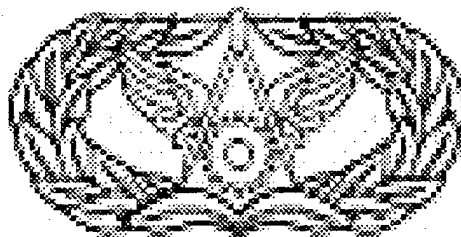


**UNITED STATES
AIR FORCE**

OCCUPATIONAL SURVEY REPORT



PAVEMENTS AND CONSTRUCTION EQUIPMENT

AFSC 3E2X1

OSSN: 2381

NOVEMBER 1999

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
1550 5th STREET EAST
RANDOLPH AFB, TEXAS 78150-4449**

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PREFACE

This report presents the results of an Air Force Occupational Survey of the Pavements and Construction Equipment career ladder, Air Force Specialty Code (AFSC) 3E2X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

The survey instrument was developed by 2Lt Joe McAmis. Computer programming support was provided by Ms. Jeanie Guesman. Ms. Dolores Navarro provided administrative support. Ms. Kimberly Williams analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at <http://www.omsq.af.mil>.

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SUMMARY OF RESULTS

1. **Survey Coverage:** The Pavements and Construction Equipment career ladder was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 1,364 members accounting for 45 percent of the total population surveyed. Of the 1,364 respondents, 886 were active duty (AD), 279 were Air National Guard (ANG), and 199 were Air Force Reserve Command (AFRC). Responses were received from 51 percent of all assigned AD personnel, 25 percent of all assigned ANG personnel, and 37 percent of all assigned AFRC personnel. The total sample (N=1,364) accounts for 40 percent of all assigned AD, ANG, and AFRC members. All major commands (MAJCOMs) are well represented in the survey sample.
2. **Specialty Jobs:** Three clusters and two jobs were identified in the career ladder structure analysis. The Reserve Forces Cluster, the General Pavements and Construction Equipment Cluster, and the Rigid and Flexible Pavements Job are oriented toward technical task performance and account for 81 percent of the population. The Training Job and the Management Cluster primarily perform training, management, and administrative activities.
3. **Career Ladder Progression:** A typical pattern of progression is noted within the AFSC 3E2X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. Members of AFSC 3E251 also perform general management, supervisory, and training tasks. As incumbents move up to the 7-skill level, they perform more supervisory tasks but still spend about two-thirds of their time performing the technical tasks of the career ladder. The 9-skill level members spend over half of their time on managerial activities, but they also perform technical tasks in every area of the survey. Comparative analysis across the duty Air Force Specialty Code (AFSC) groups for the service components reveals that AD members' jobs are more distinct across the skill levels and that ANG and AFRC members spend less time on management and supervisory activities relative to their AD counterparts as they progress through the skill levels.
4. **Training Analysis:** The current AFSC 3E2X1 Specialty Training Standard (STS) and Plan of Instruction (POI) are supported by occupational survey report (OSR) data. Training, functional, and career field personnel are to be commended for producing a STS and POI that are well supported by the field. Many tasks not referenced to the STS and POI, however, should be reviewed to determine modifications that may be necessary to improve the effectiveness or efficiency of training.
5. **Job Satisfaction:** Job satisfaction among AFSC 3E2X1 personnel is higher overall for all Total Active Federal Military Service (TAFMS) groups although job interest is slightly lower for second-enlistment members compared to the 1998 sample of like Support AFSCs. Reenlistment intentions are slightly lower than the comparative sample for first-enlistment personnel and career airmen. Job satisfaction is also higher or stable for the current survey compared to the 1996 survey sample with the exception of reenlistment intentions which have decreased for all TAFMS groups.

6. **Implications**: Survey results indicate the present classification structure accurately portrays the jobs performed in this career ladder. The career ladder progression is typical of most AFSCs. Training documents warrant review for the possible addition of elements concerning specific tasks with high percent members performing, training emphasis, and task difficulty. Job satisfaction ratings are higher overall when compared to similar AFSCs while reenlistment intentions are slightly lower for first-enlistment personnel and career airmen.

**OCCUPATIONAL SURVEY REPORT (OSR)
PAVEMENTS AND CONSTRUCTION EQUIPMENT
(AFSC 3E2X1)**

INTRODUCTION

This is a report of an occupational survey of the Pavements and Construction Equipment career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). The current Pavements and Construction Equipment career ladder was created in October 1993. Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs.

Background

As described in the AFMAN 36-2108, *Airman Classification*, 31 October 1999, Specialty Description, dated 31 October 1997, Pavements and Construction Equipment personnel manage, construct, maintain, and repair pavement and other surface areas, airfield mats and membranes, aircraft revetments, subgrades, and drainage structures. They operate construction equipment, fixed and mobile plants, and snow and ice removal equipment. In addition, they perform operator inspections and maintenance on construction and snow removal equipment. The Pavements and Construction Equipment personnel also prepare facility survey schedules and perform surveys. This includes investigating proposed work sites to determine resource requirements and preparing cost estimates for work requests.

Personnel entering the AFSC 3E2X1 career ladder must attend the J5ABA3E231-000, Pavements Maintenance and Construction Equipment Operators, course at Ft Leonard Wood MO. This course is an interservice construction equipment course designed to train students on the proper procedures for operation, inspection, and maintenance of dump trucks, graders, front-end loaders, crawler tractors, backhoes, and multipurpose sweepers. Air Force students receive additional training in the construction and maintenance of rigid and flexible pavements, excavation, subgrade stabilization, base course compaction, and the operation and inspection of power tools, rollers, tampers, and hand tools. They also receive training concerning the installation, inspection, and repair of fences and drainage structures, rapid runway repair, snow and ice control operations, and contingencies.

Entry into this career ladder currently requires an Armed Forces Vocational Aptitude Battery (ASVAB) score of Mechanical - 38. A strength factor of "N" (Weight lift of 100 lbs) is also required. For award, entry, and retention of this AFSC, qualification to operate a government vehicle according to AFMAN 24-309, Vehicle Operations, is mandatory.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2381, dated April 1999. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 24 subject-matter experts (SMEs) at the following training location and operational installations:

<u>BASE</u>	<u>UNIT VISITED</u>	<u>REASON FOR VISIT</u>
Ft Leonard Wood MO	366 TRS/Det 7	Resident technical training school
Nellis AFB NV	820 RHS	Red Horse mission
Hurlburt Fld FL	16 CES & 823 RHS	Base-level CE squadron & Red Horse mission
Eglin AFB FL	96 CEG	AFMC base
Offutt AFB NE	55 CES	Snow removal and ice control mission

The resulting JI contains a comprehensive listing of 723 tasks grouped under 24 duty headings and a background section requesting information, such as grade, base, MAJCOM assigned, organizational level, schedule worked, job title, shop or work area, and vehicles, tools, and equipment used, operated, or maintained.

Survey Administration

From April through August 1999, base training offices at operational units worldwide administered the inventory to eligible AFSC 3E2X1 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then selected each task performed in his or her current job. After selecting all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for

each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across MAJCOMs and military paygrade groups. All eligible AFSC 3E2X1 personnel were mailed survey disks. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 3E2X1 personnel as of April 1999. The 1,364 respondents in the final sample represent 40 percent of the total assigned personnel and 45 percent of the total personnel surveyed. Table 2 reflects the paygrade distribution for these AFSC 3E2X1 personnel.

TABLE 1

COMMAND DISTRIBUTION OF AFSC 3E2X1 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
ACC	19	21
PACAF	7	9
AETC	6	8
AFMC	6	9
AMC	6	8
USAFE	4	3
OTHERS	3	7
ANG	33	20
AFRC	16	15

TOTAL ASSIGNED* = 3,410

TOTAL SURVEYED** = 3,053

TOTAL IN SURVEY SAMPLE = 1,364

PERCENT OF ASSIGNED IN SAMPLE = 40%

PERCENT OF SURVEYED IN SAMPLE = 45%

* Assigned strength as of April 1999

** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1 - E-3	17	21
E-4	17	16
E-5	30	28
E-6	21	21
E-7	12	11
E-8	3	3

* Assigned strength as of April 1999

Both Command and Paygrade distribution of the survey sample are close to the percent assigned with the exception of the ANG members. The sample is a true representation of the career ladder population assigned to the MAJCOMs and AFRC. Only 279 ANG members provided usable returns out of the 1,079 ANG members eligible to participate in the survey.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 3E2X1 personnel (generally E-6 or E-7 craftsmen) also completed a second disk for either training emphasis (TE) or task difficulty (TD). These disks were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 37 senior noncommissioned officers (NCOs) who completed a TE disk were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, field training detachments (FTDs), mobile training teams (MTTs), formal on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 37 raters was acceptable. The average TE rating was 3.09, with a standard deviation of 2.75. Any task with a TE rating of 5.84 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 33 senior NCOs who completed TD disks were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the *Job*. When two or more jobs have a substantial degree of similarity, in tasks performed and time spent on tasks, they are grouped together and identified as a *Cluster*. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three clusters and two independent jobs were identified within the career ladder. Figure 1 illustrates the clusters and jobs performed by AFSC 3E2X1 personnel.

A listing of these clusters and jobs is provided below. The stage (STG) or group (GP) number shown beside each title references computer printed information. The letter "N" indicates the number of personnel in each stage or group.

- I. RESERVE FORCES CLUSTER (STG082, N=35)
 - A. Reserve Forces Mobility Job
 - B. Reserve Forces Pavements and Construction Equipment Job
- II. GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT CLUSTER (STG076, N=1,062)
 - A. Range Support Job
 - B. Pavements and Construction Equipment NCOIC Job
 - C. Snow Removal Job
- III. RIGID AND FLEXIBLE PAVEMENTS JOB (STG083, N=14)
- IV. TRAINING JOB (GP054, N=26)

IV. MANAGEMENT CLUSTER (STG074, N=113)

- A. Mobility Management
- B. Superintendent
- C. Supply

The respondents forming these clusters and jobs account for 92 percent of the survey sample. The remaining 8 percent, for one reason or another, did not group into one of these clusters or jobs. Examples of job titles for these personnel include Water Well Driller, Landfill Foreman, Facilities Manager, and Planning Technician.

AFSC 3E2X1 CAREER LADDER SPECIALTY JOBS (N = 1,364)

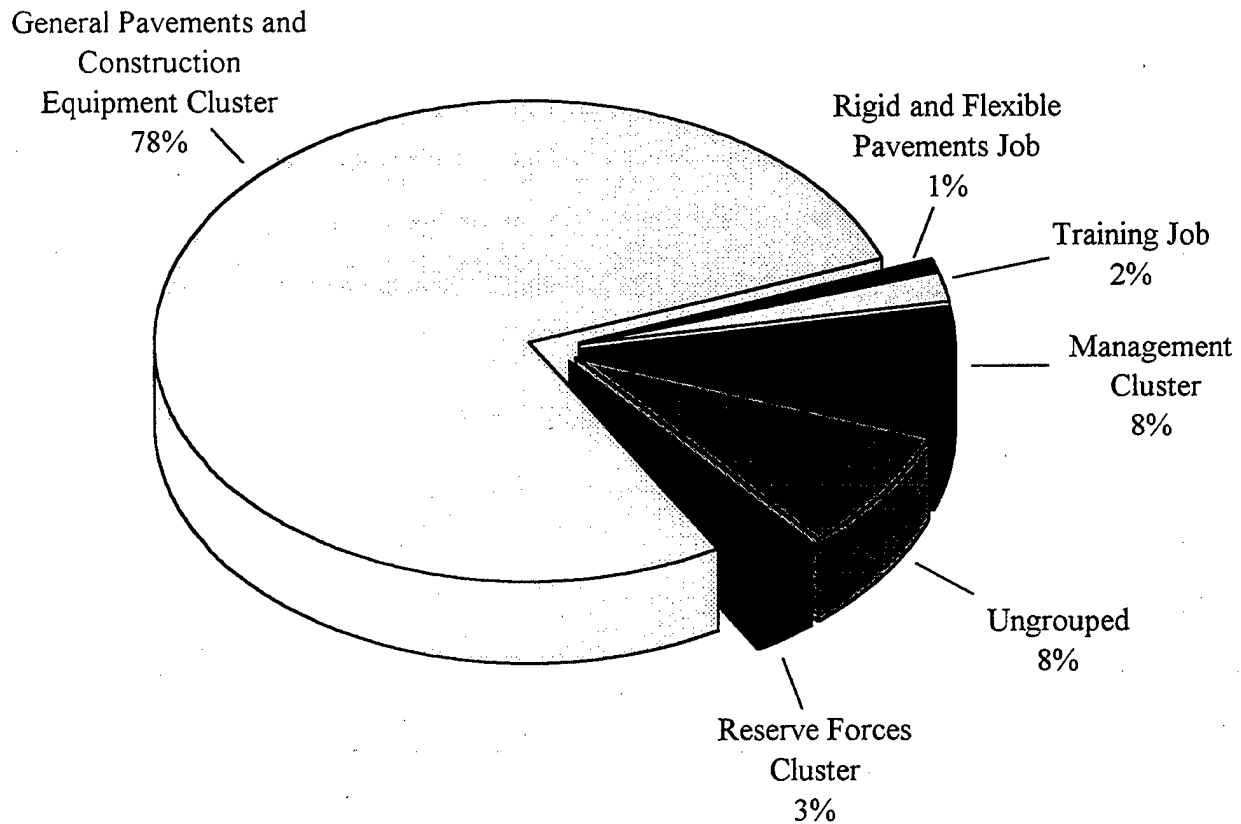


FIGURE 1.

