of stories and spaces per story were computed from the ratio of total shelter spaces on floors two and above to shelter spaces on the first floor.
- If no shelter spaces were recorded for the first floor, or the number of spaces was limited by a lack of apertures, the computation of number of stories and spaces per story was based on first floor blast spaces.

The availability program was run separately for each of the 10 FEMA regions, since the NSS-CRP Master is recorded in this manner. A preliminary program was executed to select the appropriate counties in each region from a set of control cards representing the counterforce conglomerates, which contained the counterforce risk populations derived as described earlier. The selected counties were sorted to match the order of the NSS-CRP Master File. Counties containing both risk and host areas were combined into one record. Each run of the availability program produced a summary file containing all of the shelter availability and ventilating characteristics information (with the exception of floor configuration) required to calculate ventilation device requirements for the given FEMA region. Table IV-4 is an example of the summary created by the availability program. The data are from Boone County, Arkansas (FIPS code 0605009), which is a host county for the Little Rock AFB

TABLE IV-4. SHELTER STORY AND SPACES DISTRIBUTION FOR FIPS 0605009*

Size CTG†	Type FACS	Basement Stories	Basement Spaces	Floor 1 Stories	Floor 1 Spaces	Floor 2+ Stories	Floor 2+ Spaces
1	NSS	8	387	1	101	5	525
	CRP	21	1,437	393	44,561		
2	NSS	1	350	2	465		
	CRP	6	1,484	70	16,292		
3	NSS	3	1,422	3	1,298	2	780
	CRP			103	37,505		
4	NSS	1	625	2	1,371		
	CRP			43	28,158		
5	NSS			1	850		
	CRP			16	14,405		
6	NSS			1	1,238		
	CRP			9	10,809		
7	NSS			1	1,335		
	CRP			6	8,602		
8	CRP			4	7,057		
9	NSS			1	1,724		
	CRP			12	42,122		
10	NSS			1	3,387		

*FIPS Code 0605009 represents Boone County, Arkansas, which is a host county for the Little Rock AFB counterforce area.

†The basement size categories correspond to those in Table III-11, and the aboveground size categories correspond to those in Table III-13.

counterforce area. The county has a zonal ventilation requirement of 15, and the data were summarized in accordance with the "worst case" scenario. Therefore, the basement size categories correspond to those in Table III-11, and the aboveground size categories correspond to those in Table III-13.

C. Ventilation Kit Requirements

A computer program (the requirements program) was developed to calculate counterforce risk- and host-area ventilation equipment requirements by county, counterforce area, and FEMA Region as a function of the ventilating characteristics of the available shelter stories. As discussed in Chapter III, the requirement for ventilation kits is a function of shelter story size, aperture configuration and size (a function of shelter story location), the zonal ventilation requirement for the county in which the shelter is located, and room configuration. Tables III-2 through III-22 present ventilation kit requirements as a function of these factors. After the availability program was used to extract counterforce risk- and host-county shelter story size and location data from the NSS-CRP Master File, data related to all of these factors but room configuration were available.

The Master File contains no data characterizing shelter facility room configurations. Therefore, a statistical sample of the NSS files derived in an earlier RTI study [11] was used to generate distributions of shelter story room configurations, characterized by story size, story location, and zonal ventilation requirement. (Table III-1 contains the estimated distribution of NSS shelter stories characterized by configuration as derived from this sample.) Where data did not exist in the sample to this level of characterization, the distribution based on the entire sample was substituted. Data on CRP facility room configurations are not collected; however, it was assumed that CRP facilities follow the same room configuration distributions

as NSS facilities. For a given county, the factors in the appropriate distribution were multiplied by the NSS and CRP shelter stories and spaces for each floor location and shelter story size category, according to the zonal ventilation requirement for the county, to further distribute the totals by room configuration.

For each county, the next step after estimating the shelter stories and spaces distributions by floor configuration was computing the nonrisk population to be sheltered. The nonrisk population is composed of the allocated evacuees from the risk area (minus the small percentage that stay in place as critical work force) and the hosting population. In this step, allocated evacuees from the conglomerate and the county hosting ratio were used to calculate the nonrisk population associated with the entire conglomerate.

All of the necessary data were now available for the requirements program to calculate host- and risk-area ventilation kit requirements The calculations were performed at the county level, and separate procedures were followed for host- and risk-areas within counties. The procedures were different because minimizing the PVK requirements was the highest priority for host areas, whereas maximizing blast protection ranked above this criterion for risk areas.

The requirements program was run twice for each county, once to calculate equipment requirements under the "worst case" scenario and the second for the "best case" scenario. For each scenario, the following stages were followed throughout the process of choosing host area shelter stories to which population should be allocated:

- Shelter stories requiring no ventilation equipment were chosen first ("best case" scenario only).

- Shelter stories requiring only Kearny pumps were chosen before stories requiring PVKs.
- Shelter stories requiring only PVKs (starting with stories requiring the smallest number of PVKs) were chosen before stories requiring both PVKs and Kearny pumps.
- The last shelter stories to be chosen were those requiring both PVKs and Kearny pumps, starting with stories requiring the smallest number of PVKs.

Within a stage, NSS shelter stories were preferred to CRP shelter stories, and first floor shelter stories took priority over second floor and up, which took priority over basements.

At each stage, the numbers of Kearny pumps and PVKs required for each shelter story in a given zonal ventilation requirement, floor location, size category, and floor configuration were multiplied by the number of host-area stories in this classification. These ventilation equipment requirements for the allocated host-area shelter stories were accumulated, and the population remaining to be sheltered was appropriately decremented. The process of sheltering continued for the nonrisk population until it was completely sheltered or all available shelter spaces exhausted. The population left after all host-area shelter stories were exhausted indicated the number of additional spaces needed. The shelter stories and spaces that fall into each class--ventilated by natural ventilation, by Kearny pump only, by PVKs only, or by a combination of Kearny pumps and PVKs--were also accumulated.

Estimates of the Kearny pump and PVK requirements for the total nonrisk population in the county were available at this point. However, not all the nonrisk population in the county is necessarily related to a counterforce attack, and only the devices related to such an attack are relevant to the goals of the present contract. Thus, a method had to be used to convert the results found for the total county host-area ventilation equipment requirements into requirements specifically related to a counterforce attack.

Along with the assumed direct correlation between population distribution and shelter story characteristics, the total conglomerate counterforce risk population was assumed to be allocated uniformly to host area; i.e., the ratio of conglomerate counterforce to total risk population was assumed to define the distribution of counterforce population throughout the counties with host areas. Following these assumptions, the total county host-area ventilation device requirements were multiplied by the ratio of the conglomerate counterforce risk population to the total risk population to obtain the Kearny pumps and PVKs required for the nonrisk population for the county in a counterforce attack scenario. The shelter stories represented by the total ventilation kit requirements (broken down into those needing natural ventilation only, Kearny pumps only, PVKs only, or both Kearny pumps and PVKs), and the shortage of spaces required for the nonrisk population were similarly factored by this population ratio. By factoring after calculating ventilation kit requirements on the basis of the total conglomerate nonrisk population, everyone to be sheltered in a particular host area was given equal priority.

The risk population that would remain in place was then sheltered. This population is the critical work force, the 2.31 percent of the total population whose work is defined to be crucial in the risk area at and around the time of attack [20]. Also, for certain populous states, namely California, Connecticut, Massachusetts, and Rhode Island, only 80 percent of the total risk population, as found in each conglomerate, is to be evacuated; the other 20 percent becomes part of the risk population to be sheltered in-place on an equal priority basis with the critical work force.

The procedure followed for risk populations was similar to that for non-risk populations, but was modified somewhat to give a higher priority to

blast protection than to PVK minimization. Accordingly, since basement stories give better protection than aboveground stories, all of the basement stories were allocated before any located aboveground. The same stages of shelter story utilization were followed as applied for host-area sheltering. For example, in the "worst case" scenario, basement shelter stories requiring Kearny pumps only were allocated first, then those requiring only PVKs, and finally those needing both Kearny pumps and PVKs. The aboveground shelter stories were next processed in the same manner for the first floor and then for the second floor and up. For the risk population, only NSS shelter stories were considered available for sheltering.

Both types of ventilation devices are to be double-stocked in risk areas because of their vulnerability to blast overpressures. The computed number of devices of each type required for each category of shelter story is thus simply doubled before being accumulated in the county totals.

As was the case with the county host area, the county risk area device requirements had to be factored to represent requirements for the proportion of the risk population that specifically relates to a counterforce attack. The factor used here was the ratio of the county counterforce risk population to the county total risk population, based again on the assumption of a direct correlation between population distribution and shelter story characteristics. Both the total ventilation device requirements and shelter stories classified by devices needed were multiplied by this factor to produce results that related only to a counterforce attack.

At this point, ventilation kit requirements, allocated shelter stories (classified by type of ventilation kit needed), and additional spaces needed were known as separate totals for the counterforce risk and associated nonrisk populations. To obtain a basis for procuring equipment in counties in which

the all-effects or host-area facility surveys have not been completed (many counties needing additional spaces fall into this category), ratios of spaces per PVK and Kearny pump were computed for the county risk and host areas. The ventilation kit requirements, allocated shelter stories, and additional spaces needed were then combined to create a county summary. After all of the counties associated with a counterforce area were processed, a counterforce area summary was produced. Finally, after all of the counterforce areas in a FEMA Region were processed, a regional summary was produced. Table IV-5 is a summary of ventilation kit requirements, allocated shelter stories, additional spaces needed and host-area and risk-area ratios of spaces per PVK and Kearny pump by FEMA Region. Appendix A contains output from the requirements program at the county level generated under the "best case" scenario. Appendix B contains "worst case" scenario requirements.

Examination of Table IV-5 reveals some apparent discrepancies in the "best case" and "worst case" data. For each FEMA region, the number of shelter stories used is less in the "best case" than in the "worst case." However, in all but Region 8, the number of additional host area spaces needed is greater in the "worst case" than in the "best case." These ostensible contradictions are the result of the computational procedures that were followed because of the absence of shelter story configuration data for specific shelter stories.

For each combination of shelter story location, zonal ventilation requirement, size category, and shelter story configuration, on average shelter story size was calculated. This average shelter story size was used to determine the number of spaces represented by the addition of each shelter story and correspondingly to decrement the number of additional spaces needed. In the "best case" scenario, the smallest aboveground size category

TABLE IV-5. SUMMARY OF COUNTERFORCE AREA VENTILATION KIT REQUIREMENTS

FEMA region[a]	Kearny pumps required	PVKs required	Number of stories requiring no ventilation kits	Number of stories requiring only Kearny pumps	Number of stories requiring only PVKs	Number of stories requiring PVKs and Kearny pumps	Additional spaces needed		Spaces per PVK		Spaces per Kearny pump	
							Host	Risk	Host	Risk	Host	Risk
1	3,570	76	4,295	656	16	4	324	2,660	19,044	3,889	7,646	26
	11,604	553	---	7,042	337	4	324	4,705	1,959	2,497	124	25
2	505	49	842	198	13	0	297	0	4,859	--	702	54
	1,616	261	---	1,122	142	0	433	0	884	--	159	54
3	481	126	2,187	242	35	1	18,350	0	3,435	5,613	2,802	34
	2,454	1,094	---	2,075	637	1	18,473	0	381	5,667	198	33
4	437	2,120	6,479	147	439	26	98,351	103	741	76	12,368	55
	4,820	6,659	---	4,446	3,240	26	98,616	78	218	77	314	51
5	439	74	2,536	172	14	0	0	133	8,414	--	2,531	51
	4,543	394	---	3,484	235	0	0	133	1,537	--	139	51
6	1,336	5,582	10,238	713	1,241	11	50,243	365	548	146	8,899	49
	8,708	14,132	---	7,778	6,262	11	50,727	365	213	145	381	49
7	2,080	570	4,688	913	96	71	163,948	104	2,046	--	1,022	42
	6,739	3,228	---	4,999	1,704	71	166,426	104	361	--	201	42
8	2,706	688	5,860	997	100	39	143,844	103	2,846	--	1,088	61
	11,284	1,642	---	8,042	646	56	136,940	116	1,143	--	181	61
9	5,318	3,829	12,274	743	675	177	418,574	170	1,244	208	4,130	66
	16,177	10,745	---	10,384	4,656	202	419,938	170	319	191	288	50
10	202	63	650	62	14	2	55,619	116	3,951	2,267	2,485	43
	1,001	323	---	690	144	3	56,055	116	753	2,267	270	43

[a]For each FEMA region, the first row contains ventilation kit requirements, etc., computed under "best case" assumptions; the second row contains corresponding requirements, etc., computed under "worst case" assumptions.

(representing shelter stories requiring no ventilation devices) included a wider range of story sizes than the smallest "worst case" aboveground size category (representing shelter stories requiring only Kearny pumps). Therefore, in most cases the average shelter story size in the smallest aboveground "best case" size category was larger than the average shelter story size in the smallest aboveground "worst case" size category. Consequently, counties containing more than the required number of shelter spaces often used fewer shelter stories in the "best case" than in the "worst case."

The consistently greater shortage of host area spaces in the "worst case" than in the "best case" was the result of the use of sample data to distribute shelter stories by shelter story configuration. In a size category with a small number of shelter stories, factoring to distribute by shelter story configuration sometimes resulted in a size category/shelter story configuration combination containing less than one-half of a shelter story. When this occurred, the number of shelter stories was rounded to zero, and the spaces were lost. This happened more often in the "worst case" scenario than in the "best case" scenario because of the larger number of size categories in the "worst case."

V. CONCLUSIONS AND RECOMMENDATIONS

One of the objectives of this study was to review and evaluate concepts in allocating and deploying ventilation equipment to risk-area and host-area shelter facilities. Two types of manually powered ventilators, the package ventilation kit (PVK) and the Kearny pump, have been developed for shelter application. The primary function of the PVK is to supply fresh air (exhaust stale air) to a shelter, though it should be deployed to aid in air distribution. The Kearny pump can be used to supply air to a small shelter story (one requiring 3,000 cubic feet per minute [cfm] or less of ventilation) but is considered more useful for distributing air in large open areas or to rooms without exterior apertures. The ventilation kit requirements employed in this report to estimate counterforce area equipment requirements are based on those developed in an earlier Research Triangle Institute (RTI) study [12], which assumed optimal ventilation kit deployment. PVK requirements are a function of the number of spaces in a shelter story and the zonal ventilation requirement of the shelter story geographical location. Kearny pump requirements are more directly related to the room and aperture configuration of a shelter story. Aperture size and configuration is assumed to be a function of story location (aboveground or belowground).

To achieve a second objective of this research, the estimation of the numbers of ventilators needed to supply and distribute air in counterforce host- and risk-area shelter facilities, it was necessary to develop profiles of counterforce host- and risk-area shelter stories in terms of the above ventilating characteristics. This effort was hampered somewhat by the lack of defintion of many counterforce risk and host areas, coupled with the sketchiness of individual shelter locational data in the National Shelter Survey-Crisis Relocation Planning (NSS-CRP) Master File. Many counterforce

installations are located within conglomerates, including one or more large metropolitan areas. Unless the exact location of a shelter facility is available, it cannot be determined whether the facility is in the counterforce risk area instead of the risk area associated with a metropolitan area. In a county with both risk and host areas, an NSS facility could also be in the host area. A further complication in the identification of counterforce shelter facilities was the fact that the all-effects and CRP host-area surveys have not been completed in several counties (no shelter facilities identified), and very few counties have approved crisis relocation plans (no specific host areas associated with particular risk areas).

Several measures were taken to deal with the above problems. In counties with counterforce risk areas, it was assumed that NSS shelter facilities would be distributed proportionately to population. In estimating ventilation kit requirements by county, the entire conglomerate risk population or relocated host plus indigenous population was allocated to all available shelter stories in the county. The resulting equipment requirements were then apportioned by the percentage of the population associated with the counterforce risk or host area. This effectively gave equal priority to everyone in the conglomerate. Finally, equipment requirements were put in terms of numbers of ventilators required per shelter space. These ratios can be used to estimate equipment requirements for incompletely surveyed counties or to reclaculate requirements when better data defining counterforce risk- and host-areas are available.

Time and funds did not permit the development of statistical measures of the accuracy of the ventilation equipment requirement estimates. However, because the PVK requirements are based on actual distributions of shelter story sizes and actual zonal ventilation requirements, those estimates should be reasonably sound. Their accuracy is subject mainly to the assumptions

concerning PVK capacity (4,000 cfm for aboveground stories, 3,000 cfm for basement stories). Since the PVK capacities are based on the use of all of the duct packaged with the kit, the estimates of requirements probably tend to be high.

The estimates of Kearny pump requirements are subject to greater inaccuracies because of the lack of room and aperture configuration data. As has been noted in a previous RTI study [12], these data are not collected during the CRP Host Area Shelter Survey. They are also not available for NSS facilities in the NSS-CRP Master File. Therefore, the distributions of floor configurations used herein were derived from a random sample of NSS shelter stories drawn from a 10-year-old RTI research report [11]. It is recommended that more work be done to characterize the floor and aperture configurations of both NSS and CRP facilities. This could be accomplished through revised NSS and data input procedures, or through independent surveys designed strictly for this purpose.

Ventilation kit requirements were estimated under "best case" and "worst case" scenarios in order to create upper and lower bounds on the requirements. The wide range between the "best case" and the "worst case" requirements is indicative of the high percentage of available shelter stories that is contained in the small size categories. Because of the uncertainties associated with wind-driven ventilation and the site specific factors affecting its performance, the conservative approach would be to base equipment procurements on the "worst case" results. The large variations in requirements even between counties in the same counterforce area show that procurements cannot be made on the basis of broad general guidelines and emphasize the need for more detailed site-specific shelter story ventilating characteristics information.

A secondary objective of this study was to develop a priority system that can be used to choose shelter stories in areas with surplus shelter spaces in a way that will minimize the total number of ventilation kits required. Independent of other considerations, the priorities are straightforward. Because more apertures are available, aboveground shelter stories require fewer ventilation kits (PVKs and Kearny pumps) than belowground stories. Aboveground shelter stories with complex configurations (more partitions to distribute air) require fewer Kearny pumps than aboveground shelter stories with simple configurations. For belowground shelter stories, the opposite is true; shelter stories with simple configurations should require fewer Kearny pumps than shelter stories with complex configurations (more dead-end rooms). However if a shelter story is chosen simply on the basis of ventilation equipment requirements, other factors may be compromised. For example, belowground shelter stories offer more fallout and blast protection than aboveground stories. The existence of sources of potable water, medical supplies, food preparation facilities, etc., as well as shelter accessibility should also be considered. It is recommended that further study be devoted to the selection of shelters in areas with surplus shelter spaces.

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APPENDIX A

"Best Case" Counterforce Area Ventilation Kit Requirements

APPENDIX A

"Best Case" Counterforce Area Ventilation Kit Requirements

This appendix contains the output of the requirements program, computed under "best case" assumptions. Data are listed in alphabetical order by state. Within each state listing are the counterforce installations and associated risk and host counties (indexed by FIPS Codes). Data listed for each county include the following:

- TOTAL KP (total number of Kearny pumps required)
- TOTAL PVK (total number of PVKs required)
- NO-DEV STORIES (number of stories requiring no ventilation kits)
- KP STORIES (number of stories requiring only Kearny pumps)
- PVK STORIES (number of stories requiring only PVKs)
- OTHER STORIES (number of stories requiring both Kearny pumps and PVKs)
- ADDITIONAL SPACES NEEDED-HOST (additional host area spaces needed)
- ADDITIONAL SPACES NEEDED-RISK (additional risk area spaces needed)
- SPACES/PVK-HOST (average number of host area spaces serviced per PVK)
- SPACES/PVK-RISK (average number of risk area spaces serviced per PVK)
- SPACES/KP-HOST (average number of host area spaces serviced per Kearny pump)
- SPACES/KP-RISK (average number of risk area spaces serviced per Kearny pump)

Summaries of the above data are printed for each counterforce area and for each FEMA Region at the completion of the requirements program.

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AK	EIELSON AFB	0002918							53,064	116				
AK	EIELSON AFB								53,064	116				

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	BLYTHEVILLE AFB	0605021			168									
AR	BLYTHEVILLE AFB	0605031			587									
AR	BLYTHEVILLE AFB	0605055	7	24	195	7	8				1,599		5,483	
AR	BLYTHEVILLE AFB	0605075			175									
AR	BLYTHEVILLE AFB	0605093	4	8	194	2	1					159		318
AR	BLYTHEVILLE AFB	0605121			148									
AR	BLYTHEVILLE AFB		11	32	1,467	9	9				11,822	156	40,533	313

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	LITTLE ROCK AFB	0605005			52									
AR	LITTLE ROCK AFB	0605009			69									
AR	LITTLE ROCK AFB	0605013	12	24	2	2	2	1	1,240		100		195	
AR	LITTLE ROCK AFB	0605019			85									
AR	LITTLE ROCK AFB	0605023	9	3		4	1					139		46
AR	LITTLE ROCK AFB	0605029	10	16		5	4					77		124
AR	LITTLE ROCK AFB	0605039	1	3	36	1	1				2,608		11,735	
AR	LITTLE ROCK AFB	0605045	28	16		13	4					94		58
AR	LITTLE ROCK AFB	0605049			36									
AR	LITTLE ROCK AFB	0605051	7	172	79	7	46				281		6,536	
AR	LITTLE ROCK AFB	0605053		30	19		3				227			
AR	LITTLE ROCK AFB	0605059		23	53		7				609		45,064	
AR	LITTLE ROCK AFB	0605061	1		1	1			10,080				248	
AR	LITTLE ROCK AFB	0605063	4	2	35	4	1			36	4,583		1,964	
AR	LITTLE ROCK AFB	0605065	1	4	29	1	1				1,603		9,620	
AR	LITTLE ROCK AFB	0605067			53					24				
AR	LITTLE ROCK AFB	0605071			88									
AR	LITTLE ROCK AFB	0605083			114									
AR	LITTLE ROCK AFB	0605089			38									
AR	LITTLE ROCK AFB	0605095			49									
AR	LITTLE ROCK AFB	0605097							3,992					
AR	LITTLE ROCK AFB	0605099			35									
AR	LITTLE ROCK AFB	0605101	1	5	6	1	1		1,322		366		2,746	
AR	LITTLE ROCK AFB	0605103	15	28	5	1	2	2	16,828		105		192	
AR	LITTLE ROCK AFB	0605105			8					75				
AR	LITTLE ROCK AFB	0605107			79									
AR	LITTLE ROCK AFB	0605109			3				7,391				954	
AR	LITTLE ROCK AFB	0605111			106									
AR	LITTLE ROCK AFB	0605113		25	33		7				486		38,855	
AR	LITTLE ROCK AFB	0605115			76					171				
AR	LITTLE ROCK AFB	0605117		29	6		4				216			
AR	LITTLE ROCK AFB	0605119	22			11								38
AR	LITTLE ROCK AFB	0605125	5	72	75	5	21				364		5,683	
AR	LITTLE ROCK AFB	0605127		25	13		3				236		18,864	
AR	LITTLE ROCK AFB	0605129			25									
AR	LITTLE ROCK AFB	0605133	2	23	28	2	7				427		5,268	
AR	LITTLE ROCK AFB	0605135			44									
AR	LITTLE ROCK AFB	0605137		3	15		1				1,264			
AR	LITTLE ROCK AFB	0605139	3	199	45	3	37				188		9,871	
AR	LITTLE ROCK AFB	0605141	6			3								34

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	LITTLE ROCK AFB	0605145	25	18		7	2	2				86		61
AR	LITTLE ROCK AFB	0605147			16					59				
AR	LITTLE ROCK AFB	0605149			67									
AR	LITTLE ROCK AFB		150	680	1,523	71	155	5	40,853	365	617	108	7,435	98

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AZ	DAVIS-MONTHAN AFB	0904003			1,564					146				
AZ	DAVIS-MONTHAN AFB	0904007			273									
AZ	DAVIS-MONTHAN AFB	0904009			909									
AZ	DAVIS-MONTHAN AFB	0904011	22	81	119	8	17				739		2,829	
AZ	DAVIS-MONTHAN AFB	0904019	480	65	301	168	22				1,023		2,177	32
AZ	DAVIS-MONTHAN AFB	0904021			965					24				
AZ	DAVIS-MONTHAN AFB	0904023			321									
AZ	DAVIS-MONTHAN AFB		502	146	4,252	176	39			170	5,960		16,735	32

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	CASTLE/SUNNYVALE AFB'S	0906005			74									
CA	CASTLE/SUNNYVALE AFB'S	0906009			45									
CA	CASTLE/SUNNYVALE AFB'S	0906039	22	2	6	6			45,045		916		86	
CA	CASTLE/SUNNYVALE AFB'S	0906043	3	1	3	1			9,099		1,302		473	
CA	CASTLE/SUNNYVALE AFB'S	0906047		7	200	21		2				2,986		129
CA	CASTLE/SUNNYVALE AFB'S	0906053	4	37	17	5	3	4	43,759		671		566	
CA	CASTLE/SUNNYVALE AFB'S	0906069			1				19,638				304	
CA	CASTLE/SUNNYVALE AFB'S	0906077			387									
CA	CASTLE/SUNNYVALE AFB'S	0906081							2,447					
CA	CASTLE/SUNNYVALE AFB'S	0906085	1,835	609	99	71	7	83	43,169		563	195	441	61
CA	CASTLE/SUNNYVALE AFB'S	0906087	67	21	678	25	7				8,402		2,578	
CA	CASTLE/SUNNYVALE AFB'S	0906099	97	32	29	11	2	7	74,965		619		203	
CA	CASTLE/SUNNYVALE AFB'S	0906109	13	6	7	5	2		22,701		892		370	
CA	CASTLE/SUNNYVALE AFB'S		2,213	715	1,506	145	21	96	260,823		2,791	224	1,400	65

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	MARCH AFB/SAN DIEGO NF	0906019	5	5	1		1	1	9,441		404		459	
CA	MARCH AFB/SAN DIEGO NF	0906025	1	10	20	1	2				629		6,645	
CA	MARCH AFB/SAN DIEGO NF	0906027							1,255		1,035		405	
CA	MARCH AFB/SAN DIEGO NF	0906029	8	3	2	2			8,852		476		200	
CA	MARCH AFB/SAN DIEGO NF	0906031	1	1	1				3,357		580		561	
CA	MARCH AFB/SAN DIEGO NF	0906037	3	4	1				3,336		404		534	
CA	MARCH AFB/SAN DIEGO NF	0906051							974					
CA	MARCH AFB/SAN DIEGO NF	0906059	3	2					15,306		376		331	
CA	MARCH AFB/SAN DIEGO NF	0906065	174	222	115	16	24	10			507	145	10,972	140
CA	MARCH AFB/SAN DIEGO NF	0906071	2	22	46	1	4				592		5,791	
CA	MARCH AFB/SAN DIEGO NF	0906073	329	131	99	18	5	13	3,549		842	205	1,616	64
CA	MARCH AFB/SAN DIEGO NF	0906079			50									
CA	MARCH AFB/SAN DIEGO NF	0906083	5	4	2	1	1		7,557		566		469	
CA	MARCH AFB/SAN DIEGO NF	0906107	4	2	1	1			15,[illegible]		379		195	
CA	MARCH AFB/SAN DIEGO NF	0906111	2	1	1				12,964		441		432	
CA	MARCH AFB/SAN DIEGO NF		537	417	339	40	37	24	82,544		701	167	1,836	51

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	MATHER AFB/BEALE AFB	0906003			6									
CA	MATHER AFB/BEALE AFB	0906007			382									
CA	MATHER AFB/BEALE AFB	0906017			259									
CA	MATHER AFB/BEALE AFB	0906057			159									
CA	MATHER AFB/BEALE AFB	0906061			224									
CA	MATHER AFB/BEALE AFB	0906067	1,184	358	38	64	5	39			975	187	3,796	53
CA	MATHER AFB/BEALE AFB	0906091	1	1	9	1			594		2,417		3,625	
CA	MATHER AFB/BEALE AFB	0906101			129									
CA	MATHER AFB/BEALE AFB	0906115		28	47		1					123		
CA	MATHER AFB/BEALE AFB		1,185	387	1,273	65	6	39	594		15,457	182	50,786	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	TRAVIS AFB/MARE I. NF	0906001	63	63	24	6	6	5	24,287		385		590	
CA	TRAVIS AFB/MARE I. NF	0906011			17									
CA	TRAVIS AFB/MARE I. NF	0906013	50	39	5	3	1	1	8,674		241	274	5,787	198
CA	TRAVIS AFB/MARE I. NF	0906021			24									
CA	TRAVIS AFB/MARE I. NF	0906089	11	11	4	2	1	1	23,918		541		511	
CA	TRAVIS AFB/MARE I. NF	0906095	287	91	318	21	3	7	11,044		790	365	1,362	95
CA	[illegible] AFB/MARE I. NF	0906103			42									
CA	[illegible] AFB/MARE I. NF	0906113	29	26	36	6	4	3			805		719	
CA	TRAVIS AFB/MARE I. NF		440	230	470	38	15	17	67,923		638	333	389	111

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CO	LOWRY AFB	0808001	31		9	7								25
CO	LOWRY AFB	0808005	216		9	54								33
CO	LOWRY AFB	0808009			30									
CO	LOWRY AFB	0808011			31									
CO	LOWRY AFB	0808013	76	22	20	11	1	5	29,212		570		168	
CO	LOWRY AFB	0808017			11									
CO	LOWRY AFB	0808019			27									
CO	LOWRY AFB	0808025			16									
CO	LOWRY AFB	0808029			88									
CO	LOWRY AFB	0808031	44			22								78
CO	LOWRY AFB	0808033			8									
CO	LOWRY AFB	0808035	17	10	41	7	2				1,128		670	
CO	LOWRY AFB	0808037	17	4	34	7	1				3,632		790	
CO	LOWRY AFB	0808039			24									
CO	LOWRY AFB	0808045	28		68	15							742	
CO	LOWRY AFB	0808047	2		3	1			1,860				189	
CO	LOWRY AFB	0808049			48									
CO	LOWRY AFB	0808057			8									
CO	LOWRY AFB	0808059	42	17	7	5	2	3	29,835		382		155	
CO	LOWRY AFB	0808061			14									
CO	LOWRY AFB	0808065	11		36	4							752	
CO	LOWRY AFB	0808069	311	149	108	46	13	28	54,443		581		279	
CO	LOWRY AFB	0808073			18									
CO	LOWRY AFB	0808077			258									
CO	LOWRY AFB	0808081			40									
CO	LOWRY AFB	0808083			54									
CO	LOWRY AFB	0808085			78									
CO	LOWRY AFB	0808091			9									
CO	LOWRY AFB	0808093	4	3	36	2	1		356		1,812		1,308	
CO	LOWRY AFB	0808097	31	2	33	12					5,352		421	
CO	LOWRY AFB	0808099			29									
CO	LOWRY AFB	0808103			22									
CO	LOWRY AFB	0808107	19		51	9							765	
CO	LOWRY AFB	0808111			4									
CO	LOWRY AFB	0808113			11									
CO	LOWRY AFB	0808117	16	1	57	6					7,944		701	
CO	LOWRY AFB		865	208	1,340	208	20	36	113,706		1,950		707	39