Group Descriptions

The following paragraphs contain brief descriptions of the jobs and clusters identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of the specialty jobs and clusters. Selected background data for the jobs and clusters are provided in Table 4. Representative tasks for all of the stages and groups are contained in Appendix A.

I. RESERVE FORCES CLUSTER (STG082). The 35 airmen performing within this cluster comprise 3 percent of the survey sample. All members within this cluster are either Air National Guard (ANG) or Air Force Reserve (AFRC) members. On average, they spend most of their time (16 percent) operating front-end loaders or forklifts (Duty G). They also spend an average of 19 percent of their time performing prime base engineer emergency force (BEEF) activities (Duty S) and mobility or contingency activities (Duty T). The average number of tasks performed by this group is 98. Distinctive tasks performed include:

- Level areas by backdragging using front-end loaders
- Haul material using dump trucks
- Stockpile materials using front-end loaders
- Dump material from dump trucks with tailgate up
- Backfill using dozers
- Load or off-load materials or equipment using forklifts
- Perform operator inspections or maintenance on pavements and construction heavy equipment
- Spread materials from dump trucks
- Haul materials using front-end loaders with multipurpose buckets
- Level areas using graders
- Operate rapid runway repair (RRR) equipment
- Backfill using backhoes with front buckets

Seventy-one percent of these airmen hold the 5-skill level. The predominant paygrade of this cluster is E-5.

Two distinct jobs within this cluster were identified and are separated by the time spent performing mobility, contingency, and Prime BEEF activities and time spent operating specific types of pavements and construction equipment.

The **Reserve Forces Mobility Job** contains 12 members who spend most of their time performing mobility and contingency tasks and prime base engineer emergency force (BEEF) tasks, such as filling bomb-damaged areas with select fill, clearing crater upheaves, and repairing bomb craters.

The **Reserve Forces Pavements and Construction Equipment Job** is comprised of five members who spend most of their time operating a variety of construction equipment, such as front-end loaders, forklifts, dump trucks, and graders. In contrast to the other members of this

cluster, these members spend less than 1 percent of their time constructing and maintaining pavements and concrete structures.

II. GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT CLUSTER (STG076). The 1,062 members of this cluster comprise 78 percent of the survey sample and are the core of the career ladder. These members perform an average of 260 tasks with the majority of their time spent performing general pavements and construction equipment activities (Duty A) and constructing and maintaining rigid pavements and concrete structures (Duty B). Typical general pavements and construction equipment tasks performed include:

- Haul materials using dump trucks
- Perform operator inspections or maintenance on pavements and construction heavy equipment
- Backfill excavations using front-end loaders
- Stockpile materials using front-end loaders
- Level areas by backdragging using front-end loaders
- Perform operator inspections or maintenance on pavements and construction equipment vehicles
- Spread materials using front-end loaders
- Spread materials from dump trucks
- Perform operator inspections or maintenance on pavements and construction equipment attachments
- Check tailgate pins on dump trucks
- Load or off-load materials or equipment using forklifts
- Finish concrete by hand

The predominant paygrade of this job is E-5, and almost 50 percent of the members are 5-skill levels.

Three jobs were identified within this cluster and were distinguished by the tasks performed within three specific areas, including range support, management and supervision, and snow removal and ice control.

The **Range Support Job** is comprised of nine members, eight of whom are in the ANG. Three members work primarily in Range Support or Demolitions. All of the members within this job perform the following tasks: maintain target areas, prepare target vehicles for range use, maintain range gates, and tow wheel targets. The percent time spent on range support activities is much higher than it is for any other job identified within the career ladder.

The **Pavements and Construction Equipment Noncommissioned Officer-in-Charge (NCOIC) Job** consists of 29 members who are distinguished from the other members of the Pavements and Construction Equipment Cluster by the amount of time spent performing management and supervisory activities (Duty U). Tasks typically performed by the Pavements and Construction Equipment NCOIC Job members include counseling subordinates concerning

personal matters, determining work assignments or priorities, and inspecting personnel for compliance with military standards. They spend over half of their time performing technical activities. Members of this job perform more tasks than any other identified job or cluster with an average of 331 tasks performed due to the mixture of technical and management tasks.

The **Snow Removal Job** is comprised of 23 members who are distinguished from the other members of the General Pavements and Construction Equipment Cluster by the amount of time they spend performing snow removal and ice control activities (Duty O). Typical tasks performed include operationally checking snow removal equipment, removing snow using rollover snowplows, and hauling snow.

III. RIGID AND FLEXIBLE PAVEMENTS JOB (STG083). The 14 airmen forming this cluster (1 percent of the survey sample) are distinguished by the 45 percent of their time spent constructing and maintaining rigid pavements, concrete structures, and flexible pavements within Duties B and C. They average only 81 tasks performed indicating their limited exposure to many tasks performed by the core of the career ladder. Representative tasks performed by these incumbents include:

- Break asphalt or concrete using handtools, other than jackhammers
- Finish concrete by hand
- Break asphalt or concrete using jackhammers
- Excavate areas using handtools
- Place base course for materials
- Install concrete joints
- Edge concrete
- Drive stakes
- Finish concrete using brooms
- Level concrete using hand screeds
- Install reinforcing steel
- Finish concrete using bullfloats

The predominant paygrade is E-5, and the predominant skill level is the 5-skill level. Half of the members in this job are AD with the remaining members in the ANG and AFRC.

IV. TRAINING JOB (GP054). This job consists of 26 members with one ANG member and the remaining members on AD. The members forming this job spend 26 percent of their time performing training activities in Duty V. In addition, they spend 18 percent of their time performing management and supervisory activities, but they are also involved in the performance of technical tasks within the survey, such as constructing and maintaining rigid pavements and concrete structures (Duty B) and performing general pavements and construction equipment activities (Duty A). They average 112 tasks performed. Typical tasks performed by these incumbents include:

- Counsel trainees on training progress
- Maintain training records or files
- Evaluate progress of trainees
- Brief personnel concerning training programs or matters
- Inspect personnel for compliance with military standards
- Perform operator inspections or maintenance on pavements and construction equipment heavy equipment
- Perform operator inspections or maintenance on pavements and construction equipment attachments
- Counsel subordinates concerning personal matters
- Perform operator inspections or maintenance on pavements and construction equipment vehicles
- Lay out areas for concrete or pavements
- Place or remove concrete forms
- Finish concrete using bullfloats

The predominant paygrade is E-5, and 85 percent of the members in the Training Job are 5-skill levels.

V. MANAGEMENT CLUSTER (STG074). This cluster consists of 113 members (8 percent of the survey sample) who are distinguished by the 56 percent of their time spent managing and supervising pavements and construction equipment functions. Their job is limited in scope to the less technical tasks within the survey as these members are primarily responsible for the management of daily pavements and construction equipment activities, including training, supply, and administrative activities. These members perform an average of 69 tasks indicating their limited exposure to many tasks performed by the core of the career ladder. Representative tasks performed by these incumbents include:

- Write recommendations for awards or decorations
- Inspect personnel for compliance with military standards
- Counsel subordinates concerning personal matters
- Evaluate personnel for promotion, demotion, reclassification, or special awards
- Conduct supervisory performance feedback sessions
- Evaluate personnel for compliance with performance standards
- Interpret policies, directives, or procedures for subordinates
- Conduct supervisory orientations for newly assigned personnel
- Determine or establish work assignments or priorities
- Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace
- Develop or establish work schedules
- Establish performance standards for subordinates

Fifty-eight percent of the job members hold the 7-skill level, and the predominant paygrade is E-7. Seventy-nine percent of the members in this job are AD.

Three distinct jobs within the Management Cluster were identified and are distinguished by the time spent performing mobility and contingency tasks, management and supervisory tasks, and supply tasks.

The **Mobility Management Job** is defined by the high percent members performing mobility and contingency activities (Duty T) in addition to the large amount of time they spend performing management and supervisory activities (Duty U). Distinguishing tasks performed by the highest percentage of members within this job include repairing bomb craters, clearing crater upheaves, measuring crater upheaves for maximum allowances, and conducting convoy operations.

The members of the **Superintendent Job** spend more time performing management and supervisory tasks than any other job within the survey sample. Their job is extremely focused with the six members performing an average of 32 tasks, the lowest number of any identified job or cluster.

The **Supply Job** is distinguished from the other jobs within this cluster by the amount of time being spent performing supply and equipment tasks in Duty X. Typical tasks performed by these six members include identifying and reporting equipment or supply problems; initiating requisitions for equipment, tools, parts, or supplies; picking up, delivering, or storing equipment, tools, parts, or supplies; and evaluating serviceability of equipment, tools, parts, or supplies.

Comparison of Current Group Descriptions to Previous Study

The results of the specialty job analysis were compared to the previous OSR, dated March 1996. As shown in Table 5, the Reserve Forces Cluster identified in the current study was not identified in the 1996 survey. The General Pavements and Construction Equipment Cluster was identified in the previous survey as the Pavements Maintenance and Construction Cluster. This core cluster comprised 79 percent of the sample in the previous study compared to the similar core cluster comprising 78 percent of the current sample. The Rigid and Flexible Pavements Job identified in the current study was identified in the 1996 study as the Pavements Maintenance and Construction Job within the core cluster. The Training Job comprising 2 percent of the current study was also identified in the 1996 study but comprised less than 1 percent of the total sample. Finally, the current study's Management Cluster (8 percent of sample) was found in the previous survey and was called the Supervisory and Management Cluster (13 percent of sample).

Summary

Career ladder structure analysis identified three clusters and two jobs: Reserve Forces Cluster, General Pavements and Construction Equipment Cluster, Rigid and Flexible Pavements Job, Training Job, and Management Cluster. The Reserve Forces Cluster performs a variety of technical tasks throughout the survey, including almost 20 percent of their time on Prime BEEF, mobility, and contingency tasks. The core of the Pavements and Construction Equipment career ladder (General Pavements and Construction Equipment Cluster) involves the performance of technical tasks associated with the construction and maintenance of pavements and drainage systems using pavements and construction equipment. The Rigid and Flexible Pavements Job consists of members performing fewer tasks than the core cluster but still technical in nature. These members spend less time operating front-end loaders, forklifts, backhoes, graders, and dozers but more time operating equipment directly related to pavement construction and maintenance. Members of the Training Job also perform a large number of technical tasks, but they spend over 25 percent of their time on training activities while operating fewer types of equipment than the core of the career ladder. The Management Cluster contains the more senior members of the career ladder who spend most of their time performing management, supervisory, training, and administrative tasks.