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	NO-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
CO	PETERSON AFB	0808007			43									
CO	PETERSON AFB	0808015			146									
CO	PETERSON AFB	0808041	213	193	46	92	16				627		1,041	85
CO	PETERSON AFB	0808043			364									
CO	PETERSON AFB	0808051			192									
CO	PETERSON AFB	0808067			283									
CO	PETERSON AFB	0808079			17									
CO	PETERSON AFB	0808105			133									
CO	PETERSON AFB	0808109			37									
CO	PETERSON AFB	0808119			200									
CO	PETERSON AFB		213	193	1,423	92	16				2,461		4,094	85

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	NO-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
CO	WARREN AFB	0808063	21	7	23	7	1				1,115		361	
CO	WARREN AFB	0808075	15			7								32
CO	WARREN AFB	0808087	24	4	2	7		2	2,530		540		83	49
CO	WARREN AFB	0808123	90	26	25	19	4				711		367	75
CO	WARREN AFB	0808125	7		37	5							1,085	
CO	WARREN AFB		117	37	87	45	5	2	2,530		935		350	36

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	NO-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
CT	GROTON NF	0109001			115									
CT	GROTON NF	0109011	767	21	148	128	1	4				850		23
CT	GROTON NF	0150027			347									
CT	GROTON NF		767	21	610	128	1	4				857		23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVR	NO-DEV STORIES	KP STORIES	PVR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVR HOST	SPACES/PVR RISK	SPACES/KP HOST	SPACES/KP RISK
FL	EGLIN AFB	0412059			194									
FL	EGLIN AFB	0412091	44	46	232	3	1	3				44		44
FL	EGLIN AFB	0412113	3	90	6	1	7	1	10,293		112		3,513	
FL	EGLIN AFB	0412131	4	13	234	4	4				3,218		9,653	
FL	EGLIN AFB	0412133	16	28	6		3	3	27,312		132		234	
FL	EGLIN AFB		67	177	672	8	15	7	37,605		1,012	44	5,761	44

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVR	NO-DEV STORIES	KP STORIES	PVR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVR HOST	SPACES/PVR RISK	SPACES/KP HOST	SPACES/KP RISK
FL	HOMESTEAD AFB	0412015		67	23		15				169			
FL	HOMESTEAD AFB	0412021		85	59		24				206			
FL	HOMESTEAD AFB	0412025	51	49		10	4	3				52		50
FL	HOMESTEAD AFB	0412027		20	17		5				238			
FL	HOMESTEAD AFB	0412043		8	4		1				156			
FL	HOMESTEAD AFB	0412049							4,890		270			
FL	HOMESTEAD AFB	0412051		20	17		5				228			
FL	HOMESTEAD AFB	0412055	1	18	10		3		9,931		164		2,539	
FL	HOMESTEAD AFB	0412081		133	107		36				267		175,412	
FL	HOMESTEAD AFB	0412105	3	21	200	3	7				1,734		13,067	
FL	HOMESTEAD AFB	0412115		149	199		38				300		662,446	
FL	HOMESTEAD AFB		55	570	636	13	138	3	14,821		303	52	39,495	50

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVR	NO-DEV STORIES	KP STORIES	PVR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVR HOST	SPACES/PVR RISK	SPACES/KP HOST	SPACES/KP RISK
FL	MACDILL AFB	0412017		11	11		2		29		269		20,290	
FL	MACDILL AFB	0412053		8	5		2				228		118,790	
FL	MACDILL AFB	0412057	4	6		1						59		88
FL	MACDILL AFB	0412083		17	20		5				312		15,459	
FL	MACDILL AFB	0412101		46	20		7				213		61,426	
FL	MACDILL AFB	0412103	1	4	75		1				5,866	97	31,997	140
FL	MACDILL AFB	0412119		3	4		1				320			
FL	MACDILL AFB		5	95	135	1	18		29		373	68		109

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
GA	KINGS BAY NF	0413009		5	69		2				1,621			
GA	KINGS BAY NF	0413039			11									
GA	KINGS BAY NF	0413049		28	25		4		4,170		322			
GA	KINGS BAY NF			33	85		6		4,170		546			

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
GA	ROBINS AFB	0413009	12	66	196	12	21				483		2,664	
GA	ROBINS AFB	0413021	13			6								30
GA	ROBINS AFB	0413023	2	38	21	2	8				249		5,333	
GA	ROBINS AFB	0413041	3	15	43	3	5				596		2,680	
GA	ROBINS AFB	0413153	54	48	71	7		3				77		64
GA	ROBINS AFB	0413175	7	108	65	7	29				291		4,337	
GA	ROBINS AFB	0413207	7	34	24	3	6	1			278		1,498	
GA	ROBINS AFB	0413225	4		96	2								35
GA	ROBINS AFB	0413235	2	4	27	2	1				1,324		2,647	
GA	ROBINS AFB	0413289			24					50				
GA	ROBINS AFB		104	310	477	44	70	4		50	694	88	3,963	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
HI	PEARL HARBOR NF	0915001	13	1,073	1,125	13	287				361		29,775	
HI	PEARL HARBOR NF	0915003	341	511	2,400	234	158				1,185	103	3,386	71
HI	PEARL HARBOR NF	0915007	5	231	250	5	77				536		24,775	
HI	PEARL HARBOR NF		359	1,815	3,775	252	522				544	103	6,489	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
IN	GRISSOM AFB	0518017			156					110				
IN	GRISSOM AFB	0518017			511									
IN	GRISSOM AFB	0518017	12		139	6								57
IN	GRISSOM AFB		12		806	6				110				57

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
ID	MOUNTAIN HOME AFB	1016039	3	2					615			69		51
ID	MOUNTAIN HOME AFB	1016082	27	24	7	3	3	2	1,940		499		438	
ID	MOUNTAIN HOME AFB		30	26	7	3	3	2	2,555		490	69	435	44

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
KS	FORBES AFB	0720031	2		35	2							3,591	
KS	FORBES AFB	0720111	20	4	3	8		2	48,269		377		82	
KS	FORBES AFB	0720127			35									
KS	FORBES AFB	0720139			70									
KS	FORBES AFB	0720177	120		32	63							1,246	89
KS	FORBES AFB	0720177	13	13	17	8	2				545		538	
KS	FORBES AFB		155	17	192	81	2	2	48,269		2,660		1,103	89

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
KS	MCCONNELL AFB	0720007	29	24	69	17	7				933		783	
KS	MCCONNELL AFB	0720009			809									
KS	MCCONNELL AFB	0720015	72			36								46
KS	MCCONNELL AFB	0720035	248	150	45	79	17	23	1,642		205		203	43
KS	MCCONNELL AFB	0720047			73									
KS	MCCONNELL AFB	0720051	92	17	402	52	6				5,591		1,427	
KS	MCCONNELL AFB	0720077	4		37	2								31
KS	MCCONNELL AFB	0720079	2			1								50
KS	MCCONNELL AFB	0720095	15		1	8			2,189				63	69
KS	MCCONNELL AFB	0720097	26	14	42	15	9				1,338		556	
KS	MCCONNELL AFB	0720113	54		397	37							1,662	
KS	MCCONNELL AFB	0720115	81	62	124	47	18				771		594	
KS	MCCONNELL AFB	0720149			124									
KS	MCCONNELL AFB	0720151			153									
KS	MCCONNELL AFB	0720155			269					86				
KS	MCCONNELL AFB	0720159			203									
KS	MCCONNELL AFB	0720165			90									
KS	MCCONNELL AFB	0720173	246			123								47
KS	MCCONNELL AFB	0720185			92									
KS	MCCONNELL AFB	0720191	27			14								48
KS	MCCONNELL AFB		896	268	2,630	431	53	23	5,671	86	2,484		1,345	45

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
LA	BARKSDALE AFB	0622013	1	81	102	1	23				316		17,209	
LA	BARKSDALE AFB	0622015	13	28	65	3	2	2				60		86
LA	BARKSDALE AFB	0622017	120	87	133	60	22					70		66
LA	BARKSDALE AFB	0622027	2	54	96	2	17				413		10,050	
LA	BARKSDALE AFB	0622031	2	107	131	2	31				350		16,786	
LA	BARKSDALE AFB	0622049	3	16	110	3	5				1,424		7,474	
LA	BARKSDALE AFB	0622061	7	342	216	7	95				247		12,651	
LA	BARKSDALE AFB	0622069	3	151	267	3	44				486		23,525	
LA	BARKSDALE AFB	0622081	1	50	51	1	13				276		9,245	
LA	BARKSDALE AFB	0622085		69	116		23				379			
LA	BARKSDALE AFB	0622119	13	219	320	13	65				349		6,062	
LA	BARKSDALE AFB		165	1,184	1,669	94	338	2			377	79	12,590	60

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
[illegible]	[illegible] AFB	0125001	124		1,055	21				2,660				41
[illegible]	[illegible] AFB		124		1,055	21				2,660				41

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
[illegible]	[illegible] AFB	0109003	5			2			324				51	
[illegible]	WESTOVER AFB	0109005			128									
[illegible]	WESTOVER AFB	0109013			35									
[illegible]	WESTOVER AFB	0125011			442									
[illegible]	WESTOVER AFB	0125012	2,241		31	394								24
[illegible]	WESTOVER AFB	0125015	218	2	404	37	1					2,244		24
[illegible]	WESTOVER AFB	0150015			113									
[illegible]	WESTOVER AFB	0236031			124									
[illegible]	WESTOVER AFB		2,464	2	1,284	433	1		324			31,091	71,159	24

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
[illegible]	LORING AFB	0123003	12		175	3								30
[illegible]	LORING AFB		12		175	3								29

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
[illegible]	PORTSMOUTH AF	0123031	22		628	5								23
[illegible]	PORTSMOUTH AF		22		628	5								23

STATE NAME	AREA NAME	FIPS CODE	TOTAL VP	TOTAL PVA	NO-DEV STORIES	VP STORIES	PVA STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVA HOST	SPACES/PVA RISK	SPACES/VP HOST	SPACES/VP RISK
[illegible]	[illegible] SAWYER AFB	[illegible]			37									
[illegible]	[illegible] SAWYER AFB	0526043			41									
[illegible]	[illegible] SAWYER AFB	0526103	7		48	3								75
[illegible]	[illegible] SAWYER AFB		7		146	3								75

STATE NAME	AREA NAME	FIPS CODE	TOTAL VP	TOTAL PVA	NO-DEV STORIES	VP STORIES	PVA STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVA HOST	SPACES/PVA RISK	SPACES/VP HOST	SPACES/VP RISK
[illegible]	WURTSMITH AFB	0526001			40					2				
[illegible]	WURTSMITH AFB	0526069	9		93	4								44
[illegible]	WURTSMITH AFB		9		133	4				2				44

STATE NAME	AREA NAME	FIPS CODE	TOTAL VP	TOTAL PVA	NO-DEV STORIES	VP STORIES	PVA STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVA HOST	SPACES/PVA RISK	SPACES/VP HOST	SPACES/VP RISK
MO	WHITEMAN AFB	0729009			78									
MO	WHITEMAN AFB	0729011			39									
MO	WHITEMAN AFB	0729013	29			10								35
MO	WHITEMAN AFB	0729015	16			5								25
MO	WHITEMAN AFB	0729037	16			8								39
MO	WHITEMAN AFB	0729039	5			3								49
MO	WHITEMAN AFB	0729043	19	34	37	5	5	3	1,008		418	759		
MO	WHITEMAN AFB	0729053	40			20								38
MO	WHITEMAN AFB	0729057			27									
MO	WHITEMAN AFB	0729063	4		28	4						1,199		
MO	WHITEMAN AFB	0729075			26									
MO	WHITEMAN AFB	0729079	5		27	5						1,305		
MO	WHITEMAN AFB	0729081			30									
MO	WHITEMAN AFB	0729083	22			11								39
MO	WHITEMAN AFB	0729089	5	7	18	4	2				927	952		
MO	WHITEMAN AFB	0729097	52	15	216	30	5				3,620	1,045		
MO	WHITEMAN AFB	0729101	30			15								40
MO	WHITEMAN AFB	0729105			69									
MO	WHITEMAN AFB	0729107	46			23								43
MO	WHITEMAN AFB	0729109	24	18	97	14	5				1,216	900		
MO	WHITEMAN AFB	0729115			47									
MO	WHITEMAN AFB	0729119	10	4	74	6	1				3,336	1,251		
MO	WHITEMAN AFB	0729125			18									
MO	WHITEMAN AFB	0729129	1		17	1						4,841		
MO	WHITEMAN AFB	0729135	14			7								45
MO	WHITEMAN AFB	0729141	16		1	4								16
MO	WHITEMAN AFB	0729145	23	15	119	13	5				1,785	1,121		
MO	WHITEMAN AFB	0729151	7	15	23	4	3				515	1,070		
MO	WHITEMAN AFB	0729169			45									
MO	WHITEMAN AFB	0729171	10	9	13	4	1	1			418	380		
MO	WHITEMAN AFB	0729175	15	13	50	9	4				1,052	901		
MO	WHITEMAN AFB	0729185	15			5								28
MO	WHITEMAN AFB	0729195	27			13			36					44
MO	WHITEMAN AFB	0729209			56									
MO	WHITEMAN AFB	0729211			28									
MO	WHITEMAN AFB	0729213			44									
MO	WHITEMAN AFB	0729215	12	12	57	7	4				1,134	1,168		
MO	WHITEMAN AFB	0729227			13									
MO	WHITEMAN AFB		464	142	1,344	230	35	4	1,042		2,062	1,558		37

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
MS	COLUMBUS AFB	0428025							1,851	25			93	47
MS	COLUMBUS AFB	0428061			95									
MS	COLUMBUS AFB	0428087	7	3	42	2						148		62
MS	COLUMBUS AFB	0428095			50					26				
MS	COLUMBUS AFB	0428105	3	62	71	3	19				375		9,102	
MS	COLUMBUS AFB		10	65	258	5	19		1,851	51	950	142	19,634	61

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
MT	MALMSTROM AFB	0830013	79			40								77
MT	MALMSTROM AFB	0830015	1		19									80
MT	MALMSTROM AFB	0830027	12			6								62
MT	MALMSTROM AFB	0830029			326									
MT	MALMSTROM AFB	0830035			85									
MT	MALMSTROM AFB	0830041			87									
MT	MALMSTROM AFB	0830045	2			1				20				22
MT	MALMSTROM AFB	0830049	119	41	113	45	12			15	1,640		572	
MT	MALMSTROM AFB	0830063	151	137	109	57	27				742		694	
MT	MALMSTROM AFB	0830073	5			3								82
MT	MALMSTROM AFB	0830099	2		2	1				53				52
MT	MALMSTROM AFB	0830101	1		24	1								81
MT	MALMSTROM AFB	0830107	6			3								60
MT	MALMSTROM AFB		378	178	767	157	39			88	1,932		1,274	74

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NC	SEYMOUR JOHNSON AFB	0437147			590									
NC	SEYMOUR JOHNSON AFB	0437191	37	8	237	8		2				262		55
NC	SEYMOUR JOHNSON AFB		37	8	827	8		2				295		55

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES SHORT HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
ND	GRAND FORKS AFB	0838000	9		5	6							276	80
ND	GRAND FORKS AFB	0838005	20	5	8	8	1				971		243	
ND	GRAND FORKS AFB	0838015	177	21	194	67	7				4,104		480	
ND	GRAND FORKS AFB	0838017	57		33	22							186	68
ND	GRAND FORKS AFB	0838019	3			1								84
ND	GRAND FORKS AFB	0838027			6									
ND	GRAND FORKS AFB	0838035	32			16								88
ND	GRAND FORKS AFB	0838039	2			1				12				39
ND	GRAND FORKS AFB	0838043			18									
ND	GRAND FORKS AFB	0838063	4			2								56
ND	GRAND FORKS AFB	0838071	7			4								87
ND	GRAND FORKS AFB	0838091	9			2								13
ND	GRAND FORKS AFB	0838093	87		138	43							604	
ND	GRAND FORKS AFB	0838099	6			3								105
ND	GRAND FORKS AFB		413	26	402	175	8			12	4,247		474	74

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES SHORT HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
ND	MINOT AFB	0838013								1				42
ND	MINOT AFB	0838023			5									
ND	MINOT AFB	0838041			10									
ND	MINOT AFB	0838049	1											53
ND	MINOT AFB	0838055	2			1								59
ND	MINOT AFB	0838057			13									
ND	MINOT AFB	0838059			95									
ND	MINOT AFB	0838061	6			3								74
ND	MINOT AFB	0838065			6									
ND	MINOT AFB	0838075	4			2								92
ND	MINOT AFB	0838083								2				
ND	MINOT AFB	0838089			62									
ND	MINOT AFB	0838101	21			11								72
ND	MINOT AFB	0838105			48									
ND	MINOT AFB		34		239	17				3				73

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NE	OFFUTT AFB	0731011	13		1	4			3,438				48	
NE	OFFUTT AFB	0731019			77									
NE	OFFUTT AFB	0731021	3	1		1			3,731		231		58	
NE	OFFUTT AFB	0731023	9	3	1	3		1	3,442		314		89	
NE	OFFUTT AFB	0731025	13	3	1	5		2	9,146		279		69	
NE	OFFUTT AFB	0731037	6		1	3			4,081				74	
NE	OFFUTT AFB	0731039	9	3		4		1	4,641		267		89	
NE	OFFUTT AFB	0731053	24	19	10	4		4	12,435		264		207	
NE	OFFUTT AFB	0731055	46	9	9	19	1	2	4		309		213	42
NE	OFFUTT AFB	0731077	2			1			1,532				61	
NE	OFFUTT AFB	0731079	64	32	61	17	2	8	9,442		480		240	
NE	OFFUTT AFB	0731093			17									
NE	OFFUTT AFB	0731119	68	22	18	14	2	5	4,238		557		183	
NE	OFFUTT AFB	0731121	1						4,341				27	
NE	OFFUTT AFB	0731125	3			2			1,732				27	
NE	OFFUTT AFB	0731131	15	5	3	4		2	5,410		336		121	
NE	OFFUTT AFB	0731141	42	14	10	15	1	4	9,196		366		120	
NE	OFFUTT AFB	0731143	3	1	1	2			2,579		790		132	
NE	OFFUTT AFB	0731153	92			31			1,714				54	23
NE	OFFUTT AFB	0731155	14	6	1	3		3	7,344		207		90	
NE	OFFUTT AFB	0731163			9									
NE	OFFUTT AFB	0731167							3,288					
NE	OFFUTT AFB	0731177	13	6	2	3		2	5,804		233		109	
NE	OFFUTT AFB	0731179	21	3	5	5		1	1,213		863		145	
NE	OFFUTT AFB		461	127	224	140	6	35	98,701		595		224	28

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NE	WARREN AFB	0731007							52	18				
NE	WARREN AFB	0731013			60									
NE	WARREN AFB	0731033	15			7								80
NE	WARREN AFB	0731045			30									
NE	WARREN AFB	0731049	18	4		4		2	1,308		289		64	
NE	WARREN AFB	0731101			48									
NE	WARREN AFB	0731105	4			2			247					40
NE	WARREN AFB	0731111			135									
NE	WARREN AFB	0731123	1		1	1			5,111				333	
NE	WARREN AFB	0731157	66	12	16	17		5	3,347		609		125	86
NE	WARREN AFB	0731165			8									
NE	WARREN AFB		104	16	298	31		7	10,265	18	5,421		1,098	76

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NH	PEASE AFB	0133003	7		160	7							4,222	
NH	PEASE AFB	0133011	40	23	38	14	7				579		511	
NH	PEASE AFB	0133013			272									
NH	PEASE AFB	0133015	126	39	74	43	7				1,023		390	42
NH	PEASE AFB	0133017	8		173	2								32
NH	PEASE AFB		181	53	667	66	14				3,289		1,339	40

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NJ	MCGUIRE AFB	0234005	46		5	23								40
NJ	MCGUIRE AFB	0234007	5	2	1	2			297		547		223	
NJ	MCGUIRE AFB	0234009			140									
NJ	MCGUIRE AFB	0234015	4	5	2	1	1				518		660	
NJ	MCGUIRE AFB	0342027	33		136	23							925	
NJ	MCGUIRE AFB	0342033	19	5	4	4		1	18,696		561		138	
NJ	MCGUIRE AFB		107	12	288	53	1	1	18,993		6,060		1,182	39

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NM	KIRTLAND AFB	0635001	141		12	71								63
NM	KIRTLAND AFB	0635007			146									
NM	KIRTLAND AFB	0635019			52									
NM	KIRTLAND AFB	0635028			116									
NM	KIRTLAND AFB	0635033			30									
NM	KIRTLAND AFB	0635039			330									
NM	KIRTLAND AFB	0635043	29	29	275	11	10				2,770		2,770	
NM	KIRTLAND AFB	0635047			189									
NM	KIRTLAND AFB	0635049			456									
NM	KIRTLAND AFB	0635053			131									
NM	KIRTLAND AFB	0635055			284									
NM	KIRTLAND AFB	0635057			74									
NM	KIRTLAND AFB	0635061		179	399		28				891			
NM	KIRTLAND AFB		170	208	2,414	82	38				3,438		24,656	63

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NV	NELLIS AFB	0932003	75	105	250	24	28	1			900	144	4,385	46
NV	NELLIS AFB	0932017		4	36		1		4,690		2,172			
NV	NELLIS AFB	0932023	7	20	173	3	6				2,179		4,158	
NV	NELLIS AFB		82	129	459	27	35	1	4,690		1,185	141	7,111	46

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NY	GRIFFIS AFB	0236043			107									
NY	GRIFFIS AFB	0236045	438	42	210	166	12				1,859		236	56
NY	GRIFFIS AFB		438	42	317	166	12				2,492		317	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NY	PLATTSBURGH AFB	0235019	12		253	6								97
NY	PLATTSBURGH AFB		12		253	6								97

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
OH	RICKENBACKER AFB	0539041			25									
OH	RICKENBACKER AFB	0539045	25	17	20	8	3			21	706		591	14
OH	RICKENBACKER AFB	0539047			20									
OH	RICKENBACKER AFB	0539049	18			9								61
OH	RICKENBACKER AFB	0539073			22									
OH	RICKENBACKER AFB	0539089	3		50	3							3,854	
OH	RICKENBACKER AFB	0539097	1		13	1							3,427	
OH	RICKENBACKER AFB	0539111	3		12	2							760	
OH	RICKENBACKER AFB	0539115	5		11	2							463	
OH	RICKENBACKER AFB	0539121			8									
OH	RICKENBACKER AFB	0539127	10		21	4							378	
OH	RICKENBACKER AFB	0539129	15		11	3								17
OH	RICKENBACKER AFB	0539141			36									
OH	RICKENBACKER AFB	0539159	14	9	14	5	2				770		500	
OH	RICKENBACKER AFB	0539167			41									
OH	RICKENBACKER AFB		94	26	304	37	5			21	2,956		1,372	37

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
OH	WRIGHT-PATTERSON AFB	0539017			189									
OH	WRIGHT-PATTERSON AFB	0539021			84									
OH	WRIGHT-PATTERSON AFB	0539023	4		27	2								73
OH	WRIGHT-PATTERSON AFB	0539027			101									
OH	WRIGHT-PATTERSON AFB	0539037			161									
OH	WRIGHT-PATTERSON AFB	0539057	81	40	35	34	6				668		641	70
OH	WRIGHT-PATTERSON AFB	0539091			99									
OH	WRIGHT-PATTERSON AFB	0539109	13		142	11							3,972	25
OH	WRIGHT-PATTERSON AFB	0539113	82		20	28								46
OH	WRIGHT-PATTERSON AFB	0539135	43	6	87	15	2				3,797		542	
OH	WRIGHT-PATTERSON AFB	0539149	95	2	102	32	1				11,220		364	
OH	WRIGHT-PATTERSON AFB	0539165			80									
OH	WRIGHT-PATTERSON AFB		318	48	1,147	122	9				4,097		1,500	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
OK	ALTUS AFB	0640045	14	5	1	8	2		1,870		236		472	59
OK	ALTUS AFB	0640075			156									
OK	ALTUS AFB	0640141			113									
OK	ALTUS AFB		14	5	270	8	2		1,870		10,582		26,388	59

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
OK	CLINTON SHERMAN AFB	0640009			106									
OK	CLINTON SHERMAN AFB	0640039			59									
OK	CLINTON SHERMAN AFB	0640149	39	11	3	24	2	2	4,080		245		128	41
OK	CLINTON SHERMAN AFB		39	11	168	24	2	2	4,080		4,052		2,122	41

STATE NAME	AREA NAME	FIPS CODE	TOTAL NP	TOTAL PAK	MID-REV STORIES	NP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/NP HOST	SPACES/NP RISK
OK	TINKER AFB	0640011	9	8	7	8	2				344		359	
OK	TINKER AFB	0640017	2	5	2	1	1		920		283		447	
OK	TINKER AFB	0640019	5	77	7	5	19				141		2,261	
OK	TINKER AFB	0640027	24	79	74	15	24				371		4,912	27
OK	TINKER AFB	0640039	14	8	13	8	3				847		990	
OK	TINKER AFB	0640049	8	20	13	8	6				325		809	
OK	TINKER AFB	0640051	6	62	9	6	14				288		2,100	
OK	TINKER AFB	0640071	6	3	8	6	2				427		517	
OK	TINKER AFB	0640083	6	46	14	6	12				232		2,906	
OK	TINKER AFB	0640087	6	26	10	6	6				265		1,110	
OK	TINKER AFB	0640099	4	25	5	4	7				148		1,150	
OK	TINKER AFB	0640109	116	55	32	63	17				299		1,809	38
OK	TINKER AFB	0640119	10	156	12	10	34				196		2,973	
OK	TINKER AFB	0640123	7	69	14	7	17				229		2,161	
OK	TINKER AFB	0640125	13	98	27	13	25				238		1,816	
OK	TINKER AFB	0640133	2	21	23	2	7				482		5,263	
OK	TINKER AFB		238	763	272	166	196		920		252		1,748	37

STATE NAME	AREA NAME	FIPS CODE	TOTAL NP	TOTAL PAK	MID-REV STORIES	NP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/NP HOST	SPACES/NP RISK
SC	CHARLESTON AF	0445015	3	134	411	3	36			2	948	188	21,794	377
SC	CHARLESTON AF	0445019	113	204	194	32	38	8			254	81	9,162	56
SC	CHARLESTON AF	0445029	15	89	323	15	27				747		7,401	
SC	CHARLESTON AF	0445035	14	415	358	14	68				311		9,030	
SC	CHARLESTON AF	0445048			487									
SC	CHARLESTON AF	0445089			550									
SC	CHARLESTON AF		145	844	2,230	64	169	8		2	414	91	13,126	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL HP	TOTAL PAK	MD-DEV STORIES	HP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/HP HOST	SPACES/HP RISK
SD	ELLSWORTH AFB	0846009	35		9	11			8,604				33	
SD	ELLSWORTH AFB	0846015			32									
SD	ELLSWORTH AFB	0846017	23	10	10	2	1	1			486		192	
SD	ELLSWORTH AFB	0846019	11			6								70
SD	ELLSWORTH AFB	0846023			68									
SD	ELLSWORTH AFB	0846043	14			5			5,648				14	
SD	ELLSWORTH AFB	0846053			45									
SD	ELLSWORTH AFB	0846055	2			1								65
SD	ELLSWORTH AFB	0846059			28									
SD	ELLSWORTH AFB	0846065			93									
SD	ELLSWORTH AFB	0846069			10									
SD	ELLSWORTH AFB	0846071	2			1								36
SD	ELLSWORTH AFB	0846081	34			17								75
SD	ELLSWORTH AFB	0846085			31									
SD	ELLSWORTH AFB	0846093	32			16								67
SD	ELLSWORTH AFB	0846105	19			10								73
SD	ELLSWORTH AFB	0846117			22									72
SD	ELLSWORTH AFB	0846123			53									
SD	ELLSWORTH AFB		172	10	490	69	1	1	14,332		10,415		1,447	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL HP	TOTAL PAK	MD-DEV STORIES	HP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/HP HOST	SPACES/HP RISK
TX	BERGSTROM AFB	0648021	2	241	61	2	38				174		22,134	
TX	BERGSTROM AFB	0648209	7	489	99	7	93				177		15,027	
TX	BERGSTROM AFB	0648453	156	262	68	88	61				189	81	6,934	66
TX	BERGSTROM AFB	0648491	5	771	74	5	86				169		26,040	
TX	BERGSTROM AFB		170	1,763	289	94	278				169	81	15,439	66