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS AND CLUSTERS

DUTIES	Reserve Forces Cluster (STG082) (N=35)	General P&CE Cluster (STG076) (N=1,062)	Rigid & Flexible Pavements Job (STG083) (N=14)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	9	11	28
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	4	12	37
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	-	3	8
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	1	4	7
E CONSTRUCTING BUNKERS AND REVETMENTS	-	1	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	2	3	4
G OPERATING FRONT-END LOADERS OR FORKLIFTS	16	10	4
H OPERATING DUMP TRUCKS	8	5	1
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	8	7	1
J OPERATING GRADERS AND ATTACHMENTS	7	5	-
K OPERATING DOZERS AND ATTACHMENTS	8	5	-
L OPERATING SCRAPERS	1	-	-
M OPERATING CRANES AND ATTACHMENTS	-	2	0
N OPERATING MISCELLANEOUS EQUIPMENT	7	10	2
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	4	5	2
P RIGGING OR HOISTING EQUIPMENT	-	1	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	-	-	-
R PERFORMING SPECIALIZED ACTIVITIES	-	1	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	9	3	2
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	10	3	1
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	4	-
V PERFORMING TRAINING ACTIVITIES	2	2	1
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-	1	0
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	1	-

" - " indicates less than 1 percent

TABLE 3 (CONTINUED)

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS AND CLUSTERS

DUTIES	Training Job (GP054) (N=26)	Management Cluster (STG074) (N=113)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	10	2
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	16	1
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	3	1
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	1	1
E CONSTRUCTING BUNKERS AND REVETMENTS	0	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	1	-
G OPERATING FRONT-END LOADERS OR FORKLIFTS	4	1
H OPERATING DUMP TRUCKS	1	-
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	1	-
J OPERATING GRADERS AND ATTACHMENTS	3	-
K OPERATING DOZERS AND ATTACHMENTS	1	-
L OPERATING SCRAPERS	0	0
M OPERATING CRANES AND ATTACHMENTS	-	1
N OPERATING MISCELLANEOUS EQUIPMENT	3	1
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	1	1
P RIGGING OR HOISTING EQUIPMENT	0	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	0	-
R PERFORMING SPECIALIZED ACTIVITIES	1	-
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	-	2
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	-	3
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	18	56
V PERFORMING TRAINING ACTIVITIES	26	14
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	3	6
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	6	8

" - " indicates less than 1 percent

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS AND CLUSTERS

	Reserve Forces Cluster (STG082)	General Pavements and Construction Equipment Cluster (STG076)	Rigid & Flexible Pavements Job (STG083)	Training Job (GP054)	Management Cluster (STG074)
NUMBER IN GROUP	35	1,062	14	26	113
PERCENT OF SAMPLE	3%	78%	1%	2%	8%
PERCENT IN CONUS	94%	84%	86%	92%	77%

NUMBER IN GROUP
 PERCENT OF SAMPLE
 PERCENT IN CONUS

SKILL-LEVEL DISTRIBUTION:

3E231	0%	31%	29%	0%	0%
3E251	71%	49%	57%	85%	23%
3E271	29%	18%	14%	15%	58%
3E291	0%	2%	0%	0%	19%

ADDITIONAL INFORMATION

PREDOMINANT GRADE	E-5	E-5	E-5	E-5	E-7
PERCENT SUPERVISING	34%	45%	21%	65%	96%
AVERAGE NUMBER OF TASKS PERFORMED	98	260	81	112	69

TABLE 5

SPECIALTY JOB AND CLUSTER COMPARISONS
BETWEEN CURRENT SURVEY AND 1996 SURVEY

<u>CURRENT SURVEY (N=1,364)</u>	<u>1996 SURVEY (N=1,579)</u>
RESERVE FORCES CLUSTER	*
GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT CLUSTER	PAVEMENTS MAINTENANCE AND CONSTRUCTION CLUSTER
RIGID AND FLEXIBLE PAVEMENTS JOB	Pavements Maintenance and Construction Job
TRAINING JOB	TRAINING JOB
MANAGEMENT CLUSTER	SUPERVISORY AND MANAGEMENT CLUSTER

“ * ” indicates no match in report

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Airman Classification*, Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups *for the total survey sample* (AD, ANG, and AFRC members) across the career ladder jobs and clusters is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A typical pattern of progression is noted within the AFSC 3E2X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents progress to the 7-skill level, they perform many more supervisory tasks but still spend two-thirds of their time performing the technical tasks of the career ladder. The 9-skill level members are also involved in technical tasks throughout the survey, but they are spending almost twice as much time as the 7-skill level members on management and supervisory activities. In addition, the AFSC 3E291 personnel spend more relative time on training, administrative, and supply tasks compared to the 3-, 5-, and 7-skill level members of AFSC 3E2X1.

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS AND CLUSTERS
(PERCENT RESPONDING)

<u>SPECIALTY JOBS</u>	3E231 (N=339)	3E251 (N=667)	3E271 (N=308)	3E291 (N=50)
I. RESERVE FORCES CLUSTER	0	4	3	0
II. GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT CLUSTER	94	78	63	50
III. RIGID AND FLEXIBLE PAVEMENTS JOB	1	1	1	0
IV. TRAINING JOB	0	3	1	0
V. MANAGEMENT CLUSTER	0	4	21	44
VI. NOT GROUPED	5	10	11	6

TABLE 7

RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	3E231 (N=339)	3E251 (N=667)	3E271 (N=308)	3E291 (N=50)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	14	11	7	4
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	15	11	7	3
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4	3	1	1
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	4	4	3	3
E CONSTRUCTING BUNKERS AND REVETMENTS	1	-	-	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4	3	2	1
G OPERATING FRONT-END LOADERS OR FORKLIFTS	10	10	7	4
H OPERATING DUMP TRUCKS	6	5	3	2
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	7	6	5	3
J OPERATING GRADERS AND ATTACHMENTS	4	4	4	2
K OPERATING DOZERS AND ATTACHMENTS	4	4	4	2
L OPERATING SCRAPERS	-	-	-	-
M OPERATING CRANES AND ATTACHMENTS	1	2	2	1
N OPERATING MISCELLANEOUS EQUIPMENT	11	9	6	4
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	5	5	3	2
P RIGGING OR HOISTING EQUIPMENT	1	1	1	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	-	-	-	-
R PERFORMING SPECIALIZED ACTIVITIES	1	1	1	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	2	3	4	4
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2	4	5	4
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	1	6	21	40
V PERFORMING TRAINING ACTIVITIES	-	4	6	9
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-	1	3	4
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	2	3	4

" - " indicates less than 1 percent

AD Skill-Level Descriptions

DAFSC 3E231 Representing 25 percent of the survey sample, these 338 airmen perform an average of 220 tasks. Table 8 reflects the percent time spent on duties by AD DAFSC 3E231 personnel. Members holding DAFSC 3E231 spend almost 98 percent of their time performing technical tasks in Duties A through T. Thirty percent of their time is spent performing general pavements and construction equipment tasks of Duty A and constructing and maintaining rigid pavements and concrete structures of Duty B. Representative tasks performed by these members are listed in Table 9.

DAFSC 3E251 The 403 members of this group account for 30 percent of the survey sample. Table 8 provides a comparison of the relative time spent on duties at the 5-skill level. This table shows a slight decrease in the amount of time spent performing technical tasks in most duties and an increase in the number of personnel performing the supervisory tasks of Duty U. Table 8 also reflects a pattern similar to the 3-skill level with 10 percent of their time being spent performing general maintenance tasks (Duty A) and 12 percent of their time being spent constructing and maintaining rigid pavements and concrete structures (Duty B).

Table 10 lists representative tasks performed by these DAFSC 3E251 personnel. Table 11 reflects those tasks which best differentiate the 3-skill levels from the 5-skill levels. This table shows that the 3-skill levels perform only two technical tasks much more frequently than the 5-skill levels, while the 5-skill levels perform supervisory and training tasks rarely performed at the 3-skill level.

DAFSC 3E271 These 130 members perform an average of 179 tasks and represent 10 percent of the survey sample. Table 8 reflects the percent time spent on duties by DAFSC 3E271 members and shows decreases in the amount of time spent by members performing the technical tasks in 13 out of 20 duty areas. Fifty-four percent of their time is spent on nontechnical tasks involving management and supervision, training, administration, and supply. This is an increase of time spent performing nontechnical tasks of 36 percent compared to the 5-skill level members. They spend 36 percent of their time performing management and supervisory tasks.

Representative tasks performed by 7-skill level members are reflected in Table 12. Table 13 reflects tasks which best differentiate between 5- and 7-skill levels. This table clearly shows almost twice as many 5-skill level members performing certain general pavements and construction equipment tasks and rigid pavements and concrete structures tasks. An even higher distinction is shown in the performance of many management and supervisory tasks by DAFSC 3E271 members.

DAFSC 3E291 These 15 members perform an average of 125 tasks. The percent time spent on duties by DAFSC 3E291 members shown in Table 8 reveals a significant decrease in the relative percent time spent on technical tasks and an increase of 22 percent in the time spent performing management and supervisory activities. The 9-skill level members spend approximately 20 percent of their time performing technical tasks.

Table 15 displays the tasks that best differentiate between 7- and 9-skill levels. DAFSC 3E271 members perform several general pavements and construction equipment tasks that less than 20 percent of the DAFSC 3E291 members perform. The 9-skill levels are clearly performing a higher level of supervisory responsibilities.

AD Skill-Level Analysis Summary

Progression in the Pavements and Construction Equipment career ladder follows a regular pattern of highly technical job focus at the lower skill levels with a broadening into supervision and management at the 7- and 9-skill levels. Three- and 5-skill level airmen perform many tasks in common, and both groups spend the vast majority of their time performing technical pavements and construction equipment tasks. The 5-skill level members, while performing similar technical tasks, perform some supervisory and management tasks. At the 7-skill level, members still perform a substantial amount of technical tasks but demonstrate a strong shift toward supervisory functions. The 9-skill level members are primarily responsible for the overall daily operations of the pavements and construction equipment community, including budget and policy decisions.

TABLE 8

RELATIVE PERCENT TIME SPENT ON DUTIES BY AD DAFSC 3E2XI GROUPS

DUTIES	3E231 (N=338)	3E251 (N=403)	3E271 (N=130)	3E291 (N=15)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	14	10	5	1
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	16	12	6	1
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4	4	2	-
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	4	4	3	2
E CONSTRUCTING BUNKERS AND REVETMENTS	1	1	-	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4	3	2	-
G OPERATING FRONT-END LOADERS OR FORKLIFTS	10	8	4	1
H OPERATING DUMP TRUCKS	6	4	2	-
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	7	5	2	1
J OPERATING GRADERS AND ATTACHMENTS	4	4	2	1
K OPERATING DOZERS AND ATTACHMENTS	4	3	1	-
L OPERATING SCRAPERS	-	-	-	-
M OPERATING CRANES AND ATTACHMENTS	1	2	2	1
N OPERATING MISCELLANEOUS EQUIPMENT	11	10	5	1
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	5	4	2	1
P RIGGING OR HOISTING EQUIPMENT	1	1	1	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	-	-	-	-
R PERFORMING SPECIALIZED ACTIVITIES	1	1	1	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	2	2	2	4
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2	2	3	5
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	1	9	36	58
V PERFORMING TRAINING ACTIVITIES	-	5	8	8
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-	1	5	7
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	3	5	5

" - " indicates less than 1 percent

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 3E231 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=338)
A0002	Break asphalt or concrete using jackhammers	96
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	95
B0058	Finish concrete by hand	95
H0239	Clean dump trucks	95
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	94
B0059	Finish concrete using brooms	94
H0243	Haul materials using dump trucks	94
A0010	Compact base course materials or subgrade using small powered equipment or hand tampers	94
A0032	Place base course for materials	93
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	92
B0053	Cut concrete	92
B0057	Edge concrete	92
B0062	Finish concrete using bullfloats	92
B0071	Level concrete using hand screeds	91
H0238	Check tailgate pins on dump trucks	91
G0220	Level areas by backdragging using front-end loaders	90
A0011	Compact base course materials or subgrade using steel-wheeled rollers	90
B0056	Drive stakes	90
G0210	Backfill excavations using front-end loaders	90
G0230	Stockpile materials using front-end loaders	90
A0022	Maintain handtools	89
H0245	Spread materials from dump trucks	89
G0229	Spread materials using front-end loaders	89
A0001	Break asphalt or concrete using handtools, other than jackhammers	89
H0242	Dump materials from dump trucks with tailgate up	88

* Average Number of Tasks Performed - 220

TABLE 10

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 3E251 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=403)
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	88
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	86
A0028 Perform operator inspections or maintenance on pavements and construction equipment attachments	84
B0062 Finish concrete using bullfloats	84
H0243 Haul materials using dump trucks	83
B0059 Finish concrete using brooms	83
B0058 Finish concrete by hand	83
G0222 Load or off-load materials or equipment using forklifts	83
B0057 Edge concrete	82
A0010 Compact base course materials or subgrade using small powered equipment or hand tampers	82
G0230 Stockpile materials using front-end loaders	81
A0002 Break asphalt or concrete using jackhammers	81
B0071 Level concrete using hand screeds	81
G0210 Backfill excavations using front-end loaders	81
A0022 Maintain handtools	81
G0217 Haul materials using forklifts	81
G0220 Level areas by backdragging using front-end loaders	81
B0056 Drive stakes	81
A0023 Maintain protective equipment, such as eye protectors or helmets	81
A0020 Lay out areas for concrete or pavements	80
A0032 Place base course for materials	80
G0221 Level materials using front-end loaders with multipurpose buckets	80
A0011 Compact base course materials or subgrade using steel-wheeled rollers	80
G0229 Spread materials using front-end loaders	80
G0208 Attach or remove forklift attachments on front-end loaders	80

* Average Number of Tasks Performed - 232

TABLE II

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD AFSC 3E231 AND DAFSC 3E251 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 3E231 (N=338)	DAFSC 3E251 (N=403)	DIFFERENCE
B0083 Perform slump tests	59	34	25
A0001 Break asphalt or concrete using handtools, other than jackhammers	89	67	21
V0679 Counsel trainees on training progress	4	64	-59
U0627 Counsel subordinates concerning personal matters	6	63	-57
U0624 Conduct supervisory performance feedback sessions	4	55	-51
V0691 Maintain training records or files	8	58	-50
U0671 Write or indorse military performance reports	3	52	-50
U0672 Write recommendations for awards or decorations	2	52	-50
U0659 Inspect personnel for compliance with military standards	8	55	-48
V0689 Evaluate progress of trainees	3	52	-48
U0653 Evaluate personnel for compliance with performance standards	5	52	-47
V0678 Conduct on-the-job training (OJT)	22	66	-43