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-REV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	CARSWELL AFB	0648023			26									
TX	CARSWELL AFB	0648075			29									
TX	CARSWELL AFB	0648099	1	4	43	1	1				2,000		12,539	
TX	CARSWELL AFB	0648101			12									
TX	CARSWELL AFB	0648107	9	17	3	2	2	1	41		248		451	
TX	CARSWELL AFB	0648125			12									
TX	CARSWELL AFB	0648133			94									
TX	CARSWELL AFB	0648143	2	56	65	2	16				250		9,095	
TX	CARSWELL AFB	0648153	4	9	21	2	3				888		2,209	
TX	CARSWELL AFB	0648155	1	3	0	1	1				613		1,471	
TX	CARSWELL AFB	0648191			19									
TX	CARSWELL AFB	0648197			28									
TX	CARSWELL AFB	0648207			43									
TX	CARSWELL AFB	0648221		71	26		11				193		68,194	
TX	CARSWELL AFB	0648231	3	288	111	2	58				175		14,970	
TX	CARSWELL AFB	0648263		3	1		1				268			
TX	CARSWELL AFB	0648275			26									
TX	CARSWELL AFB	0648349			10									
TX	CARSWELL AFB	0648363			148									
TX	CARSWELL AFB	0648367	1	113	98	1	28				264		28,479	
TX	CARSWELL AFB	0648417			6									
TX	CARSWELL AFB	0648473		13	9		3				259		12,950	
TX	CARSWELL AFB	0648425			49									
TX	CARSWELL AFB	0648439			7									
TX	CARSWELL AFB	0648439	166	42	64	49	10					91		23
TX	CARSWELL AFB	0648447	-	1	9						1,000			
TX	CARSWELL AFB		187	414	969	60	131	1	41		416	90	11,225	23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-REV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	DYESS AFB	0648009			112									
TX	DYESS AFB	0648131	12	39	28	4	7	1	479		300		967	
TX	DYESS AFB	0648253			204									
TX	DYESS AFB	0648333			207									
TX	DYESS AFB	0648441	71		55	36								33
TX	DYESS AFB		83	39	688	40	7	1	479		2,988		9,702	33

STATE NAME	AREA NAME	FIPS CODE	TOTAL NP	TOTAL PVA	NO-REV STORIES	NP STORIES	PVA STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PVA HOST	SPACES/PVA RISK	SPACES/NP HOST	SPACES/NP RISK
TX	SHEPPARD AFB	0648067	3	23	139	3	11				935		7,445	
TX	SHEPPARD AFB	0648069	7	14	112	7	5				1,719		3,229	
TX	SHEPPARD AFB	0648077			105									
TX	SHEPPARD AFB	0648085	93		43	44								32
TX	SHEPPARD AFB	0648087	9	236	221	9	69				370		9,837	
TX	SHEPPARD AFB		112	283	619	63	85				588		6,636	32

STATE NAME	AREA NAME	FIPS CODE	TOTAL NP	TOTAL PVA	NO-REV STORIES	NP STORIES	PVA STORIES	OTHER STORIES	SPACES HOST	SPACES RISK	SPACES/PVA HOST	SPACES/PVA RISK	SPACES/NP HOST	SPACES/NP RISK
UT	HILL AFB	0849001			17									
UT	HILL AFB	0849003			189									
UT	HILL AFB	0849005	38		179	23							1,596	
UT	HILL AFB	0849007	9		98	9							2,868	
UT	HILL AFB	0849009			4									
UT	HILL AFB	0849011	68			36								64
UT	HILL AFB	0849013			41									
UT	HILL AFB	0849015			37									
UT	HILL AFB	0849017			45									
UT	HILL AFB	0849019	0		1	3			3,998				36	
UT	HILL AFB	0849021	64	5	78	24	2				5,171		649	
UT	HILL AFB	0849023			14									
UT	HILL AFB	0849025			23									
UT	HILL AFB	0849027			38									
UT	HILL AFB	0849031	4	1	8	2			384				288	
UT	HILL AFB	0849033	1		9	1							2,884	
UT	HILL AFB	0849037	28	3	56	8	1				4,849		677	
UT	HILL AFB	0849039			58									
UT	HILL AFB	0849041			51									
UT	HILL AFB	0849043	0		1	3			7,139				44	
UT	HILL AFB	0849045			14									
UT	HILL AFB	0849047			36									
UT	HILL AFB	0849049	38	12	52	36	3				1,577		234	
UT	HILL AFB	0849053	59	15	99	22	5				2,471		638	
UT	HILL AFB	0849055			6									
UT	HILL AFB	0849057	115		20	58							317	75
UT	HILL AFB		476	36	1,488	225	11		11,276		5,749		996	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
VA	NORFOLK NF	0351025			134									
VA	NORFOLK NF	0351036	2	12	34	1	2		254		576		4,429	
VA	NORFOLK NF	0351081			96									
VA	NORFOLK NF	0351083	37	42	187	21	11				1,001		1,178	
VA	NORFOLK NF	0351093			73									
VA	NORFOLK NF	0351111	12		92	9							1,461	
VA	NORFOLK NF	0351117	34	41	342	19	14				1,465		1,786	
VA	NORFOLK NF	0351131			101									
VA	NORFOLK NF	0351175			138									
VA	NORFOLK NF	0351181		5	38		2				1,299			
VA	NORFOLK NF	0351183			93									45
VA	NORFOLK NF	0351530	14		5	4								
VA	NORFOLK NF	0351595			72									
VA	NORFOLK NF	0351620			68									33
VA	NORFOLK NF	0351710	219			110								33
VA	NORFOLK NF	0351740	78			39								
VA	NORFOLK NF	0351780	15	19	80	8	6				1,139		1,490	
VA	NORFOLK NF	0351800			474									
VA	NORFOLK NF	0351810	18	2		9						336		34
VA	NORFOLK NF	0437015			163									
VA	NORFOLK NF	0437055			330									
VA	NORFOLK NF	0437083			389									
VA	NORFOLK NF	0437091			167									
VA	NORFOLK NF	0437181	14	18	8	4	4	2	39,675		356		465	
VA	NORFOLK NF	0437185			102									
VA	NORFOLK NF		443	139	3,206	219	39	2	40,129		4,399	5,613	5,286	34

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
VA	BRENERTON NF	1053009	70	37	324	27	11				3,623		1,894	
VA	BRENERTON NF	1053031			98									
VA	BRENERTON NF	1053035	78			20								38
VA	BRENERTON NF		148	37	422	47	11				4,293		2,269	38

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
MA	FAIRCHILD AFB	1016017			27									
MA	FAIRCHILD AFB	1016057			30									
MA	FAIRCHILD AFB	1016069			22									
MA	FAIRCHILD AFB	1016079			19									
MA	FAIRCHILD AFB	1053051			11									
MA	FAIRCHILD AFB	1053063	24		16	12								50
MA	FAIRCHILD AFB	1053065			31									
MA	FAIRCHILD AFB	1053075			65									
MA	FAIRCHILD AFB		24		221	12								59

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
WY	WARREN AFB	0856001			59									
WY	WARREN AFB	0856007			64									
WY	WARREN AFB	0856009	5		15	3							950	
WY	WARREN AFB	0856015	13		2	6								54
WY	WARREN AFB	0856021	14			7								58
WY	WARREN AFB	0856027			6									
WY	WARREN AFB	0856031	6		4	3								52
WY	WARREN AFB	0856045			14									
WY	WARREN AFB		38		144	19							9,017	54

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
REGION 1			3,570	76	4,295	656	16	4	324	2,660	19,044	3,089	7,646	24
REGION 2			505	49	842	198	13		297		4,859		702	54
REGION 3			481	136	2,187	242	35	1	18,350		3,438	5,613	2,882	34
REGION 4			437	2,120	6,479	147	439	26	98,351	103	741	76	12,368	55
REGION 5			439	74	2,536	172	14			133	8,414		2,531	51
REGION 6			1,336	5,582	10,238	713	1,241	11	58,243	365	548	146	8,899	49
REGION 7			2,080	570	4,688	913	96	71	163,948	104	2,046		1,022	42
REGION 8			2,706	688	5,860	997	100	39	163,844	103	2,046		1,388	61
REGION 9			5,318	3,829	12,274	743	675	177	418,574	170	1,264	208	4,130	64
REGION 10			202	63	650	62	14	2	55,619	116	3,951	2,667	2,485	43

APPENDIX B

"Worst Case" Counterforce Area Ventilation Kit Requirements

APPENDIX B

"Worst Case" Counterforce Area Ventilation Kit Requirements

This appendix contains the output of the requirements program, computed under "worst case" assumptions. Data are listed in alphabetical order by state. Within each state listing are the counterforce installations and associated risk and host counties (indexed by FIPS Codes). Data listed for each county include the following:

- TOTAL KP (total number of Kearny pumps required)
- TOTAL PVK (total number of PVKs required)
- NO-DEV STORIES (number of stories requiring no ventilation kits)
- KP STORIES (number of stories requiring only Kearny pumps)
- PVK STORIES (number of stories requiring only PVKs)
- OTHER STORIES (number of stories requiring both Kearny pumps and PVKs)
- ADDITIONAL SPACES NEEDED-HOST (additional host area spaces needed)
- ADDITIONAL SPACES NEEDED-RISK (additional risk area spaces needed)
- SPACES/PVK-HOST (average number of host area spaces serviced per PVK)
- SPACES/PVK-RISK (average number of risk area spaces serviced per PVK)
- SPACES/KP-HOST (average number of host area spaces serviced per Kearny pump)
- SPACES/KP-RISK (average number of risk area spaces serviced per Kearny pump)

Summaries of the above data are printed for each counterforce area and for each FEMA Region at the completion of the requirements program.

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AK	EIELSON AFB	1002818							53,064	116				
AK	EIELSON AFB								53,064	116				

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	BLYTHEVILLE AFB	0605021	129	187		129	112				210		305	
AR	BLYTHEVILLE AFB	0605031	344	879		344	528				191		487	
AR	BLYTHEVILLE AFB	0605055	100	189		100	108				200		379	
AR	BLYTHEVILLE AFB	0605075	106	244		106	148				193		442	
AR	BLYTHEVILLE AFB	0605093	126	274		121	169				200	110	458	88
AR	BLYTHEVILLE AFB	0605121	85	110		85	69				226		294	
AR	BLYTHEVILLE AFB		890	1,883		885	1,134				197	108	420	87

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	LITTLE ROCK AFB	0605005	52	21		52	17				495		199	
AR	LITTLE ROCK AFB	0605009	92			92							113	
AR	LITTLE ROCK AFB	0605013	13	26		2	3	1	1,289		91		187	
AR	LITTLE ROCK AFB	0605019	32	88		32	51				182		503	
AR	LITTLE ROCK AFB	0605023	9	3		4	1					139		46
AR	LITTLE ROCK AFB	0605029	10	16		5	4					77		124
AR	LITTLE ROCK AFB	0605039	16	42		16	22				181		472	
AR	LITTLE ROCK AFB	0605045	26	16		13	4					94		58
AR	LITTLE ROCK AFB	0605049	47			47							104	
AR	LITTLE ROCK AFB	0605051	32	280		32	101				174		1,521	
AR	LITTLE ROCK AFB	0605053	6	49		6	15				139		1,052	
AR	LITTLE ROCK AFB	0605059	20	78		20	39				178		683	
AR	LITTLE ROCK AFB	0605061	1	1		1	1		10,080		249		249	
AR	LITTLE ROCK AFB	0605063	15	46		15	25			36	185		563	
AR	LITTLE ROCK AFB	0605065	13	30		13	17				196		458	
AR	LITTLE ROCK AFB	0605067	12	82		12	42			24	170		1,160	
AR	LITTLE ROCK AFB	0605071	43	72		43	46				205		342	
AR	LITTLE ROCK AFB	0605083	59	88		59	57				215		320	
AR	LITTLE ROCK AFB	0605089	44			44							116	
AR	LITTLE ROCK AFB	0605095	31	69		31	41				192		421	
AR	LITTLE ROCK AFB	0605097							3,977				50	
AR	LITTLE ROCK AFB	0605099	11	40		11	24				177		627	
AR	LITTLE ROCK AFB	0605101	5	11		4	5		1,302		159		463	
AR	LITTLE ROCK AFB	0605103	18	31		4	4	2	16,936		91		159	
AR	LITTLE ROCK AFB	0605105	14			14				75			96	
AR	LITTLE ROCK AFB	0605107	30	85		30	49				182		511	
AR	LITTLE ROCK AFB	0605109	2	1		2	1		7,391		238		191	
AR	LITTLE ROCK AFB	0605111	37	113		37	66				179		541	
AR	LITTLE ROCK AFB	0605113	6	74		6	34				164		1,869	
AR	LITTLE ROCK AFB	0605115	63	24		63	21			171	419		158	
AR	LITTLE ROCK AFB	0605117	2	37		2	8				172		4,161	
AR	LITTLE ROCK AFB	0605119	22			11								38
AR	LITTLE ROCK AFB	0605125	36	145		36	64				180		723	
AR	LITTLE ROCK AFB	0605127	7	36		7	9				167		841	
AR	LITTLE ROCK AFB	0605129	21	7		21	6				430		145	
AR	LITTLE ROCK AFB	0605133	9	58		9	27				164		1,940	
AR	LITTLE ROCK AFB	0605135	25	30		25	18				235		280	
AR	LITTLE ROCK AFB	0605137	6	22		6	11				174		676	
AR	LITTLE ROCK AFB	0605139	14	217		14	70				137		2,111	
AR	LITTLE ROCK AFB	0605141	6			3								34

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
AR	LITTLE ROCK AFB	0405145	25	18		7	2	2				86		61
AR	LITTLE ROCK AFB	0405147	9	27		9	15			59	178		346	
AR	LITTLE ROCK AFB	0405149	61	15		61	15				541		137	
AR	LITTLE ROCK AFB		1,001	1,998		921	935	5	40,975	365	194	108	418	58

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
AZ	DAVIS-MONTHAN AFB	0904003	1,273	894		1,196	551			146	334		235	
AZ	DAVIS-MONTHAN AFB	0904007	486			472							111	
AZ	DAVIS-MONTHAN AFB	0904009	427	253		409	156				341		202	
AZ	DAVIS-MONTHAN AFB	0904011	98	133		84	48				445		601	
AZ	DAVIS-MONTHAN AFB	0904019	691	220		378	116				289		276	32
AZ	DAVIS-MONTHAN AFB	0904021	692	715		688	428			24	259		309	
AZ	DAVIS-MONTHAN AFB	0904023	354	342		342	192				286		277	
AZ	DAVIS-MONTHAN AFB		4,021	2,567		3,561	1,491			170	341		285	32

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	CASTLE/SUNNYVALE AFB'S	0906005	74	23		66	12				821		251	
CA	CASTLE/SUNNYVALE AFB'S	0906009	58			58							155	
CA	CASTLE/SUNNYVALE AFB'S	0906039	25	1		10			45,650		909		49	
CA	CASTLE/SUNNYVALE AFB'S	0906043	4	3		2	1		9,425		326		261	
CA	CASTLE/SUNNYVALE AFB'S	0906047	364	110		202	50	2			818	244	209	82
CA	CASTLE/SUNNYVALE AFB'S	0906053	54	61		10	11	8	43,996		491		448	
CA	CASTLE/SUNNYVALE AFB'S	0906067	1			1			19,661				187	
CA	CASTLE/SUNNYVALE AFB'S	0906077	584	170		385	93				795		218	
CA	CASTLE/SUNNYVALE AFB'S	0906081							2,447					
CA	CASTLE/SUNNYVALE AFB'S	0906085	2,023	633		171	15	47	42,950		411	197	346	56
CA	CASTLE/SUNNYVALE AFB'S	0906087	609	221		567	111				764		277	
CA	CASTLE/SUNNYVALE AFB'S	0906099	122	49		31	8	10	74,948		399		161	
CA	CASTLE/SUNNYVALE AFB'S	0906109	18	13		8	4	1	22,563		488		280	
CA	CASTLE/SUNNYVALE AFB'S		3,938	1,284		1,511	385	108	261,640		665	202	245	59

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-REV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	MARCH AFB/SAN DIEGO NF	0906019	5	7		1	1	1	9,498		320		418	
CA	MARCH AFB/SAN DIEGO NF	0906025	13	22		13	10				274		443	
CA	MARCH AFB/SAN DIEGO NF	0906027							1,275		267		267	
CA	MARCH AFB/SAN DIEGO NF	0906029	9	4		3	1	1	8,837		335		168	
CA	MARCH AFB/SAN DIEGO NF	0906031	2	2		1			3,367		484		340	
CA	MARCH AFB/SAN DIEGO NF	0906037	3	4			1		3,371		336		477	
CA	MARCH AFB/SAN DIEGO NF	0906051							974					
CA	MARCH AFB/SAN DIEGO NF	0906059	3	3					15,307		318		298	
CA	MARCH AFB/SAN DIEGO NF	0906065	268	316		86	69	10			264	115	585	110
CA	MARCH AFB/SAN DIEGO NF	0906071	34	47		33	18				281		306	
CA	MARCH AFB/SAN DIEGO NF	0906073	485	164		125	24	14	3,327		435	206	376	49
CA	MARCH AFB/SAN DIEGO NF	0906079	48	11		47	9				1,151		220	
CA	MARCH AFB/SAN DIEGO NF	0906083	6	5		2	1	1	7,516		423		356	
CA	MARCH AFB/SAN DIEGO NF	0906107	5	3		1	1		15,964		274		176	
CA	MARCH AFB/SAN DIEGO NF	0906111	2	2		1			12,994		342		315	
CA	MARCH AFB/SAN DIEGO NF		883	592		313	135	27	82,390		350	144	389	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-REV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	MATHER AFB/BEALE AFB	0906003	10			10							128	
CA	MATHER AFB/BEALE AFB	0906007	426	118		379	76				914		252	
CA	MATHER AFB/BEALE AFB	0906017	276	43		263	31				1,391		219	
CA	MATHER AFB/BEALE AFB	0906057	189	18		177	14				1,819		174	
CA	MATHER AFB/BEALE AFB	0906061	244	41		225	32				1,252		210	
CA	MATHER AFB/BEALE AFB	0906067	1,210	377		90	13	39			333	187	696	53
CA	MATHER AFB/BEALE AFB	0906091	8	2		8	1		845		1,070		229	
CA	MATHER AFB/BEALE AFB	0906101	204			204							177	
CA	MATHER AFB/BEALE AFB	0906115	118	36		117	2					126	178	2,272
CA	MATHER AFB/BEALE AFB		2,685	635		1,473	169	39	845		1,270	191	222	57

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CA	TRAVIS AFB/MARE I. NF	0906001	80	83		18	14	9	24,338		443		442	
CA	TRAVIS AFB/MARE I. NF	0906011	27	1		24	1				4,403		165	
CA	TRAVIS AFB/MARE I. NF	0906013	55	44		5	3	1	8,674		241	224	5,787	173
CA	TRAVIS AFB/MARE I. NF	0906021	40	2		34	2				3,213		162	
CA	TRAVIS AFB/MARE I. NF	0906089	14	14		4	3	2	23,978		410		405	
CA	TRAVIS AFB/MARE I. NF	0906095	1,394	115		596	14	9	11,195		482	310	246	20
CA	TRAVIS AFB/MARE I. NF	0906103	51	10		45	7				1,111		225	
CA	TRAVIS AFB/MARE I. NF	0906113	60	41		33	10	6			301		344	
CA	TRAVIS AFB/MARE I. NF		1,721	310		759	54	27	68,405		551	282	303	26

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CO	LOWRY AFB	0808001	42			18							113	25
CO	LOWRY AFB	0808005	225	2		63	1				987		234	33
CO	LOWRY AFB	0808009	60			41							94	
CO	LOWRY AFB	0808011	34	10		29	6				705		200	
CO	LOWRY AFB	0808013	93	33		24	6	7	29,170		384		138	
CO	LOWRY AFB	0808017	15			15							116	
CO	LOWRY AFB	0808019	35			35							144	
CO	LOWRY AFB	0808025	17			17							171	
CO	LOWRY AFB	0808029	101			101							165	
CO	LOWRY AFB	0808031	44			22								78
CO	LOWRY AFB	0808033	10			10							156	
CO	LOWRY AFB	0808035	55	16		44	5	1			780		200	
CO	LOWRY AFB	0808037	40	22		30	9				611		336	
CO	LOWRY AFB	0808039	30			30							124	
CO	LOWRY AFB	0808045	141	18		86	10				1,156		145	
CO	LOWRY AFB	0808047	5			4			1,836				82	
CO	LOWRY AFB	0808049	60			57							152	
CO	LOWRY AFB	0808057	14			10							125	
CO	LOWRY AFB	0808059	48	16		11	1	3	30,622		356		120	
CO	LOWRY AFB	0808061	26			20							88	
CO	LOWRY AFB	0808065	43	8		35	4				1,068		191	
CO	LOWRY AFB	0808069	404	201		127	32	38	45,844		475		236	
CO	LOWRY AFB	0808073	23			23							142	
CO	LOWRY AFB	0808077	419	24		311	24				2,422		140	
CO	LOWRY AFB	0808081	69	8		45	6				1,239		148	
CO	LOWRY AFB	0808083	99			88							130	
CO	LOWRY AFB	0808085	154			121							121	
CO	LOWRY AFB	0808091	11			11							170	
CO	LOWRY AFB	0808093	39	5		36	2		674		1,059		138	
CO	LOWRY AFB	0808097	57	14		38	6				934		235	
CO	LOWRY AFB	0808099	33			33							146	
CO	LOWRY AFB	0808103	39	5		26	3				1,184		149	
CO	LOWRY AFB	0808107	72	18		51	11				812		205	
CO	LOWRY AFB	0808111	5			5							164	
CO	LOWRY AFB	0808113	13			13							161	
CO	LOWRY AFB	0808117	69	8		59	4				1,400		163	
CO	LOWRY AFB		2,644	408		1,689	130	49	108,146		964		167	39

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	MID-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CO	PETERSON AFB	0808007	36	12		36	8				970		299	
CO	PETERSON AFB	0808015	224			224							175	
CO	PETERSON AFB	0808041	262	222		142	30				514		688	85
CO	PETERSON AFB	0808043	457	15		443	15				5,889		131	
CO	PETERSON AFB	0808051	355			254							112	
CO	PETERSON AFB	0808067	603	23		428	23				3,649		137	
CO	PETERSON AFB	0808079	28			28							77	
CO	PETERSON AFB	0808105	187	20		170	20				1,714		180	
CO	PETERSON AFB	0808109	51			51							156	
CO	PETERSON AFB	0808119	258	6		217	6				5,806		133	
CO	PETERSON AFB		2,663	298		2,015	102				1,514		176	85

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	MID-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CO	WARREN AFB	0808063	40	12		27	5				391		177	
CO	WARREN AFB	0808075	15			7								32
CO	WARREN AFB	0808087	26	4		8		2	2,709		498		71	49
CO	WARREN AFB	0808123	73	32		41	7	1			571		259	75
CO	WARREN AFB	0808125	60	7		41	5				1,019		123	
CO	WARREN AFB		214	55		124	17	3	2,709		632		176	36

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	MID-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
CT	GROTON NF	0109001	245	25		151	20				1,116		113	
CT	GROTON NF	0109011	1,075	102		297	49	4			542	850	143	23
CT	GROTON NF	0130027	781			489							95	
CT	GROTON NF		2,101	127		937	69	4			1,379	837	110	23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
FL	EGLIN AFB	0412039	91	163		91	100				194		340	
FL	EGLIK AFB	0412091	308	189		267	112	3			325	44	182	46
FL	EGLIN AFB	0412113	7	94		3	9	1	10,529		108		1,372	
FL	EGLIN AFB	0412131	132	188		132	108				216		308	
FL	EGLIN AFB	0412133	19	34		3	7	3	27,301		110		199	
FL	EGLIN AFB		557	668		498	336	7	37,830		215	44	261	46

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
FL	HOMESTEAD AFB	0412015	7	99		7	32				116		1,560	
FL	HOMESTEAD AFB	0412021	24	145		24	58				118		722	
FL	HOMESTEAD AFB	0412025	51	49		10	4	3				52		54
FL	HOMESTEAD AFB	0412027	6	41		6	16				116		834	
FL	HOMESTEAD AFB	0412043	1	12		1	4				94		831	
FL	HOMESTEAD AFB	0412049							4,912		115		230	
FL	HOMESTEAD AFB	0412051	6	39		6	16				114		686	
FL	HOMESTEAD AFB	0412055	7	24		6	7		9,924		112		412	
FL	HOMESTEAD AFB	0412081	42	251		42	102				141		848	
FL	HOMESTEAD AFB	0412105	75	259		75	139				144		501	
FL	HOMESTEAD AFB	0412115	117	291		117	121				153		382	
FL	HOMESTEAD AFB		336	1,212		294	499	3	14,836		137	42	550	59

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
FL	MACDILL AFB	0412017	6	19		6	6		29		134		484	
FL	MACDILL AFB	0412053	2	13		2	4				147		780	
FL	MACDILL AFB	0412057	4	6		1						39		88
FL	MACDILL AFB	0412089	9	37		9	16				148		599	
FL	MACDILL AFB	0412101	9	66		9	18				148		1,116	
FL	MACDILL AFB	0412103	37	73		35	41				157	64	329	47
FL	MACDILL AFB	0412119	2	7		2	3				146		630	
FL	MACDILL AFB		69	221		64	88		29		152	61	522	70

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-REV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
GA	KINGS BAY NF	0412009	25	47		25	25				165		308	
GA	KINGS BAY NF	0413039	11	10		8	5				215	86	260	57
GA	KINGS BAY NF	0413049	10	54		10	19		4,039		175		967	
GA	KINGS BAY NF		46	111		43	49		4,039		173	87	455	52

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-REV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
GA	ROBINS AFB	0413009	54	177		54	85				180		303	
GA	ROBINS AFB	0413021	13			6								30
GA	ROBINS AFB	0413023	11	56		11	19				170		859	
GA	ROBINS AFB	0413091	29	45		29	23				283		323	
GA	ROBINS AFB	0413153	88	188		41	37	3			198	77	368	64
GA	ROBINS AFB	0413175	31	177		31	70				171		983	
GA	ROBINS AFB	0413207	17	55		14	19	1			170		559	
GA	ROBINS AFB	0413223	57	75		55	44				215		304	35
GA	ROBINS AFB	0413235	14	29		14	17				194		397	
GA	ROBINS AFB	0413289	20	27		20	16			50	289		279	
GA	ROBINS AFB		334	749		275	330	4		50	185	98	495	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-REV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
HI	PEARL HARBOR NF	0915001	579	2,048		579	846				189		668	
HI	PEARL HARBOR NF	0915003	1,779	2,197		1,672	1,113				207	103	271	71
HI	PEARL HARBOR NF	0915007	200	689		200	336				190		621	
HI	PEARL HARBOR NF		2,558	4,934		2,451	2,295				195	103	399	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-REV KP STORIES	PWR STORIES	OTHER STORIES	SPACES HORT	SHORT RISK	SPACES/PWR HORT	SPACES/PWR RISK	SPACES/KP HORT	SPACES/KP RISK
IN	GRISSOM AFB	0518017	285		285				110			138	
IN	GRISSOM AFB	0518067	742		742							140	
IN	GRISSOM AFB	0518103	335		216							86	57
IN	GRISSOM AFB		1,362		1,243				110			126	57

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-REV KP STORIES	PWR STORIES	OTHER STORIES	SPACES HORT	SHORT RISK	SPACES/PWR HORT	SPACES/PWR RISK	SPACES/KP HORT	SPACES/KP RISK
ID	MOUNTAIN HOME AFB	1016039	3	2				615			89		51
ID	MOUNTAIN HOME AFB	1016083	32	26	8	4	3	2,376		494		349	
ID	MOUNTAIN HOME AFB		35	28	8	4	3	2,991		488	89	384	46

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-REV KP STORIES	PWR STORIES	OTHER STORIES	SPACES HORT	SHORT RISK	SPACES/PWR HORT	SPACES/PWR RISK	SPACES/KP HORT	SPACES/KP RISK
KS	FORBES AFB	0720031	38	22	38	15				366		288	
KS	FORBES AFB	0720111	22	7	9	2	2	46,213		229		78	
KS	FORBES AFB	0720127	47	11	57	11				577		138	
KS	FORBES AFB	0720139	57	40	49	27				347		242	
KS	FORBES AFB	0720177	163	22	93	13				588		118	49
KS	FORBES AFB	0720197	21	30	16	13				239		507	
KS	FORBES AFB		348	132	252	81	2	46,213		340		192	49

STATE NAME	AREA NAME	FIPS CODE	TOTAL HP	TOTAL PAK	NO-DEV STORIES	HP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/HP HOST	SPACES/HP RISK
KS	MCCONNELL AFB	0720007	63	85		51	43				262		340	
KS	MCCONNELL AFB	0720009	406	338		267	197				332		227	
KS	MCCONNELL AFB	0720015	72			36								40
KS	MCCONNELL AFB	0720035	207	190		118	41	23	2,104		222		170	43
KS	MCCONNELL AFB	0720047	110	37		88	26				456		140	
KS	MCCONNELL AFB	0720051	316	399		277	212				274		348	
KS	MCCONNELL AFB	0720077	89	6		44	6				1,456		96	31
KS	MCCONNELL AFB	0720079	2			1								30
KS	MCCONNELL AFB	0720095	15			6			4,000				40	40
KS	MCCONNELL AFB	0720097	43	58		32	21				261		334	
KS	MCCONNELL AFB	0720113	314	386		273	179				299		291	
KS	MCCONNELL AFB	0720115	130	190		95	93				253		269	
KS	MCCONNELL AFB	0720145	151	98		116	52				388		230	
KS	MCCONNELL AFB	0720151	193	75		159	52				468		189	
KS	MCCONNELL AFB	0720155	548	26		462	26			86	2,177		164	
KS	MCCONNELL AFB	0720159	143	150		131	88				280		382	
KS	MCCONNELL AFB	0720168	128	22		112	17				752		132	
KS	MCCONNELL AFB	0720173	246			123								47
KS	MCCONNELL AFB	0720188	159	34		128	26				664		128	
KS	MCCONNELL AFB	0720191	27			14								48
KS	MCCONNELL AFB		3,492	1,990		2,649	1,087	23	6,142	86	332		215	46

STATE NAME	AREA NAME	FIPS CODE	TOTAL HP	TOTAL PAK	NO-DEV STORIES	HP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/HP HOST	SPACES/HP RISK
LA	BARKSDALE AFB	0622013	59	170		59	70				149		508	
LA	BARKSDALE AFB	0622015	41	86		39	38	2			163	49	334	86
LA	BARKSDALE AFB	0622017	182	233		122	101				153	99	342	44
LA	BARKSDALE AFB	0622027	39	153		39	77				145		567	
LA	BARKSDALE AFB	0622031	43	273		43	122				136		868	
LA	BARKSDALE AFB	0622049	30	174		30	90				133		739	
LA	BARKSDALE AFB	0622061	81	595		81	235				143		1,049	
LA	BARKSDALE AFB	0622069	82	448		82	227				141		762	
LA	BARKSDALE AFB	0622081	27	103		27	36				141		539	
LA	BARKSDALE AFB	0622085	31	235		31	111				112		842	
LA	BARKSDALE AFB	0622119	165	500		165	231				153		462	
LA	BARKSDALE AFB		771	2,961		708	1,340	2			142	79	632	68