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 3E271 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=130)	
U0627	Counsel subordinates concerning personal matters	85
U0672	Write recommendations for awards or decorations	85
U0659	Inspect personnel for compliance with military standards	83
U0629	Determine or establish work assignments or priorities	82
U0624	Conduct supervisory performance feedback sessions	81
U0653	Evaluate personnel for compliance with performance standards	81
U0671	Write or indorse military performance reports	80
U0654	Evaluate personnel for promotion, demotion, reclassification, or special awards	80
U0628	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	80
U0660	Interpret policies, directives, or procedures for subordinates	78
U0635	Develop or establish work schedules	78
U0621	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	75
U0619	Assign personnel to work areas or duty positions	75
U0626	Conduct supervisory orientations for newly assigned personnel	75
U0625	Conduct safety inspections of equipment or facilities	75
U0649	Establish performance standards for subordinates	75
U0658	Initiate actions required due to substandard performance of personnel	74
U0634	Develop or establish work methods or procedures	72
U0656	Implement safety or security programs	72
V0679	Counsel trainees on training progress	71
V0678	Conduct on-the-job training (OJT)	70
U0652	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	69
X0718	Initiate requisitions for equipment, tools, parts, or supplies	68
V0675	Brief personnel concerning training programs or matters	68
V0691	Maintain training records or files	68

* Average Number of Tasks Performed - 179

TABLE 13

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 3E251 AND DAFSC 3E271 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E251 (N=403)	3E271 (N=130)	DIFFERENCE
A0010 Compact base course materials or subgrade using small powered equipment or hand tampers	82	41	41
A0011 Compact base course materials or subgrade using steel-wheeled rollers	80	39	41
A0032 Place base course for materials	80	41	40
G0208 Attach or remove forklift attachments on front-end loaders	80	42	39
A0002 Break asphalt or concrete using jackhammers	81	43	38
C0101 Compact asphalt using steel-wheeled or vibratory rollers	77	38	38
B0056 Drive stakes	81	43	38
B0053 Cut concrete	79	42	38
A0015 Excavate areas using handtools	80	42	37
B0042 Clean and oil concrete forms	72	35	37
<hr/>			
U0621 Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	26	75	-50
U0666 Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	18	66	-49
U0635 Develop or establish work schedules	31	78	-47
U0661 Investigate accidents or incidents	21	65	-45
U0620 Assign sponsors for newly assigned personnel	23	68	-45
U0657 Initiate personnel action requests	18	63	-45
U0633 Develop inputs to mobility, contingency, disaster preparedness, or unit emergency or alert plans	11	55	-44
U0634 Develop or establish work methods or procedures	29	72	-43
W0703 Initiate or maintain standby rosters or workcenter pyramid recall rosters	22	64	-42
X0718 Initiate requisitions for equipment, tools, parts, or supplies	28	68	-41

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 3E291 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=15)
U0668 Write job or position descriptions	100
U0621 Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	93
U0624 Conduct supervisory performance feedback sessions	93
U0651 Evaluate inspection report findings or inspection procedures	93
U0648 Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	93
U0628 Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	87
U0660 Interpret policies, directives, or procedures for subordinates	87
U0634 Develop or establish work methods or procedures	87
U0672 Write recommendations for awards or decorations	87
U0655 Evaluate maintenance or utilization of equipment, tools, parts, supplies, or workspace	87
U0629 Determine or establish work assignments or priorities	87
U0666 Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	87
U0627 Counsel subordinates concerning personal matters	87
U0659 Inspect personnel for compliance with military standards	87
U0653 Evaluate personnel for compliance with performance standards	87
U0652 Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	87
U0633 Develop inputs to mobility, contingency, disaster preparedness, or unit emergency or alert plans	87
U0664 Review mobility, contingency, disaster preparedness, or unit emergency or alert plans	87
U0626 Conduct supervisory orientations for newly assigned personnel	87
U0620 Assign sponsors for newly assigned personnel	87
U0663 Review budget requirements	80
U0671 Write or indorse military performance reports	80
U0630 Develop organizational or functional charts	80
U0654 Evaluate personnel for promotion, demotion, reclassification, or special awards	80
U0645 Draft budget requirements	80

* Average Number of Tasks Performed - 125

TABLE 15

TASKS WHICH BEST DIFFERENTIATE BETWEEN AD AFSC 3E271 AND DAFSC 3E291 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E271 (N=130)	3E291 (N=15)	DIFFERENCE
V0691	68	27	42
A0020	50	13	37
A0030	56	20	36
A0023	49	13	36
G0219	49	13	36
B0062	49	13	36
N0434	42	7	36
N0398	42	7	35
A0029	55	20	35
G0221	48	13	34
U0668	50	100	-50
U0664	43	87	-44
W0713	30	73	-43
U0648	52	93	-42
U0651	52	93	-42
U0645	40	80	-40
U0662	21	60	-39
U0630	41	80	-39
U0665	43	80	-37
U0663	46	80	-34

ANG Skill-Level Descriptions

As of April 1999, a total of 1,134 ANG members were assigned to AFSC 3E2X1. A total of 1,079 disks were mailed to ANG personnel with 410 disks returned. The ANG sample is comprised of 279 members. A total of 131 disks could not be used.

DAFSC 3E251 The 159 members of this group perform an average of 205 tasks which is the lowest average for the three service component 5-skill level members. The ANG 5-skill level personnel account for 57 percent of the ANG sample and 12 percent of the total survey sample. Table 16 provides a comparison of the relative time spent on duties at the 5-skill level and shows that 95 percent of their relative time is spent performing the technical tasks of Duties A through T. This table also shows that ANG DAFSC 3E251 personnel spend most of their time performing general pavements and construction equipment tasks (Duty A) at 12 percent and operating front-end loaders or forklifts (Duty G) at 11 percent. These ANG members spend more time performing Prime BEEF activities (Duty S) and mobility and contingency activities (Duty T) than their AD 5-skill level peers. Table 17 lists representative tasks performed by these ANG DAFSC 3E251 personnel.

DAFSC 3E271 These 108 members perform an average of 210 tasks and represent 8 percent of the total survey sample. Table 16 reflects the percent time spent on duties by ANG DAFSC 3E271 members and shows decreases in the amount of time spent by members performing the technical tasks in 10 of the 20 duty areas compared to the ANG 5-skill level personnel. The 7-skill level members spend the same relative amount of time as the 5-skill level members in seven duty areas. The 7-skill level members spend more of their time operating scrapers (Duty L), rigging or hoisting equipment (Duty P), and performing range support activities (Duty Q) compared to the ANG 5-skill level members although the time spent is still extremely low at 1 percent. Twenty-one percent of their time is spent on nontechnical tasks involving management and supervision, training, administration, and supply. This is an increase in time spent performing nontechnical tasks of almost 16 percent compared to the ANG 5-skill level members.

The most significant difference between the focus of the ANG 7-skill level job and the AD 7-skill level job is the amount of time spent performing management and supervisory tasks. The ANG DAFSC 3E271 members spend 11 percent of their time performing management and supervisory activities while the AD DAFSC 3E271 members spend 36 percent of their time on similar activities. The only technical area in which the AD members spend more relative time than the ANG members is in the construction and maintenance of flexible pavements (Duty C).

Representative tasks performed by ANG 7-skill level members are reflected in Table 18. Table 19 shows tasks that best differentiate between ANG 5- and 7-skill levels. Similar to the AD 5-skill level versus 7-skill level comparison, this table clearly shows much more time being spent on management and supervision at the 7-skill level than the 5-skill level.

DAFSC 3E291 These 12 ANG members perform an average of 223 tasks, an average of almost 100 more tasks than the AD 9-skill levels, indicating a much broader job for the ANG members.

Table 16 reflects the percent time spent on duties by ANG DAFSC 3E291 members and shows decreases in the amount of time spent by members performing the technical tasks of Duties A through T with the exception of the construction and maintenance of drainage systems (Duty D) where the percent time spent increases by only 1 percent. The 9-skill level members spend 43 percent of their time performing nontechnical tasks involving management and supervision, training, administration, and supply. This is an increase of time spent performing nontechnical tasks of 22 percent compared to the 7-skill level members.

The distinction between the job performed by ANG and AD 9-skill level members is great with the ANG members spending 78 percent of their time on technical tasks compared to 22 percent for AD members. The ANG DAFSC 3E291 personnel spend less than half the time on management and supervisory tasks than their AD counterparts do.

Representative tasks performed by 9-skill level members are reflected in Table 20. Table 21 reflects tasks which best differentiate between ANG 7- and 9-skill levels. A large percentage of the ANG 9-skill level members are performing specific technical tasks, but the percent members performing these tasks is lower than the percentages of 7-skill level members performing those same tasks. The biggest distinction between the two skill levels is in the percent of members performing management and supervisory activities due to the higher level of responsibilities for the 9-skill level members.

ANG Skill-Level Analysis Summary

Progression for ANG members in the Pavements and Construction Equipment career ladder follows a normal pattern with the concentration on technical tasks at the 5-skill level, a slight decrease in the performance of technical tasks at the 7-skill level, and a noticeable increase in management, supervision, and training activities at the 9-skill level. The ANG DAFSC 3E2X1 members, however, perform more AFSC-specific technical tasks as they progress through the career ladder compared to the progression for AD members.

TABLE 16

RELATIVE PERCENT TIME SPENT ON DUTIES BY ANG DAFSC 3E2X1 GROUPS

DUTIES	3E251 (N=159)	3E271 (N=108)	3E291 (N=12)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	12	8	6
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	8	7	4
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	2	1	1
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3	3	4
E CONSTRUCTING BUNKERS AND REVETMENTS	1	1	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	3	3	3
G OPERATING FRONT-END LOADERS OR FORKLIFTS	11	10	5
H OPERATING DUMP TRUCKS	6	4	3
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	8	7	6
J OPERATING GRADERS AND ATTACHMENTS	5	5	3
K OPERATING DOZERS AND ATTACHMENTS	6	5	3
L OPERATING SCRAPERS	-	1	-
M OPERATING CRANES AND ATTACHMENTS	1	1	-
N OPERATING MISCELLANEOUS EQUIPMENT	9	6	6
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	7	4	3
P RIGGING OR HOISTING EQUIPMENT	-	1	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	-	1	-
R PERFORMING SPECIALIZED ACTIVITIES	1	1	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	6	5	4
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	5	5	4
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	11	28
V PERFORMING TRAINING ACTIVITIES	2	6	10
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-	1	2
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	3	3

" - " indicates less than 1 percent

TABLE 17

REPRESENTATIVE TASKS PERFORMED BY ANG DAFSC 3E251 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=159)
H0243 Haul materials using dump trucks	91
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	88
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	87
G0220 Level areas by backdragging using front-end loaders	86
H0245 Spread materials from dump trucks	86
G0222 Load or off-load materials or equipment using forklifts	86
G0217 Haul materials using forklifts	86
G0210 Backfill excavations using front-end loaders	86
H0239 Clean dump trucks	85
G0230 Stockpile materials using front-end loaders	85
I0252 Backfill using backhoes with front buckets	85
H0241 Dump materials from dump trucks with tailgate down	84
G0219 Haul materials using front-end loaders with multipurpose buckets	82
G0229 Spread materials using front-end loaders	82
G0208 Attach or remove forklift attachments on front-end loaders	82
A0028 Perform operator inspections or maintenance on pavements and construction equipment attachments	81
H0238 Check tailgate pins on dump trucks	81
I0251 Backfill using backhoes with backhoe buckets	81
H0242 Dump materials from dump trucks with tailgate up	81
G0218 Haul materials using front-end loaders with forklift attachments	80
K0313 Backfill using dozers	79
A0005 Clear trees, vegetation, shrubs, or debris from areas using construction equipment	79
G0224 Load or off-load materials using front-end loaders with forklift attachments	79
K0312 Backdrag using dozers	77
G0221 Level materials using front-end loaders with multipurpose buckets	77

* Average Number of Tasks Performed - 205

TABLE 18

REPRESENTATIVE TASKS PERFORMED BY ANG DAFSC 3E271 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=108)
H0243	Haul materials using dump trucks	84
H0245	Spread materials from dump trucks	83
G0222	Load or off-load materials or equipment using forklifts	82
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	81
H0241	Dump materials from dump trucks with tailgate down	81
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	78
G0220	Level areas by backdragging using front-end loaders	78
H0242	Dump materials from dump trucks with tailgate up	78
G0229	Spread materials using front-end loaders	78
I0252	Backfill using backhoes with front buckets	77
G0230	Stockpile materials using front-end loaders	77
H0239	Clean dump trucks	77
I0251	Backfill using backhoes with backhoe buckets	76
G0210	Backfill excavations using front-end loaders	76
H0238	Check tailgate pins on dump trucks	76
G0221	Level materials using front-end loaders with multipurpose buckets	75
S0571	Operate rapid runway repair (RRR) equipment	75
G0217	Haul materials using forklifts	74
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	73
G0224	Load or off-load materials using front-end loaders with forklift attachments	73
G0226	Perform dozer, scraper, or clamshell operations using front-end loaders with multipurpose buckets	73
K0313	Backfill using dozers	73
G0219	Haul materials using front-end loaders with multipurpose buckets	72
G0228	Rough grade areas using front-end loaders	72
G0218	Haul materials using front-end loaders with forklift attachments	72