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
MA	OTIS AFB	0125001	1,990	12	1,884	4			4,708		250	114	23
MA	OTIS AFB		1,990	12	1,884	4			4,708		250	114	23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
MA	WESTOVER AFB	0109003	5		2			324				51	
MA	WESTOVER AFB	0109005	199		199							144	
MA	WESTOVER AFB	0109013	50	28	28	28				447		226	
MA	WESTOVER AFB	0125011	1,263	2	749	2				56,763		85	
MA	WESTOVER AFB	0125013	2,288	11	625	8				444		174	26
MA	WESTOVER AFB	0125015	882	198	431	132				638	2,244	282	29
MA	WESTOVER AFB	0130015	243	17	147	17				1,488		104	
MA	WESTOVER AFB	C2304031	220		209							119	
MA	WESTOVER AFB		5,877	256	2,191	179		324		1,388	31,091	126	26

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
ME	LORING AFB	0123008	342		294							142	39
ME	LORING AFB		342		294							142	27

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
NE	PORTSMOUTH NF	0123031	1,038		1,021							135	23
NE	PORTSMOUTH NF		1,038		1,021							135	23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
RI	K. I. SAWYER AFB	0526000	56		56							137	
RI	K. I. SAWYER AFB	0526040	84		72							156	
RI	K. I. SAWYER AFB	0526100	96		92							179	73
RI	K. I. SAWYER AFB		236		220							160	73

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
RI	WURTSMITH AFB	0526000	59		59				2			147	
RI	WURTSMITH AFB	0526040	166	8	126	8				2,754		144	44
RI	WURTSMITH AFB		225	8	185	8			2	3,931		145	44

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV KP STORIES	PAK STORIES	OTHER ST	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
AU	WHITEMAN AFB	0729000	91	32	88	23				471		165	
MO	WHITEMAN AFB	0729011	27	25	26	15				311		291	
MO	WHITEMAN AFB	0729013	29		10								23
MO	WHITEMAN AFB	0729015	16		5								25
MO	WHITEMAN AFB	0729037	16		8								39
MO	WHITEMAN AFB	0729039	5		3								69
MO	WHITEMAN AFB	0729043	41	57	28	19	3	909		244		342	
MO	WHITEMAN AFB	0729053	40		20								38
MO	WHITEMAN AFB	0729057	29	5	26	3				815		133	
MO	WHITEMAN AFB	0729063	37	10	30	7				481		126	
MO	WHITEMAN AFB	0729073	33	8	27	5				662		137	
MO	WHITEMAN AFB	0729079	36	14	27	9				431		166	
MO	WHITEMAN AFB	0729081	44	8	35	7				669		126	
MO	WHITEMAN AFB	0729083	22		11								39
MO	WHITEMAN AFB	0729089	14	26	12	13				225		429	
MO	WHITEMAN AFB	0729097	172	231	149	117				281		378	
MO	WHITEMAN AFB	0729101	30		15								46
MO	WHITEMAN AFB	0729105	61	38	56	25				349		220	
MO	WHITEMAN AFB	0729107	46		23								43
MO	WHITEMAN AFB	0729109	95	62	85	32				345		224	
MO	WHITEMAN AFB	0729115	74	9	61	9				1,021		120	
MO	WHITEMAN AFB	0729119	67	38	62	19				423		188	
MO	WHITEMAN AFB	0729125	16	12	14	7				304		223	
MO	WHITEMAN AFB	0729129	28	5	17	3				573		134	
MO	WHITEMAN AFB	0729135	14		7								45
MO	WHITEMAN AFB	0729141	18		5								15
MO	WHITEMAN AFB	0729145	104	82	94	44				319		251	
MO	WHITEMAN AFB	0729151	23	26	20	11				284		322	
MO	WHITEMAN AFB	0729169	53	24	45	16				410		186	
MO	WHITEMAN AFB	0729171	28	15	14	4	1			249		183	
MO	WHITEMAN AFB	0729173	46	48	38	24				283		297	
MO	WHITEMAN AFB	0729185	15		5								28
MO	WHITEMAN AFB	0729195	27		13			36					44
MO	WHITEMAN AFB	0729209	47	31	44	19				344		226	
MO	WHITEMAN AFB	0729211	32	7	26	5				638		135	
MO	WHITEMAN AFB	0729213	81	34	75	23				426		180	
MO	WHITEMAN AFB	0729215	50	44	45	22				319		279	
MO	WHITEMAN AFB	0729227	17		17							110	
MO	WHITEMAN AFB		1,608	883	1,279	481	4	1,023		341		226	36

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
MS	COLUMBUS AFB	0428025		1					1,765		176	104	351	104
MS	COLUMBUS AFB	0428081	57	134		57	79				188		441	
MS	COLUMBUS AFB	0428087	67	3		61						150	69	47
MS	COLUMBUS AFB	0428095	31	77		31	46			26	183		459	
MS	COLUMBUS AFB	0428105	35	128		29	57				182		460	
MS	COLUMBUS AFB		190	343		184	182		1,765	26	200	157	375	52

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
MT	MALMSTROM AFB	0830013	79			48								77
MT	MALMSTROM AFB	0830015	28			27							219	88
MT	MALMSTROM AFB	0830027	12			6								62
MT	MALMSTROM AFB	0830029	444			444							184	
MT	MALMSTROM AFB	0830035	124			124							181	
MT	MALMSTROM AFB	0830041	160			160							191	
MT	MALMSTROM AFB	0830045	4			2								21
MT	MALMSTROM AFB	0830049	184	120		110	50			15	514		363	
MT	MALMSTROM AFB	0830063	201	217		107	67				460		497	
MT	MALMSTROM AFB	0830073	5			3								82
MT	MALMSTROM AFB	0830099	4			2				86				17
MT	MALMSTROM AFB	0830101	22			22							170	81
MT	MALMSTROM AFB	0830107	6			3								60
MT	MALMSTROM AFB		1,273	347		1,050	117			101	896		268	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-DEV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
NC	SEYMOUR JOHNSON AFB	0437147	307	427		365	272				308		339	
NC	SEYMOUR JOHNSON AFB	0437191	315	121		264	78	2			439	321	230	38
NC	SEYMOUR JOHNSON AFB		702	548		629	350	2			335	313	284	38

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-REV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES SHORT HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
ND	GRAND FORKS AFB	0838003	19			9							82	80
ND	GRAND FORKS AFB	0838005	24	5		12	1				892		164	
ND	GRAND FORKS AFB	0838015	294	125		184	70				654		279	
ND	GRAND FORKS AFB	0838017	90	10		56	4	2			1,004		105	68
ND	GRAND FORKS AFB	0838019	3			1								84
ND	GRAND FORKS AFB	0838027	8			8							222	
ND	GRAND FORKS AFB	0838035	32			16								88
ND	GRAND FORKS AFB	0838039	2			1				12				39
ND	GRAND FORKS AFB	0838043	29			31							168	
ND	GRAND FORKS AFB	0838063	4			2								56
ND	GRAND FORKS AFB	0838071	7			4								87
ND	GRAND FORKS AFB	0838091	4			2								13
ND	GRAND FORKS AFB	0838093	290	63		166	35				837		181	
ND	GRAND FORKS AFB	0838099	6			3								105
ND	GRAND FORKS AFB		835	203		495	110	2		12	779		207	74

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWR	MID-REV STORIES	KP STORIES	PWR STORIES	OTHER STORIES	SPACES SHORT HOST	SPACES SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/KP HOST	SPACES/KP RISK
ND	MINOT AFB	0838013								4				42
ND	MINOT AFB	0838023	10			10							184	
ND	MINOT AFB	0838041	17			17							205	
ND	MINOT AFB	0838049	1											53
ND	MINOT AFB	0838055	2			1								59
ND	MINOT AFB	0838057	24			24							204	
ND	MINOT AFB	0838059	180			132							121	
ND	MINOT AFB	0838061	6			3								74
ND	MINOT AFB	0838065	9	2		7	1				991		238	
ND	MINOT AFB	0838075	4			2								92
ND	MINOT AFB	0838083								2				
ND	MINOT AFB	0838089	127			110							151	
ND	MINOT AFB	0838101	21			11								72
ND	MINOT AFB	0838105	113			89							126	
ND	MINOT AFB		514	2		406	1			3	33,693		140	73

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
NE	OFFUTT AFB	0731011	13			5			3,441				45	
NE	OFFUTT AFB	0731019	129			120							141	
NE	OFFUTT AFB	0731021	4	1		2			3,739		221		[illegible]	
NE	OFFUTT AFB	0731023	10	3		4		1	3,428		259		86	
NE	OFFUTT AFB	0731025	14	3		5		2	4,190		266		64	
NE	OFFUTT AFB	0731037	6	2		4	1		4,081		260		69	
NE	OFFUTT AFB	0731039	9	3		4		1	4,661		267		89	
NE	OFFUTT AFB	0731043	32	23		12	3	4	12,487		211		155	
NE	OFFUTT AFB	0731055	69	13		23	3	2	187		302		159	42
NE	OFFUTT AFB	0731077	2			1			1,532				61	
NE	OFFUTT AFB	0731079	115	46		69	11	9	9,500		334		132	
NE	OFFUTT AFB	0731093	22			22							131	
NE	OFFUTT AFB	0731119	77	36		23	10	5	4,301		330		161	
NE	OFFUTT AFB	0731121	1						4,341				27	
NE	OFFUTT AFB	0731125	3			2			1,732				27	
NE	OFFUTT AFB	0731131	16	9		5	2	2	5,900		197		106	
NE	OFFUTT AFB	0731141	40	20		22	4	4	9,163		250		102	
NE	OFFUTT AFB	0731143	4	1		3			2,635		658		94	
NE	OFFUTT AFB	0731153	92			31			1,750				39	23
NE	OFFUTT AFB	0731155	16	6		4		3	7,388		199		78	
NE	OFFUTT AFB	0731163	11			11							135	
NE	OFFUTT AFB	0731167							3,288					
NE	OFFUTT AFB	0731177	16	7		6	1	2	5,835		202		91	
NE	OFFUTT AFB	0731179	23	8		7	2	1	1,519		347		118	
NE	OFFUTT AFB		712	181		388	37	35	99,701		408		125	28

STATE NAME	AREA NAME	FIPS CODE	TOTAL AP	TOTAL PAR	NO-DEV STORIES	AP STORIES	PAR STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PAR HOST	SPACES/PAR RISK	SPACES/AP HOST	SPACES/AP RISK
NE	WARREN AFB	0731007							52	18				
NE	WARREN AFB	0731013	88			88							171	
NE	WARREN AFB	0731033	15			7								30
NE	WARREN AFB	0731045	42			42							212	
NE	WARREN AFB	0731049	18	4		4		2	1,509		289		64	
NE	WARREN AFB	0731101	65			65							168	
NE	WARREN AFB	0731105	4			2			247					40
NE	WARREN AFB	0731111	261	18		210	18				2,040		143	
NE	WARREN AFB	0731123	1			1			5,246				68	
NE	WARREN AFB	0731157	79	12		29		5	3,900		564		95	86
NE	WARREN AFB	0731165	6			6			394				172	
NE	WARREN AFB		579	34		454	18	7	11,347	18	2,397		147	76

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NH	PEASE AFB	0133003	336	19		202	15				1,658		89	
NH	PEASE AFB	0133011	63	47		37	21				425		317	
NH	PEASE AFB	0133013	373			373							126	
NH	PEASE AFB	0133015	180	66		98	26				464		223	42
NH	PEASE AFB	0133017	304	27		213	23				1,449		133	32
NH	PEASE AFB		1,256	158		923	85				1,056		139	40

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NJ	MCGUIRE AFB	0234005	60	1		31	1				1,016		86	40
NJ	MCGUIRE AFB	0234007	6	2		3			433		414		164	
NJ	MCGUIRE AFB	0234009	127	60		117	37				579		276	
NJ	MCGUIRE AFB	0234015	5	9		2	3				313		599	
NJ	MCGUIRE AFB	0342027	256	37		157	23				813		116	
NJ	MCGUIRE AFB	0342033	22	7		7	2	1	18,173		378		117	
NJ	MCGUIRE AFB		476	116		317	66	1	18,606		623		168	39

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
NM	KIRTLAND AFB	0635001	164			94							130	63
NM	KIRTLAND AFB	0635007	242	8		220	8				4,107		135	
NM	KIRTLAND AFB	0635019	86			86							156	
NM	KIRTLAND AFB	0635028	119	46		102	29				834		321	
NM	KIRTLAND AFB	0635033	26	15		26	9				513		301	
NM	KIRTLAND AFB	0635039	384	41		357	27				1,648		174	
NM	KIRTLAND AFB	0635043	247	140		230	53				633		357	
NM	KIRTLAND AFB	0635047	360	9		273	9				4,638		114	
NM	KIRTLAND AFB	0635049	848			758							146	
NM	KIRTLAND AFB	0635053	170			170							154	
NM	KIRTLAND AFB	0635055	316			316							155	
NM	KIRTLAND AFB	0635057	87	18		87	13				1,146		[illegible]	
NM	KIRTLAND AFB	0635061	300	355		300	121				437		51[illegible]	
NM	KIRTLAND AFB		3,349	632		3,019	269				1,054		208	63

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NV	NELLIS AFB	0932003	207	313		156	150	1			258	144	324	46
NV	NELLIS AFB	0932017	27	19		27	10		6,458		509		351	
NV	NELLIS AFB	0932023	137	91		133	47				516		341	
NV	NELLIS AFB		371	423		316	207	1	6,458		327	141	429	46

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NY	GRIFFIS AFB	0236043	154			154							137	
NY	GRIFFIS AFB	0236065	588	135		317	68				562		158	56
NY	GRIFFIS AFB		742	135		471	68				719		153	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
NY	PLATTSBURGH AFB	0236019	456	54		298	33				1,267		154	97
NY	PLATTSBURGH AFB		456	54		298	33				1,267		154	94

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
OH	RICKENBACKER AFB	0539041	41	5		28	4				1,175		136	
OH	RICKENBACKER AFB	0539045	39	27		22	9			21	478		381	14
OH	RICKENBACKER AFB	0539047	36	2		25	2				2,101		113	
OH	RICKENBACKER AFB	0539049	18			9								61
OH	RICKENBACKER AFB	0539073	32	2		25	2				1,000		99	
OH	RICKENBACKER AFB	0539089	87	20		52	13				703		157	
OH	RICKENBACKER AFB	0539097	25	5		15	3				751		141	
OH	RICKENBACKER AFB	0539111	23	2		15	1				1,398		93	
OH	RICKENBACKER AFB	0539115	16	3		12	2				827		133	
OH	RICKENBACKER AFB	0539121	14			12							100	
OH	RICKENBACKER AFB	0539127	29	4		22	2				1,009		135	
OH	RICKENBACKER AFB	0539129	44			20					24,609		86	17
OH	RICKENBACKER AFB	0539141	68			54							101	
OH	RICKENBACKER AFB	0539159	25	13		16	4				529		275	
OH	RICKENBACKER AFB	0539167	77	1		60	1				5,535		107	
OH	RICKENBACKER AFB		574	84		387	43			21	918		144	37