* Average Number of Tasks Performed - 210

TABLE 19

TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG DAFSC 3E251 AND DAFSC 3E271 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E251 (N=159)	3E271 (N=108)	DIFFERENCE
U0629	16	59	-43
U0654	6	49	-43
U0659	14	54	-39
U0619	19	56	-37
U0626	8	44	-37
V0675	13	48	-36
U0660	7	43	-36
U0627	9	45	-36
V0689	18	51	-33
U0635	14	45	-32
U0672	4	36	-32
X0718	11	42	-31

TABLE 20

REPRESENTATIVE TASKS PERFORMED BY ANG DAFSC 3E291 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=12)
U0619 Assign personnel to work areas or duty positions	92
U0629 Determine or establish work assignments or priorities	92
U0628 Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	92
U0654 Evaluate personnel for promotion, demotion, reclassification, or special awards	92
U0659 Inspect personnel for compliance with military standards	92
U0627 Counsel subordinates concerning personal matters	92
U0660 Interpret policies, directives, or procedures for subordinates	83
V0679 Counsel trainees on training progress	83
V0675 Brief personnel concerning training programs or matters	83
V0678 Conduct on-the-job training (OJT)	83
X0717 Identify and report equipment or supply problems	75
U0653 Evaluate personnel for compliance with performance standards	75
U0635 Develop or establish work schedules	75
V0691 Maintain training records or files	75
U0626 Conduct supervisory orientations for newly assigned personnel	75
U0622 Conduct self-inspections or self-assessments	75
V0689 Evaluate progress of trainees	75
U0634 Develop or establish work methods or procedures	75
U0661 Investigate accidents or incidents	75
U0649 Establish performance standards for subordinates	75
V0680 Determine training requirements	75
U0625 Conduct safety inspections of equipment or facilities	67
U0655 Evaluate maintenance or utilization of equipment, tools, parts, supplies, or workspace	67
U0651 Evaluate inspection report findings or inspection procedures	67
U0658 Initiate actions required due to substandard performance of personnel	67

* Average Number of Tasks Performed - 223

TABLE 21

TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG AFSC 3E271 AND DAFSC 3E291 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E271 (N=108)	3E291 (N=12)	DIFFERENCE
B0076	56	25	31
A0032	54	25	29
B0053	53	25	28
H0239	77	50	27
H0243	84	58	26
I0276	51	25	26
H0245	83	58	25
G0222	82	58	24
G0227	57	33	24
A0015	57	33	24
U0628	41	92	-51
U0649	24	75	-51
U0627	45	92	-46
U0661	30	75	-45
U0651	21	67	-45
U0654	49	92	-43
U0660	43	83	-41
D0153	20	58	-38
U0659	54	92	-38
V0680	37	75	-38

AFRC Skill-Level Descriptions

As of April 1999, a total of 543 AFRC members were assigned to AFSC 3E2X1. A total of 456 disks were mailed to AFRC personnel with 364 disks returned. Out of the 364 returned disks, a total of 165 disks could not be used. As a result, the AFRC sample is comprised of 199 members.

DAFSC 3E251 The 105 members of this group account for 8 percent of the total survey sample and 53 percent of the AFRC sample. Table 22 provides a comparison of the relative time spent on duties at the 5-skill level and reveals that the AFRC DAFSC 3E251 members are spending the most time operating front-end loaders or forklifts (Duty G) and operating miscellaneous equipment (Duty N), such as excavators and lowboys. Ninety-four percent of their time is spent performing technical tasks.

Compared to their AD peers, the AFRC 5-skill level members spend more of their relative time operating front-end loaders or forklifts (Duty G), dump trucks (Duty H), backhoes and industrial tractors (Duty I), and graders (Duty J). The AFRC personnel also spend more time on mobility, contingency, and Prime BEEF activities and less time on management and supervisory activities than the AD 5-skill level members. The difference in time spent by the AFRC and ANG members, however, is less distinct. The AFRC DAFSC 3E251 members spend less than half the amount of time on snow removal and ice control activities (Duty O) as their ANG counterparts, but their similarities in time spent in almost every other area are great.

Table 23 lists some of the 219 tasks performed on average by the highest percentage of AFRC DAFSC 3E251 personnel.

DAFSC 3E271 These 70 members perform an average of 250 tasks, the highest average of any DAFSC for all three service components in the study. The AFRC 7-skill level personnel represent 5 percent of the total survey sample.

Table 24 reflects the percent time spent on duties by AFRC DAFSC 3E271 members and a pattern of time spent very similar to the time spent by AFRC 5-skill level members. The AFRC 7-skill levels spend more time operating cranes and attachments (Duty M) but spend less or the same relative amount of time on the other technical tasks of Duties A through T. The AFRC 7-skill level members also spend 14 percent of their time performing management and supervisory, training, administrative, and supply activities. This is an increase in time spent performing nontechnical tasks of 8 percent compared to the AFRC 5-skill level members.

Compared to the ANG 7-skill level members, the AFRC 7-skill level members spend slightly less time constructing and maintaining drainage systems (Duty D), operating scrapers (Duty L), and removing snow and controlling ice (Duty O). The AFRC members also spend 7 percent less time than their ANG counterparts on the nontechnical tasks in the survey. The most significant distinction between the service components for the 7-skill level members is in the amount of time spent by AFRC members performing the management and supervisory, training, administrative, and supply tasks compared to the AD 7-skill level members. The AFRC members only spend 14

percent of their time on these nontechnical activities while the AD members spend 54 percent of their time performing the same activities.

Representative tasks performed by AFRC 7-skill level members are reflected in Table 24. Table 25 reflects tasks which best differentiate between 5- and 7-skill levels. The lack of tasks favoring the AFRC 5-skill levels in percent members performing indicates that the AFRC 5- and 7-skill level members are performing many of the same technical tasks. However, this table clearly shows a much higher devotion to management, supervisory, and training activities at the 7-skill level than the 5-skill level.

DAFSC 3E291 The 23 members of this group perform an average of 187 tasks. Table 22 displays the percent time spent on duties by AFRC DAFSC 3E291 members and shows decreases in the amount of time spent by members performing the technical tasks of Duties A through T in 15 of the 20 technical duty areas. The 9-skill level members spend 35 percent of their time performing management and supervisory tasks which is five times as much as the AFRC 7-skill level members. Almost half of their time is spent performing technical tasks.

The AFRC 9-skill level personnel spend far more time performing technical tasks than their AD peers (48 percent versus 22 percent) but spend only 9 percent less time on technical tasks compared to the ANG 9-skill level members.

Table 26 displays representative tasks performed by AFRC 9-skill level members. Table 27 reflects tasks which best differentiate between AFRC 7- and 9-skill levels. This table shows a higher percent members performing for the 7-skill level members on a variety of technical tasks, including mobility and contingency activities, while a higher percentage of 9-skill level members are performing specific management and supervisory tasks, such as inspecting personnel, evaluating personnel, and conducting supervisory performance feedback sessions.

AFRC Skill-Level Analysis Summary

Career ladder progression for AFRC members in DAFSC 3E2X1 follows a regular pattern although the 7-level members spend a lot less time than their AD peers performing management and supervisory activities. The 5- and 7-skill levels spend the vast majority of their time performing similar technical tasks. There is a significant increase in the performance of nontechnical tasks at the 9-skill level, but these AFRC members still spend substantially more time performing technical tasks compared to the AD 9-skill level members.

TABLE 22

RELATIVE PERCENT TIME SPENT ON DUTIES BY AFRC DAFSC 3E2X1 GROUPS

DUTIES	3E251 (N=105)	3E271 (N=70)	3E291 (N=23)
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	10	10	5
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	9	7	4
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	2	2	1
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	3	2	2
E CONSTRUCTING BUNKERS AND REVETMENTS	1	-	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	3	3	1
G OPERATING FRONT-END LOADERS OR FORKLIFTS	12	10	6
H OPERATING DUMP TRUCKS	5	5	3
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	8	8	4
J OPERATING GRADERS AND ATTACHMENTS	6	5	3
K OPERATING DOZERS AND ATTACHMENTS	6	6	3
L OPERATING SCRAPERS	-	-	-
M OPERATING CRANES AND ATTACHMENTS	1	2	2
N OPERATING MISCELLANEOUS EQUIPMENT	10	8	5
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	3	3	2
P RIGGING OR HOISTING EQUIPMENT	1	1	-
Q PERFORMING RANGE SUPPORT ACTIVITIES	-	-	-
R PERFORMING SPECIALIZED ACTIVITIES	1	1	-
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	6	6	3
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	6	6	3
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	7	35
V PERFORMING TRAINING ACTIVITIES	2	4	10
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	2	3
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	1	4

" - " indicates less than 1 percent

TABLE 23

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 3E251 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=105)
H0243 Haul materials using dump trucks	93
G0230 Stockpile materials using front-end loaders	90
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	90
G0217 Haul materials using forklifts	90
G0218 Haul materials using front-end loaders with forklift attachments	90
G0210 Backfill excavations using front-end loaders	89
G0220 Level areas by backdragging using front-end loaders	89
G0208 Attach or remove forklift attachments on front-end loaders	89
G0226 Perform dozer, scraper, or clamshell operations using front-end loaders with multipurpose buckets	88
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	87
G0222 Load or off-load materials or equipment using forklifts	87
G0224 Load or off-load materials using front-end loaders with forklift attachments	87
H0242 Dump materials from dump trucks with tailgate up	86
H0238 Check tailgate pins on dump trucks	86
G0209 Attach or remove multipurpose buckets on front-end loaders	86
I0252 Backfill using backhoes with front buckets	86
A0028 Perform operator inspections or maintenance on pavements and construction equipment attachments	85
G0229 Spread materials using front-end loaders	85
H0245 Spread materials from dump trucks	85
H0239 Clean dump trucks	84
G0221 Level materials using front-end loaders with multipurpose buckets	84
S0571 Operate rapid runway repair (RRR) equipment	84
J0292 Level areas using graders	84
K0313 Backfill using dozers	84
K0312 Backdrag using dozers	84

* Average Number of Tasks Performed - 219

TABLE 24

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 3E271 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=70)
G0230 Stockpile materials using front-end loaders	89
H0239 Clean dump trucks	89
G0229 Spread materials using front-end loaders	89
H0243 Haul materials using dump trucks	87
G0217 Haul materials using forklifts	87
G0222 Load or off-load materials or equipment using forklifts	86
H0245 Spread materials from dump trucks	86
G0210 Backfill excavations using front-end loaders	86
G0221 Level materials using front-end loaders with multipurpose buckets	84
H0238 Check tailgate pins on dump trucks	84
S0571 Operate rapid runway repair (RRR) equipment	84
G0219 Haul materials using front-end loaders with multipurpose buckets	84
K0312 Backdrag using dozers	84
G0209 Attach or remove multipurpose buckets on front-end loaders	84
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	83
G0220 Level areas by backdragging using front-end loaders	83
G0228 Rough grade areas using front-end loaders	83
G0218 Haul materials using front-end loaders with forklift attachments	83
H0241 Dump materials from dump trucks with tailgate down	81
I0252 Backfill using backhoes with front buckets	81
G0226 Perform dozer, scraper, or clamshell operations using front-end loaders with multipurpose buckets	81
K0313 Backfill using dozers	81
G0208 Attach or remove forklift attachments on front-end loaders	81
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	80
G0224 Load or off-load materials using front-end loaders with forklift attachments	80

* Average Number of Tasks Performed - 250

TABLE 25

TASKS WHICH BEST DIFFERENTIATE BETWEEN AFRC DAFSC 3E251 AND DAFSC 3E271 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E251 (N=105)	3E271 (N=70)	DIFFERENCE
U0627	15	57	-42
U0654	7	44	-38
U0619	18	56	-38
U0629	15	53	-38
V0691	27	63	-36
U0635	13	49	-35
V0689	20	54	-34
V0679	27	60	-33
V0680	15	49	-33
U0659	18	50	-32
U0624	10	40	-30
U0672	13	43	-30
U0671	11	40	-29
U0653	18	44	-26
U0660	13	39	-25

TABLE 26

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 3E291 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=23)	
U0629	Determine or establish work assignments or priorities	91
U0659	Inspect personnel for compliance with military standards	91
U0654	Evaluate personnel for promotion, demotion, reclassification, or special awards	87
U0624	Conduct supervisory performance feedback sessions	87
U0619	Assign personnel to work areas or duty positions	87
U0627	Conduct subordinates concerning personal matters	87
U0672	Write recommendations for awards or decorations	83
V0679	Counsel trainees on training progress	83
U0628	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	83
U0635	Develop or establish work schedules	78
V0691	Maintain training records or files	74
U0621	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	74
U0653	Evaluate personnel for compliance with performance standards	74
U0660	Interpret policies, directives, or procedures for subordinates	74
U0626	Conduct supervisory orientations for newly assigned personnel	74
U0634	Develop or establish work methods or procedures	74
V0678	Conduct on-the-job training (OJT)	74
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	74
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	74
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	74
V0675	Brief personnel concerning training programs or matters	70
U0622	Conduct self-inspections or self-assessments	70
U0620	Assign sponsors for newly assigned personnel	70
V0680	Determine training requirements	70
U0625	Conduct safety inspections of equipment or facilities	70

* Average Number of Tasks Performed - 187

TABLE 27

TASKS WHICH BEST DIFFERENTIATE BETWEEN AFRC AFSC 3E271 AND DAFSC 3E291 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3E271 (N=70)	3E291 (N=23)	DIFFERENCE
S0550 Anchor AM-2 matting	64	22	43
I0254 Break pavement using backhoes or tractors with jackhammer attachments	77	39	38
I0253 Backfill using tractors with blade attachments	69	30	38
A0008 Compact base course materials or subgrade using pneumatic-tired rollers	64	26	38
A0002 Break asphalt or concrete using jackhammers	80	43	37
A0013 Compact base course materials or subgrade using vibratory rollers	74	39	35
J0294 Maintain road shoulders using graders	70	35	35
T0596 Fill bomb-damaged areas with select fill	70	35	35
N0430 Perform dust control operations using water distributors	66	30	35
T0599 Install geotextiles	61	26	35
U0657 Initiate personnel action requests	21	61	-39
U0620 Assign sponsors for newly assigned personnel	30	70	-40
U0634 Develop or establish work methods or procedures	34	74	-40
U0672 Write recommendations for awards or decorations	43	83	-40
U0659 Inspect personnel for compliance with military standards	50	91	-41
U0628 Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	40	83	-43
U0654 Evaluate personnel for promotion, demotion, reclassification, or special awards	44	87	-43
U0621 Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	29	74	-45
U0661 Investigate accidents or incidents	24	70	-45
U0624 Conduct supervisory performance feedback sessions	40	87	-47

Comparative Analysis of DAFSC Groups

As discussed in their respective sections, AD, ANG, and AFRC DAFSC groups were examined and reported separately. A common theme became evident across all DAFSC groups, however, in that typical career ladder progression is evident across all three service components. At the 5-skill level across all component groups, members are performing mostly technical tasks. The 7-skill level groups expanded their workload to include general supervision and management activities. At the 9-skill level and CEM level, the work encompassed the management of activities and programs within the Pavements and Construction Equipment community.

Further analysis of the DAFSC groups for the three service components revealed that the AD members of this career ladder spend more time performing management and supervisory tasks at the 5- and 7-skill levels than the ANG and AFRC members do. The ANG and AFRC personnel also perform more of the same tasks from one skill level to the next skill level indicating less distinction between the 5- and 7-skill levels and the 7- and 9-skill levels for the ANG and AFRC Pavements and Construction Equipment members.

TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the work being performed by first-job or first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-job (1-24 months' TAFMS) or first-enlistment (1-48 months' TAFMS) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Job Personnel

This study has 165 members in their first-job assignment (1-24 months' TAFMS), representing 12 percent of the survey sample. Table 28 displays the relative time spent on duties by first-job personnel. As seen in this table, first-job personnel spend 31 percent of their time performing the general pavements and construction equipment tasks (Duty A) and constructing and maintaining rigid pavements and concrete structures (Duty B). They spend smaller percentages of time performing specific pavements and construction equipment tasks in Duties C through T. Table 29 lists representative tasks performed by these first-job personnel and reflects the technical job of these newly assigned personnel.

First-Enlistment Personnel

The 345 members in their first-enlistment represent 25 percent of the total survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. Table 30 displays the relative percent of time spent on duties by first-enlistment personnel. These personnel spend 30 percent of their time performing the general pavements and construction equipment tasks of Duty A. Representative tasks performed by first-enlistment personnel are displayed in Table 31. Table 32 reflects the vehicles, tools, and equipment used operated, or maintained by first-enlistment respondents.

TABLE 28

RELATIVE PERCENT TIME SPENT ON DUTIES BY
FIRST-JOB PERSONNEL (1-24 MONTHS' TAFMS)
(N=165)

DUTIES	PERCENT TIME SPENT
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	15
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	16
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	4
E CONSTRUCTING BUNKERS AND REVETMENTS	-
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4
G OPERATING FRONT-END LOADERS OR FORKLIFTS	11
H OPERATING DUMP TRUCKS	7
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	6
J OPERATING GRADERS AND ATTACHMENTS	4
K OPERATING DOZERS AND ATTACHMENTS	3
L OPERATING SCRAPERS	-
M OPERATING CRANES AND ATTACHMENTS	1
N OPERATING MISCELLANEOUS EQUIPMENT	11
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	5
P RIGGING OR HOISTING EQUIPMENT	1
Q PERFORMING RANGE SUPPORT ACTIVITIES	-
R PERFORMING SPECIALIZED ACTIVITIES	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	2
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	1
V PERFORMING TRAINING ACTIVITIES	-
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1

" - " indicates less than 1 percent

TABLE 29

REPRESENTATIVE TASKS PERFORMED BY AFSC 3E2X1
FIRST-JOB PERSONNEL (1-24 MONTHS' TAFMS)

TASKS		PERCENT MEMBERS PERFORMING (N=165)
A0002	Break asphalt or concrete using jackhammers	97
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	94
H0243	Haul materials using dump trucks	94
H0239	Clean dump trucks	94
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	93
A0010	Compact base course materials or subgrade using small powered equipment or hand tampers	93
B0058	Finish concrete by hand	93
B0059	Finish concrete using brooms	93
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	91
A0032	Place base course for materials	90
B0053	Cut concrete	90
B0057	Edge concrete	89
H0238	Check tailgate pins on dump trucks	89
A0001	Break asphalt or concrete using handtools, other than jackhammers	89
A0022	Maintain handtools	88
B0062	Finish concrete using bullfloats	88
B0071	Level concrete using hand screeds	88
G0220	Level areas by backdragging using front-end loaders	88
G0230	Stockpile materials using front-end loaders	86
H0242	Dump materials from dump trucks with tailgate up	85
A0020	Lay out areas for concrete or pavements	85
A0023	Maintain protective equipment, such as eye protectors or helmets	82
B0091	Place or remove concrete forms	82
N0441	Sweep areas, other than airfields, using multipurpose sweepers	75
N0437	Sweep airfield pavements using multipurpose sweepers	73

* Average Number of Tasks Performed - 209

**DISTRIBUTION OF 3E2X1 FIRST-ENLISTMENT PERSONNEL
ACROSS SPECIALTY JOBS AND CLUSTERS
(N = 345)**

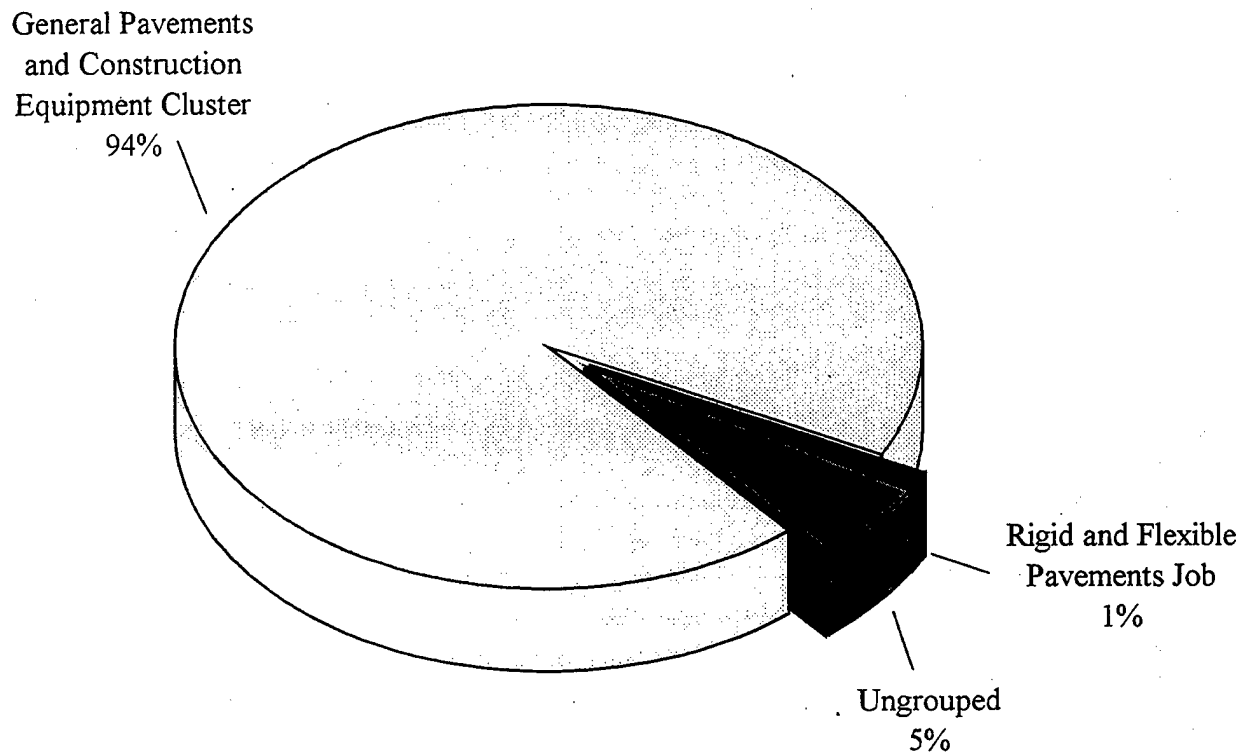


FIGURE 2

TABLE 30

RELATIVE PERCENT TIME SPENT ON DUTIES BY
FIRST-ENLISTMENT PERSONNEL
(N=345)

DUTIES	PERCENT TIME SPENT
A PERFORMING GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT ACTIVITIES	14
B CONSTRUCTING AND MAINTAINING RIGID PAVEMENTS AND CONCRETE STRUCTURES	16
C CONSTRUCTING AND MAINTAINING FLEXIBLE PAVEMENTS	4
D CONSTRUCTING AND MAINTAINING DRAINAGE SYSTEMS	4
E CONSTRUCTING BUNKERS AND REVETMENTS	1
F PERFORMING FENCING AND GROUNDS MAINTENANCE ACTIVITIES	4
G OPERATING FRONT-END LOADERS OR FORKLIFTS	10
H OPERATING DUMP TRUCKS	6
I OPERATING BACKHOES AND INDUSTRIAL TRACTORS WITH ATTACHMENTS	6
J OPERATING GRADERS AND ATTACHMENTS	4
K OPERATING DOZERS AND ATTACHMENTS	4
L OPERATING SCRAPERS	-
M OPERATING CRANES AND ATTACHMENTS	1
N OPERATING MISCELLANEOUS EQUIPMENT	11
O PERFORMING SNOW REMOVAL AND ICE CONTROL ACTIVITIES	5
P RIGGING OR HOISTING EQUIPMENT	1
Q PERFORMING RANGE SUPPORT ACTIVITIES	-
R PERFORMING SPECIALIZED ACTIVITIES	1
S PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	2
T PERFORMING MOBILITY OR CONTINGENCY ACTIVITIES	2
U PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	1
V PERFORMING TRAINING ACTIVITIES	-
W PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	-
X PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1

" - " indicates less than 1 percent

TABLE 31

REPRESENTATIVE TASKS PERFORMED BY AFSC 3E2X1
FIRST-ENLISTMENT PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=345)
A0002 Break asphalt or concrete using jackhammers	96
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	95
B0058 Finish concrete by hand	95
H0243 Haul materials using dump trucks	95
A0010 Compact base course materials or subgrade using small powered equipment or hand tampers	94
H0239 Clean dump trucks	94
B0059 Finish concrete using brooms	94
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	94
A0032 Place base course for materials	93
B0062 Finish concrete using bullfloats	92
B0053 Cut concrete	92
A0028 Perform operator inspections or maintenance on pavements and construction equipment attachments	92
B0057 Edge concrete	92
H0238 Check tailgate pins on dump trucks	91
B0071 Level concrete using hand screeds	91
A0011 Compact base course materials or subgrade using steel-wheeled rollers	90
G0220 Level areas by backdragging using front-end loaders	90
B0056 Drive stakes	90
G0230 Stockpile materials using front-end loaders	90
G0210 Backfill excavations using front-end loaders	90
A0001 Break asphalt or concrete using handtools, other than jackhammers	89
A0022 Maintain handtools	89
G0229 Spread materials using front-end loaders	89
H0242 Dump materials from dump trucks with tailgate up	88
H0245 Spread materials from dump trucks	88

* Average Number of Tasks Performed - 215

TABLE 32

VEHICLES, TOOLS, AND EQUIPMENT
USED, OPERATED, OR MAINTAINED BY
FIRST-ENLISTMENT AFSC 3E2X1 PERSONNEL

EQUIPMENT	1ST ENL (N=345)
Backhoes	96
Front-End Loaders, Wheel-Mounted	96
Jackhammers	96
Saws, Concrete	95
Saws, K-12	95
Air Compressors	94
Forklifts	94
Rollers, Steel-Wheeled	94
Bullfloats	93
Graders, Articulated	91
Tampers, Vibrator	91
Tampers, Hand	89
Skid-Steer Loaders with Attachments	88
Dozers, Track-Mounted	87
Rollers, Vibratory	86
Saws, Chain	83
Asphalt Lutes	82
Screeds, Hand	82
Distributors, Water	77
Steel Concrete Forms	75
Portable Concrete Mixers	74
Portable Generators	73
Sweepers, Multipurpose	73
Earth Augers	72
Drills, Electric	72

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel training, along with a measure of the difficulty of the JI tasks. When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors (TE and TD), accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings but low percentages performing may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. ATIs correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allow course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 33 presents tasks with the highest TE ratings for AFSC 3E2X1 first-enlistment airmen. For example, this table shows that TE raters reported tasks such as compacting asphalt using steel-wheeled or vibratory rollers and leveling materials using front-end loaders with multipurpose buckets require a high degree of training emphasis. In general, tasks covering the inspection and maintenance of pavements and construction equipment vehicles, heavy equipment, and equipment attachments are given high TE ratings, and the data indicate that most airmen in their first job and within their first enlistment are performing these tasks.