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
OH	WRIGHT-PATTERSON AFB	0539017	452	9		310	9				5,280		107	
OH	WRIGHT-PATTERSON AFB	0539021	152	12		102	10				1,344		109	
OH	WRIGHT-PATTERSON AFB	0539023	52			30							142	73
OH	WRIGHT-PATTERSON AFB	0539027	154	12		119	10				1,646		130	
OH	WRIGHT-PATTERSON AFB	0539037	240	41		169	29				876		151	
OH	WRIGHT-PATTERSON AFB	0539057	105	59		58	17				444		399	70
OH	WRIGHT-PATTERSON AFB	0539091	199	5		134	5				4,091		96	
OH	WRIGHT-PATTERSON AFB	0539109	299	75		158	48				622		189	25
OH	WRIGHT-PATTERSON AFB	0539113	122	3		56	3				1,743		129	44
OH	WRIGHT-PATTERSON AFB	0539135	108	41		80	23				563		214	
OH	WRIGHT-PATTERSON AFB	0539149	179	33		116	19				761		140	
OH	WRIGHT-PATTERSON AFB	0539165	134	12		97	11				1,336		123	
OH	WRIGHT-PATTERSON AFB		2,146	302		1,449	184				958		143	54

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
OK	ALTUS AFB	0640065	14	5		8	2		1,820		247		494	50
OK	ALTUS AFB	0640075	85	131		85	82				217		337	
OK	ALTUS AFB	0640141	64	177		64	106				179		296	
OK	ALTUS AFB		163	313		157	190		1,820		196		407	50

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
OK	CLINTON SHERMAN AFB	0640009	185			174							119	
OK	CLINTON SHERMAN AFB	0640039	106	70		70	43				277		183	
OK	CLINTON SHERMAN AFB	0640149	41	9		26	2	2	4,217		284		111	41
OK	CLINTON SHERMAN AFB		332	79		270	45	2	4,217		357		140	41

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
OK	TINKER AFB	0640011	11	13		11	5				206		239	
OK	TINKER AFB	0640017	3	7		2	2		1,002		141		365	
OK	TINKER AFB	0640019	7	97		7	24				142		1,686	
OK	TINKER AFB	0640027	47	175		38	77				169		1,038	27
OK	TINKER AFB	0640039	18	38		12	17				234		511	
OK	TINKER AFB	0640049	14	37		14	14				183		485	
OK	TINKER AFB	0640051	7	77		7	22				167		1,721	
OK	TINKER AFB	0640073	9	16		9	7				205		351	
OK	TINKER AFB	0640083	9	61		8	21				175		1,255	
OK	TINKER AFB	0640067	10	38		10	13				179		699	
OK	TINKER AFB	0640099	5	29		5	10				140		739	
OK	TINKER AFB	0640109	127	98		74	37				183		783	38
OK	TINKER AFB	0640119	13	171		13	43				179		2,276	
OK	TINKER AFB	0640123	11	92		11	29				168		1,427	
OK	TINKER AFB	0640125	22	131		22	43				178		1,067	
OK	TINKER AFB	0640133	7	56		7	26				171		1,378	
OK	TINKER AFB		319	1,116		250	390		1,002		174		1,000	37

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
SC	CHARLESTON NF	0445015	308	320		308	145			2	231	90	241	90
SC	CHARLESTON NF	0445019	163	293		82	87	8			180	81	727	56
SC	CHARLESTON NF	0445029	200	328		200	167				20[illegible]		343	
SC	CHARLESTON NF	0445035	209	705		209	233				186		626	
SC	CHARLESTON NF	0445043	255	356		255	224				219		306	
SC	CHARLESTON NF	0445089	330	335		330	220				237		240	
SC	CHARLESTON NF		1,465	2,337		1,384	1,076	8		2	208	81	347	56

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
SD	ELLSWORTH AFB	0846009	43			19			8,704				27	
SD	ELLSWORTH AFB	0846015	49			49							181	
SD	ELLSWORTH AFB	0846017	28	14		7	2	1			288		141	
SD	ELLSWORTH AFB	0846019	11			6								70
SD	ELLSWORTH AFB	0846023	170			108							101	
SD	ELLSWORTH AFB	0846043	14			5			5,648				14	
SD	ELLSWORTH AFB	0846053	64			64							156	
SD	ELLSWORTH AFB	0846055	2			1								65
SD	ELLSWORTH AFB	0846059	46			42							158	
SD	ELLSWORTH AFB	0846065	172			143							135	
SD	ELLSWORTH AFB	0846069	16	5		13	3				869		240	
SD	ELLSWORTH AFB	0846071	2			1								36
SD	ELLSWORTH AFB	0846081	34			17								75
SD	ELLSWORTH AFB	0846085	47			47							146	
SD	ELLSWORTH AFB	0846093	32			16								67
SD	ELLSWORTH AFB	0846103	19			10								73
SD	ELLSWORTH AFB	0846117	30			30							148	72
SD	ELLSWORTH AFB	0846123	109	3		73	3				3,751		118	
SD	ELLSWORTH AFB		888	22		651	8	1	14,352		4,694		131	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	BERGSTROM AFB	0648021	21	296		21	78				139		1,973	
TX	BERGSTROM AFB	0648209	34	604		34	160				143		2,530	
TX	BERGSTROM AFB	0648453	184	310		109	92				139	81	820	66
TX	BERGSTROM AFB	0648491	31	850		31	132				145		3,932	
TX	BERGSTROM AFB		270	2,060		194	442				143	81	2,342	66

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	CARSWELL AFB	0648023	14	21		14	13				212		321	
TX	CARSWELL AFB	0648075	24	19		23	15				344		267	
TX	CARSWELL AFB	0648093	23	35		23	21				213		332	
TX	CARSWELL AFB	0648101	10	8		8	4				316		247	
TX	CARSWELL AFB	0648107	11	21		4	4	1	74		201		364	
TX	CARSWELL AFB	0648125	15	4		14	3				635		164	
TX	CARSWELL AFB	0648133	36	106		36	59				181		535	
TX	CARSWELL AFB	0648143	33	113		33	50				147		504	
TX	CARSWELL AFB	0648153	11	35		10	17				230		720	
TX	CARSWELL AFB	0648155	5	8		5	4				190		321	
TX	CARSWELL AFB	0648191	12	20		11	11				245		399	
TX	CARSWELL AFB	0648197	14	23		14	14				207		340	
TX	CARSWELL AFB	0648207	18	41		18	25				192		438	
TX	CARSWELL AFB	0648221	7	102		7	30				134		1,863	
TX	CARSWELL AFB	0648251	34	437		33	136				115		1,463	
TX	CARSWELL AFB	0648263		3			1				252		1,636	
TX	CARSWELL AFB	0648275	23	27		23	16				221		264	
TX	CARSWELL AFB	0648345	8	4		8	3				343		185	
TX	CARSWELL AFB	0648363	53	171		53	95				127		412	
TX	CARSWELL AFB	0648367	44	208		44	82				144		674	
TX	CARSWELL AFB	0648417	3	10		3	5				177		625	
TX	CARSWELL AFB	0648425	3	21		3	9				128		997	
TX	CARSWELL AFB	0648429	26	40		26	24				196		303	
TX	CARSWELL AFB	0648433	7	5		6	4				302		253	
TX	CARSWELL AFB	0648439	196	106		78	50				129	91	273	23
TX	CARSWELL AFB	0648447	4	8		4	5				191		363	
TX	CARSWELL AFB		634	1,596		501	700	1	74		153	90	509	23

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PWK	NO-DEV STORIES	KP STORIES	PWK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PWK HOST	SPACES/PWK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	DYESS AFB	[illegible]	92	124		92	77				218		295	
TX	DYESS AFB	0648151	21	54		13	15	1	639		219		559	
TX	DYESS AFB	0648253	173	216		173	130				219		273	
TX	DYESS AFB	0648353	205	124		197	76				351		212	
TX	DYESS AFB	0648441	117	31		82	17				273		186	33
TX	DYESS AFB		608	549		557	315	1	639		252		257	33

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
TX	SHEPPARD AFB	0648067	45	185		45	105				141		574	
TX	SHEPPARD AFB	0648069	55	120		55	68				195		429	
TX	SHEPPARD AFB	0648077	40	101		40	61				149		376	
TX	SHEPPARD AFB	0648485	130	24		103	24				438		181	32
TX	SHEPPARD AFB	0648487	81	515		81	216				174		1,105	
TX	SHEPPARD AFB		371	945		324	474				174		591	32

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PVK	NO-DEV STORIES	KP STORIES	PVK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PVK HOST	SPACES/PVK RISK	SPACES/KP HOST	SPACES/KP RISK
UT	HILL AFB	0849001	27			27							152	
UT	HILL AFB	0849003	196	35		132	22				992		177	
UT	HILL AFB	0849005	267	77		177	43				777		224	
UT	HILL AFB	0849007	176	14		115	9				1,670		134	
UT	HILL AFB	0849009	8			8					2,504		152	
UT	HILL AFB	0849011	68			34								64
UT	HILL AFB	0849013	78	2		64	2				5,401		146	
UT	HILL AFB	0849015	49			45							135	
UT	HILL AFB	0849017	25			25							140	
UT	HILL AFB	0849019	8			4			3,937				32	
UT	HILL AFB	0849021	124	32		85	15				789		204	
UT	HILL AFB	0849023	25			25							141	
UT	HILL AFB	0849025	35			31							135	
UT	HILL AFB	0849027	66	10		47	4				1,016		140	
UT	HILL AFB	0849031	11	1		8			578		1,330		89	
UT	HILL AFB	0849033	21	1		13					1,735		99	
UT	HILL AFB	0849037	68	15		56	8				918		202	
UT	HILL AFB	0849039	113	13		69	7				1,056		121	
UT	HILL AFB	0849041	103			81							121	
UT	HILL AFB	0849043	8			4			7,218				29	
UT	HILL AFB	0849045	24			24							163	
UT	HILL AFB	0849047	66			61							172	
UT	HILL AFB	0849049	126	23		75	9				816		150	
UT	HILL AFB	0849053	131	58		94	26				624		279	
UT	HILL AFB	0849055	9			9							148	
UT	HILL AFB	0849057	134	14		70	7				588		186	75
UT	HILL AFB		1,946	295		1,383	154		11,733		1,061		173	71

STATE NAME	AREA NAME	FIPS CODE	TOTAL MP	TOTAL PWR	NO-DEV STORIES	MP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/MP HOST	SPACES/MP RISK
VA	NORFOLK MF	0351025	140	43		128	29				488		130	
VA	NORFOLK MF	0351036	28	27		27	10		300		259		249	
VA	NORFOLK MF	0351081	76	42		73	25				387		197	
VA	NORFOLK MF	0351088	167	134		151	69				333		259	
VA	NORFOLK MF	0351093	70	38		67	25				390		211	
VA	NORFOLK MF	0351111	79	62		69	36				296		233	
VA	NORFOLK MF	0351117	296	174		281	95				347		204	
VA	NORFOLK MF	0351131	180			180							107	
VA	NORFOLK MF	0351175	123	44		121	29				473		169	
VA	NORFOLK MF	0351181	26	22		26	13				304		249	
VA	NORFOLK MF	0351183	102	18		100	15				769		134	
VA	NORFOLK MF	0351550	32			13								32
VA	NORFOLK MF	0351595	98	12		98	12				1,190		140	
VA	NORFOLK MF	0351620	88	17		84	17				794		135	
VA	NORFOLK MF	0351710	219			110								33
VA	NORFOLK MF	0351740	78			39								33
VA	NORFOLK MF	0351780	60	84		59	44				266		375	
VA	NORFOLK MF	0351800	296	331		[illegible]	193				291		326	
VA	NORFOLK MF	0351810	10	2		5						326		34
VA	NORFOLK MF	0437015	109	80		108	51				351		250	
VA	NORFOLK MF	0437055	363	46		361	46				961		122	
VA	NORFOLK MF	0437080	302	186		264	133				414		204	
VA	NORFOLK MF	0437091	150	74		150	53				426		211	
VA	NORFOLK MF	0437181	18	26		8	10	2	40,697		233		348	
VA	NORFOLK MF	0437185	99	58		87	37				370		215	
VA	NORFOLK MF		3,297	1,520		2,906	942	2	40,397		390	5,667	284	33

STATE NAME	AREA NAME	FIPS CODE	TOTAL MP	TOTAL PWR	NO-DEV STORIES	MP STORIES	PWR STORIES	OTHER STORIES	SPACES HOST	SHORT RISK	SPACES/PWR HOST	SPACES/PWR RISK	SPACES/MP HOST	SPACES/MP RISK
WA	BREMERTON MF	1053009	277	237		234	99				573		491	
WA	BREMERTON MF	1053031	190	15		130	10				1,046		143	
WA	BREMERTON MF	1053035	78			20								38
WA	BREMERTON MF		545	252		384	109				646		349	38

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
MA	FAIRCHILD AFB	1016017	44	7		30	4				1,070		159	
MA	FAIRCHILD AFB	1016037	65	4		46	4				2,543		155	
MA	FAIRCHILD AFB	1016069	54	3		35	3				3,013		154	
MA	FAIRCHILD AFB	1016079	28			28							170	
MA	FAIRCHILD AFB	1053081	15			15							160	
MA	FAIRCHILD AFB	1053063	63	1		37	1				5,400		126	98
MA	FAIRCHILD AFB	1053065	95	2		39	2				4,011		149	
MA	FAIRCHILD AFB	1053075	97	26		68	17				829		224	
MA	FAIRCHILD AFB		421	43		290	31				1,367		170	99

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
WY	WARREN AFB	0836001	91			91							200	
WY	WARREN AFB	0836007	99	4		71	4				3,881		139	
WY	WARREN AFB	0836009	24	8		14	3	1			694		215	
WY	WARREN AFB	0836015	15			8							164	54
WY	WARREN AFB	0836021	14			7								58
WY	WARREN AFB	0836027	11			8							150	
WY	WARREN AFB	0836031	13			10							131	52
WY	WARREN AFB	0836045	20			20							204	
WY	WARREN AFB		287	12		229	7	1			3,687		174	54

STATE NAME	AREA NAME	FIPS CODE	TOTAL KP	TOTAL PAK	NO-DEV STORIES	KP STORIES	PAK STORIES	OTHER STORIES	SPACES HOST	SPACES SHORT RISK	SPACES/PAK HOST	SPACES/PAK RISK	SPACES/KP HOST	SPACES/KP RISK
REGION 1			11,604	550		7,042	337	4	326	4,705	1,939	2,497	124	23
REGION 2			1,416	261		1,122	142		433		884		159	54
REGION 3			2,454	1,094		2,075	637	1	18,473		381	5,667	190	33
REGION 4			4,020	6,659		4,446	3,240	26	98,616	78	218	77	314	51
REGION 5			4,543	394		3,484	238			133	1,537		139	51
REGION 6			8,708	14,132		7,778	6,262	11	58,727	365	213	145	381	49
REGION 7			6,739	3,228		4,999	1,704	71	166,436	104	361		281	42
REGION 8			11,284	1,642		8,042	646	56	136,940	116	1,143		181	61
REGION 9			16,177	10,745		10,38.	4,656	282	419,938	170	319	491	288	58
REGION 10			1,081	323		690	144	3	56,055	116	733	2,267	270	43

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