Table 34 displays those tasks AFSC 3E2X1 raters judged to be the most difficult to learn to perform satisfactorily. This table shows that TD raters reported finishing grade areas using graders and producing asphalt in fixed or portable asphalt batch plants to be among the most difficult tasks to learn to perform satisfactorily. Due to the low numbers of individuals performing the asphalt production tasks, however, they would be inappropriate for inclusion in a resident curriculum and are more appropriately taught as OJT items.

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the SURVEY METHODOLOGY section of this report.)

TABLE 33

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING		TSK DIF**
		JOB (N=165)	ENL (N=345)	
C0101	6.46	76	83	5.19
A0030	6.43	93	94	4.34
A0029	6.30	94	95	4.42
G0221	6.19	80	86	4.73
G0229	6.16	83	89	4.72
H0245	6.14	84	88	4.63
G0220	6.11	88	90	4.44
G0210	6.11	86	90	4.39
B0058	6.11	93	95	5.16
G0222	6.05	78	84	4.60
C0103	6.03	53	59	5.38
G0230	6.03	86	90	4.39
I0265	6.03	66	74	5.34
C0119	5.97	81	81	4.55
N0437	5.97	73	74	4.00
J0292	5.95	72	75	6.30
B0057	5.95	89	92	3.38
A0028	5.92	91	92	4.53
K0339	5.89	55	62	5.08
B0051	5.89	82	84	4.38
K0326	5.86	61	64	6.25
B0094	5.86	61	65	4.85
G0209	5.86	79	83	4.00
C0100	5.84	78	80	4.20
G0226	5.84	85	87	5.52

* Mean TE Rating is 3.09, and Standard Deviation is 1.54 (High TE = 4.63)

** Average TD Rating is 5.00

TABLE 34

TASKS RATED HIGHEST IN TASK DIFFICULTY

TASKS	TSK DIF	PERCENT MEMBERS PERFORMING									
		1 ST JOB (N=165)		1 ST ENL (N=345)		3-SKL LVL (N=339)		5-SKL LVL (N=667)		7-SKL LVL (N=308)	
A0031	8.26	4	5	6	6	6	6	6	2	30	
J0291	7.93	58	61	61	61	61	61	61	35	4.35	
C0114	7.89	8	7	7	7	8	8	4	4	.65	
C0115	7.76	8	7	7	7	6	6	3	3	.49	
B0078	7.55	4	5	6	6	8	8	5	5	.49	
A0037	7.53	5	9	10	10	17	17	11	11	1.59	
M0368	7.44	5	5	6	6	3	3	6	6	2.54	
M0365	7.38	5	4	5	5	4	4	5	5	1.73	
M0358	7.29	5	6	7	7	5	5	5	5	1.49	
B0063	7.24	12	11	12	12	10	10	3	3	1.73	
M0392	7.23	6	5	6	6	4	4	2	2	.73	
M0381	7.22	5	7	8	8	13	13	11	11	1.92	
B0085	7.21	22	24	24	24	24	24	12	12	2.24	
C0117	7.16	7	7	8	8	5	5	2	2	.51	
B0089	7.14	6	6	7	7	6	6	4	4	1.32	
M0391	7.10	5	5	6	6	4	4	2	2	.59	
A0025	6.98	26	28	28	28	31	31	18	18	2.59	
U0646	6.98	1	2	2	2	2	2	7	7	.70	
M0364	6.93	7	8	8	8	12	12	17	17	2.22	
C0109	6.87	25	31	34	34	43	43	27	27	4.24	
M0354	6.86	5	6	7	7	4	4	5	5	1.84	
M0361	6.84	15	18	19	19	40	40	35	35	4.81	
M0376	6.77	6	10	10	10	23	23	18	18	2.65	
M0359	6.71	4	5	5	5	5	5	3	3	.84	
M0393	6.68	6	6	7	7	9	9	8	8	1.57	

* Mean TE Rating is 3.09, and Standard Deviation is 1.54 (High TE = 4.63)

** Average TD Rating is 5.00

Specialty Training Standard (STS)

A comprehensive review of STS 3E2X1, dated April 1997, was performed by comparing STS elements to survey data. Technical school personnel from the 366th Training Squadron/Detachment 7, Ft Leonard Wood MO, matched JI tasks to appropriate STS elements. (The STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined.) Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623. Typically, STS elements that are matched to tasks with sufficiently high TE and TD ratings and are performed by at least 20 percent of personnel in appropriate skill-level groups, such as first-job (1-24 months' TAFMS) members and 3-skill level members, should be considered for inclusion in the STS. Likewise, elements matched to tasks with less than 20 percent performing in these groups should be considered for deletion from the STS.

All 3E2X1 STS elements matched to JI tasks are well supported by occupational survey data. Only three elements, shown below with associated tasks, were found to be unsupported and are as follows:

UNIT	LEARNING OBJECTIVE	3-SKL LVL PROFICIENCY CODE	PERCENT MEMBERS <u>PERFORMING</u>			
			TNG EMP	1ST JOB	1ST ENL	3-SKL LVL
19.1.3. Task	<i>Cranes - Interpret load charts</i> M0361. Determine lifting capacities using load charts	2b/X	4.81	15	18	19
19.5.3. Task	<i>Hydraulic Telescopic Cranes - Change attachments</i> P0511. Rig block and tackle equipment	1a/X	3.35	7	9	9
20.2.2. Task	<i>Rig Loads to be Lifted Using - Wire Rope</i> P0503. Install wire rope clamps on wire rope cables	1a/a	5.32	14	15	15

Table 35 lists examples of tasks not referenced to STS elements with 20 percent or more first-job, first-enlistment, or 3-skill level members performing. The majority of these tasks have high percent members performing, high TE ratings, and average TD ratings. These tasks have the highest ATI rating of 18 and deal with using front-end loaders for various purposes. Tasks not

referenced to any element of the STS are listed at the end of the STS computer listing of the Training Extract. Training personnel should review these tasks for possible inclusion in the STS.

Plan of Instruction (POI)

JI tasks were matched to related training objectives in the J5ABA3E231-000 POI, dated 6 April 1998, for the entry-level course with assistance from 366th Training Squadron personnel. The method employed was similar to that of the STS percent members performing data for first-job (1-24 months' TAFMS), first-enlistment (1-48 months' TAFMS), and TE, TD, and ATI ratings.

POI blocks, units of instruction, and learning objectives were compared to the standard criteria set forth in AETCI 36-2601, dated 5 July 1996 (30 percent or more of the first-enlistment group performing tasks trained along with sufficiently high TE and TD ratings on those tasks). Tasks trained in the course that do not meet these criteria should be considered for possible deletion from the course.

The review of tasks matched to the J5ABA3E231-000 POI revealed that the POI is well supported by occupational survey data. Table 36 lists examples of tasks not referenced to the POI with 30 percent or more first-job, first-enlistment, or 3-skill level members performing. As with the tasks not referenced to the STS, the majority of these tasks have high percent members performing, high TE ratings, and average TD ratings. These tasks have the highest ATI rating of 18 and deal with using front-end loaders or forklifts for various purposes. Tasks not referenced to any element of the POI are listed at the end of the POI computer listing of the Training Extract. As with the STS, training personnel should review these tasks for possible inclusion in the POI.

TABLE 35

EXAMPLES OF TASKS NOT REFERENCED TO STS ELEMENTS
WITH 20 PERCENT OR MORE MEMBERS PERFORMING

TASKS	TNG EMP	PERCENT MEMBERS PERFORMING			TASK DIFF	ATI
		IST (N=165)	1ST ENL (N=345)	3-SKL LVL (N=338)		
G0220 Level areas by backdragging using front-end loaders	6.11	88	90	90	4.44	18
B0051 Construct concrete forms	5.89	82	84	84	4.38	18
G0226 Perform dozer, scraper, or clamshell operations using front-end loaders with multipurpose buckets	5.84	85	87	87	5.52	18
J0306 Windrow materials using graders	5.51	57	66	68	4.77	18
K0313 Backfill using dozers	5.41	62	68	68	5.13	18
K0312 Backdrag using dozers	5.35	64	68	69	4.67	18
G0215 Excavate subsurface areas using front-end loaders	5.30	56	63	64	5.03	18
G0216 Excavate surface areas, other than ditches or trenches, using front-end loaders	5.22	60	66	66	5.03	18
I0272 Load or off-load backhoes on trailers	5.00	44	53	54	5.05	18
B0047 Consolidate concrete using electric or pneumatic concrete vibrators	4.97	46	57	56	4.01	18
N0435 Stockpile materials using skid-steer loaders	4.95	72	76	77	4.43	18
G0214 Excavate ditches or trenches using front-end loaders	4.92	53	61	63	5.08	18
K0307 Adjust angle, pitch, or tilt of dozer blades	4.89	61	63	64	4.63	18
B0068 Install keyways or dowels	4.73	42	52	53	5.29	18
I0247 Attach or remove backhoe attachments	4.62	46	54	57	4.73	17
I0254 Break pavement using backhoes or tractors with jackhammer attachments	4.46	50	57	58	5.00	17
N0429 Load or off-load skid-steer loaders on trailers	4.46	62	70	71	4.58	17
D0132 Clean, inspect, or repair concrete drains	4.43	53	60	61	4.20	17
N0401 Backfill or level using excavators	4.41	40	51	53	5.40	17
I0275 Spread materials using backhoes or tractors with backhoe attachments	4.24	52	61	62	4.86	17
B0084 Place concrete curbs by hand	4.22	65	73	74	5.36	17
N0415 Grade areas using skid-steer loaders	4.22	45	56	54	5.17	17
A0007 Compact base course materials or subgrade using pactor rollers	4.05	62	66	66	4.28	17
I0273 Remove poles using backhoes or tractors with backhoe attachments	2.97	48	54	55	4.79	16

* Mean TE Rating = 3.09 Standard Deviation = 2.75 High TE = 5.84

** Mean TD Rating = 5.00 Standard Deviation = 1.00 High TD = 6.00

TABLE 36

EXAMPLES OF TASKS NOT REFERENCED TO POI ELEMENTS
WITH 30 PERCENT OR MORE MEMBERS PERFORMING

TASKS	TNG EMP	PERCENT MEMBERS PERFORMING			TASK DIFF	ATI
		1ST JOB (N=165)	1ST ENL (N=345)			
G0220	6.11	88	90		4.44	18
G0222	6.05	78	84		4.60	18
B0051	5.89	82	84		4.38	18
G0209	5.86	79	83		4.00	18
G0226	5.84	85	87		5.52	18
N0397	5.73	35	50		4.85	18
G0208	5.59	80	84		4.00	18
G0217	5.57	74	82		4.54	18
J0306	5.51	57	66		4.77	18
K0313	5.41	62	68		5.13	18
K0312	5.35	64	68		4.67	18
D0151	5.30	54	61		4.94	18
G0215	5.30	56	63		5.03	18
G0216	5.22	60	66		5.03	18
N0403	5.08	41	51		5.04	18
I0272	5.00	44	53		5.05	18
B0047	4.97	46	57		4.01	18
N0435	4.95	72	76		4.43	18
G0214	4.92	53	61		5.08	18
D0128	4.89	39	50		4.59	18
K0307	4.89	61	63		4.63	18
B0068	4.73	42	52		5.29	18

* Mean TE Rating = 3.09 Standard Deviation = 2.75 High TE = 5.84

** Mean TD Rating = 5.00 Standard Deviation = 1.00 High TD = 6.00

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey to provide indications of job satisfaction.

Table 37 presents job satisfaction data for AFSC 3E2X1 TAFMS groups, together with TAFMS data for a comparative sample of Support career ladders surveyed in 1998. All TAFMS groups rated utilization of talents, utilization of training, and sense of accomplishment higher than the comparative sample. First-enlistment personnel have slightly lower reenlistment intentions than the 1998 comparative sample. Second-enlistment personnel rated job interest slightly lower than the comparative sample. Members with over 8 years' TAFMS also have slightly lower reenlistment intentions.

An indication of how job satisfaction perceptions have changed over time is provided in Table 38, where TAFMS data for the current survey respondents are compared to the 1996 survey respondents' perceptions. Job interest, utilization of talents, utilization of training, and sense of accomplishment have increased or remained stable for all TAFMS groups over the past 3 years. Reenlistment intentions, however, are lower for all TAFMS groups compared to the 1996 survey, most notably among the first-enlistment members. The most significant increase in job satisfaction across all TAFMS groups is with the perceived utilization of training. Training personnel are to be commended for the effectiveness of their improvements incorporated in the Pavements and Construction Equipment training programs.

In Table 39, a review of the job satisfaction ratings for the specialty clusters and jobs identified in this survey reveals high satisfaction ratings for all areas among the Pavements and Construction Equipment members. The members of the Reserve Forces Cluster provided the lowest ratings for job interest and utilization of talents, but they also indicated the highest reenlistment intentions. The 14 members of the Rigid and Flexible Pavements Job rated their sense of accomplishment as the lowest among the three clusters and two jobs in the study, but their ratings were still relatively high. Members of the Training Job revealed the lowest reenlistment intentions; however, 35 percent of these members plan to retire, the highest retirement rate among the clusters and jobs.

TABLE 37

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49 - 96 MOS TAFMS		97+ MOS TAFMS	
	1999 3E2X1 (N=345)	COMP SAMPLE* (N=249)	1999 3E2X1 (N=126)	COMP SAMPLE* (N=190)	1999 3E2X1 (N=415)	COMP SAMPLE* (N=383)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	78	77	75	80	83	81
SO-SO	15	13	17	10	11	12
DULL	7	10	8	10	6	7
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	88	85	85	83	90	83
LITTLE OR NOT AT ALL	12	15	15	17	10	17
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	95	87	86	85	85	81
LITTLE OR NOT AT ALL	5	13	14	15	15	19
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	77	74	75	72	78	73
NEUTRAL	13	10	10	12	10	9
DISSATISFIED	10	16	15	16	12	18
<u>REENLISTMENT INTENTIONS:</u>						
YES OR PROBABLY YES	44	47	59	56	70	72
NO OR PROBABLY NO	55	53	41	44	8	11
PLAN TO RETIRE	1	0	0	0	22	17

* Comparative sample of Support career ladders surveyed in 1998, including AFSCs 3E0X2, 3E3X1, 3E8X1, and 3E9X1.

TABLE 38

COMPARISON OF CURRENT SURVEY AND 1996 TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49 - 96 MOS TAFMS		97+ MOS TAFMS	
	1999 3E2X1 (N=345)	1996 3E2X1 (N=604)	1999 3E2X1 (N=126)	1996 3E2X1 (N=329)	1999 3E2X1 (N=415)	1996 3E2X1 (N=641)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	78	74	75	72	83	80
SO-SO	15	17	17	19	11	15
DULL	7	9	8	9	6	5
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	88	81	85	85	90	81
LITTLE OR NOT AT ALL	12	19	15	15	10	19
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	95	87	86	83	85	78
LITTLE OR NOT AT ALL	5	13	14	17	15	22
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	77	77	75	74	78	71
NEUTRAL	13	12	10	13	10	9
DISSATISFIED	10	11	15	13	12	20
<u>REENLISTMENT INTENTIONS:</u>						
YES OR PROBABLY YES	44	55	59	78	70	71
NO OR PROBABLY NO	55	45	41	22	8	10
PLAN TO RETIRE	1	0	0	0	22	19

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES OR PROBABLY YES
NO OR PROBABLY NO
PLAN TO RETIRE

TABLE 39

COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	Reserve Forces Cluster (STG082) (N=35)	General P&CE Cluster (STG076) (N=1,062)	Rigid & Flexible Pavements Job (STG083) (N=14)	Training Job (GP054) (N=26)	Management Cluster (STG074) (N=113)
INTERESTING	78	82	86	81	82
SO-SO	11	13	14	15	11
DULL	11	5	0	4	7
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	68 32	89 11	86 14	89 11	90 10
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	71 29	89 11	71 29	88 12	85 15
SATISFIED	74	78	72	73	81
NEUTRAL	9	11	14	12	8
DISSATISFIED	17	11	14	15	11
YES OR PROBABLY YES	72	64	57	46	65
NO OR PROBABLY NO	14	26	36	19	8
WILL RETIRE	14	10	7	35	27

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES OR PROBABLY YES
NO OR PROBABLY NO
WILL RETIRE

IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents. Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder.

Entry-level training programs for AFSC 3E2X1 personnel appear to be working well as indicated by the previously noted positive response patterns by various groups to the question pertaining to training utilization. The survey data indicate that the career ladder training documents are well supported. Some adjustments may be warranted as discussed in the STS and POI analysis sections of this report.

The career ladder progression for the total sample is typical with the move from technical work at the 3- and 5-skill levels to supervisory and management tasks at the 7- and 9-skill levels. About two-thirds of the tasks performed by 7-skill level members are technical in nature while the 9-skill level members spend over half of their time performing management and supervisory, training, administrative, and supply activities. The ANG and AFRC members are performing more technical tasks as they progress from one skill level to the next although the career ladder progression for these members is still typical.

Overall, job satisfaction is higher for all TAFMS groups compared to the sample of like Support AFSCs surveyed in 1998. First-enlistment personnel and career airmen have slightly lower reenlistment intentions versus the comparative sample. Ratings for job interest, utilization of talents, utilization of training, and sense of accomplishment are higher or stable for this study's TAFMS groups compared to the 1996 study. Reenlistment intentions are lower for all TAFMS groups, especially among second-enlistment personnel.

APPENDIX A
SELECTED REPRESENTATIVE TASKS PERFORMED
BY SPECIALTY JOB GROUPS

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TABLE A1
RESERVE FORCES CLUSTER (STG082)

REPRESENTATIVE TASKS	PERCENT MEMBERS PERFORMING (N=35)
H0243 Haul materials using dump trucks	94
G0220 Level areas by backdragging using front-end loaders	94
H0239 Clean dump trucks	91
H0242 Dump materials from dump trucks with tailgate up	89
G0230 Stockpile materials using front-end loaders	89
K0313 Backfill using dozers	86
G0222 Load or off-load materials or equipment using forklifts	86
A0029 Perform operator inspections or maintenance on pavements and construction heavy equipment	83
G0229 Spread materials using front-end loaders	83
G0210 Backfill excavations using front-end loaders	83
G0218 Haul materials using front-end loaders with forklift attachments	83
S0571 Operate rapid runway repair (RRR) equipment	80
H0245 Spread materials from dump trucks	80
G0219 Haul materials using front-end loaders with multipurpose buckets	80
J0292 Level areas using graders	80
I0252 Backfill using backhoes with front buckets	80
K0312 Backdrag using dozers	80
H0238 Check tailgate pins on dump trucks	77
H0241 Dump materials from dump trucks with tailgate down	77
G0217 Haul materials using forklifts	77
A0030 Perform operator inspections or maintenance on pavements and construction equipment vehicles	74
G0221 Level materials using front-end loaders with multipurpose buckets	74
I0251 Backfill using backhoes with backhoe buckets	74
S0579 Repair bomb craters	74
G0224 Load or off-load materials using front-end loaders with forklift attachments	74

TABLE A2

GENERAL PAVEMENTS AND CONSTRUCTION EQUIPMENT CLUSTER (STG076)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=1,062)
H0243	Haul materials using dump trucks	97
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	96
H0239	Clean dump trucks	95
G0230	Stockpile materials using front-end loaders	95
G0220	Level areas by backdragging using front-end loaders	95
G0210	Backfill excavations using front-end loaders	95
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	95
G0229	Spread materials using front-end loaders	94
H0238	Check tailgate pins on dump trucks	94
H0245	Spread materials from dump trucks	94
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	93
G0222	Load or off-load materials or equipment using forklifts	93
G0221	Level materials using front-end loaders with multipurpose buckets	93
B0058	Finish concrete by hand	92
G0217	Haul materials using forklifts	92
B0059	Finish concrete using brooms	92
H0242	Dump materials from dump trucks with tailgate up	91
G0226	Perform dozer, scraper, or clamshell operations using front-end loaders with multipurpose buckets	91
G0219	Haul materials using front-end loaders with multipurpose buckets	91
G0208	Attach or remove forklift attachments on front-end loaders	91
I0252	Backfill using backhoes with front buckets	91
H0241	Dump materials from dump trucks with tailgate down	90
A0002	Break asphalt or concrete using jackhammers	90
G0218	Haul materials using front-end loaders with forklift attachments	90
G0209	Attach or remove multipurpose buckets on front-end loaders	90
B0062	Finish concrete using bullfloats	90

TABLE A3

RIGID AND FLEXIBLE PAVEMENTS JOB (STG083)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=5)
H0243	Haul materials using dump trucks	100
H0245	Spread materials from dump trucks	100
J0292	Level areas using graders	100
H0242	Dump materials from dump trucks with tailgate up	100
K0313	Backfill using dozers	100
K0312	Backdrag using dozers	100
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	100
J0300	Rough grade areas using graders	100
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	100
G0230	Stockpile materials using front-end loaders	100
O0476	Remove snow using front-end loaders with blade attachments	100
K0335	Rough grade areas using dozers	100
H0241	Dump materials from dump trucks with tailgate down	100
H0239	Clean dump trucks	100
G0228	Rough grade areas using front-end loaders	100
G0229	Spread materials using front-end loaders	100
G0220	Level areas by backdragging using front-end loaders	100
G0210	Backfill excavations using front-end loaders	100
K0307	Adjust angle, pitch, or tilt of dozer blades	80
O0494	Stockpile snow using front-end loaders	80
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	80
J0306	Windrow materials using graders	80
J0285	Construct road shoulders using graders	80
I0268	Level areas using crawler tractors	80
I0252	Backfill using backhoes with front buckets	80

TABLE A4
TRAINING JOB (GP054)

REPRESENTATIVE TASKS	PERCENT MEMBERS PERFORMING (N=26)	
V0679	Counsel trainees on training progress	88
V0691	Maintain training records or files	88
V0689	Evaluate progress of trainees	85
V0692	Personalize lesson plans	81
V0675	Brief personnel concerning training programs or matters	73
U0659	Inspect personnel for compliance with military standards	73
A0029	Perform operator inspections or maintenance on pavements and construction heavy equipment	69
A0028	Perform operator inspections or maintenance on pavements and construction equipment attachments	69
U0627	Counsel subordinates concerning personal matters	69
A0030	Perform operator inspections or maintenance on pavements and construction equipment vehicles	69
A0020	Lay out areas for concrete or pavements	65
B0091	Place or remove concrete forms	65
B0062	Finish concrete using bullfloats	65
B0057	Edge concrete	65
B0071	Level concrete using hand screeds	65
B0056	Drive stakes	65
B0090	Place expansion joint materials	65
B0051	Construct concrete forms	65
V0674	Administer or score tests, other than computer-based tests	62
V0677	Conduct formal course classroom training	62
U0653	Evaluate personnel for compliance with performance standards	62
X0719	Inventory equipment, tools, parts, or supplies	62
A0023	Maintain protective equipment, such as eye protectors or helmets	62
B0046	Compute concrete requirements	62
B0059	Finish concrete using brooms	62

TABLE A5

MANAGEMENT CLUSTER (STG074)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=113)
U0672	Write recommendations for awards or decorations	94
U0659	Inspect personnel for compliance with military standards	93
U0627	Counsel subordinates concerning personal matters	93
U0654	Evaluate personnel for promotion, demotion, reclassification, or special awards	91
U0624	Conduct supervisory performance feedback sessions	91
U0653	Evaluate personnel for compliance with performance standards	89
U0660	Interpret policies, directives, or procedures for subordinates	89
U0626	Conduct supervisory orientations for newly assigned personnel	89
U0629	Determine or establish work assignments or priorities	87
U0625	Conduct safety inspections of equipment or facilities	86
U0628	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	85
U0621	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	82
U0652	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	82
U0619	Assign personnel to work areas or duty positions	81
U0635	Develop or establish work schedules	81
U0649	Establish performance standards for subordinates	81
U0658	Initiate actions required due to substandard performance of personnel	81
U0671	Write or indorse military performance reports	81
U0634	Develop or establish work methods or procedures	78
V0679	Counsel trainees on training progress	77
U0620	Assign sponsors for newly assigned personnel	77
U0656	Implement safety or security programs	76
U0622	Conduct self-inspections or self-assessments	76
V0675	Brief personnel concerning training programs or matters	75
V0689	Evaluate progress of trainees	74

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