JOB REQUIREMENTS AND PHYSICAL DEMANDS SURVEY METHODOLOGY GUIDE

Final Report

December 17, 1996

Prepared for:

United States Air Force Space Command
Contract Number F41624-95-D-9016
Delivery Order Number 0003

and

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Project Overview

The Job Requirements and Physical Demands Survey Methodology (Methodology) Guide was developed to provide the Ergonomic Working Group (EWG) a technique that can be used to determine if a Potential Ergonomics Problem Area (PEPA) should be classified as an Ergonomic Problem Area (EPRA). The Survey is a written screening tool that can be easily administered to PEPA-designated work area employees by Public Health technicians.

This document is formatted to provide the Public Health technician an easy-to-use document. The Administrator's Guide serves as the Survey "How To" Guide and contains information on preparing to administer the Survey, actually administering the Survey, and scoring the Survey. Appendices A - D contain the Survey, a script for the Survey administrator to follow when administering the survey, and the Survey scoring sheets. These appendices can be taken directly from this document and photocopied as necessary. Appendix E contains the scientific basis used in the development of the Job Requirements and Physical Demands Survey Methodology.

Development and Testing Process

The Survey Methodology design was the result of an iterative development and testing process that benefited from the support and cooperation of Air Force personnel at several Air Force installations:

- Peterson AFB, CO;
- Patrick AFB, FL;
- Malmstrom AFB, MT;
- Cape Cod AS, MA; and
- Armstrong Laboratory, Brooks AFB, TX.

The development process began with a review of the scientific literature and strategically-planned visits to USAF Headquarters Space Command installations. The purpose of the review was to identify other screening tools or features of other screening tools that could be used to satisfy the criteria established by the Air Force. The site visits were performed to maximize applicability of the Survey to Air Force operations.

The Survey incorporated the results of the literature review and site visits, criteria established by the Air Force, and a series of discussions with Air Force-designated technical advisors. An iterative approach was used in order to incorporate ideas from all Survey contributors. Prior to conducting the reproducibility and validity testing, seven different versions of the Survey had been developed.

The testing and validation process was conducted in three distinct phases: usability testing, reproducibility testing, and validity testing. Usability testing was performed to ensure that Public Health technicians would be able to use the Survey as intended. Reproducibility testing was performed to determine how consistently the Survey yielded the same results. Validity testing was conducted to measure how closely the results (e.g., Survey Priority Rank for several work areas) obtained from an experienced ergonomist matched the results obtained from administration of the Survey.

Project Results

The specific objectives which served as the basis for the Survey development are compared to the actual Survey performance in **Table 1**.

Table 1. Survey Development Criteria Compared to Actual Survey Performance

Design Feature	Air Force Criteria/Objective	Actual Survey Performance
Ease of administration.	Design the Survey to be administered to a group of assembled employees within one hour.	**Objective exceeded**. • The Survey can be administered to and completed by a group of assembled employees in approximately 45 minutes. • In addition, to minimize employee time and disruption of shop activities, the Survey can be administered in the shop.
Ease of analysis.	Design the Survey Methodology to enable a Public Health technician to analyze the data for 25 work area employees within four consecutive hours.	**Objective exceeded**. • The scoring process (e.g., determination of Survey Priority Rank for the shop) can be completed in less than two hours.

Table 1. Survey Development Criteria Compared to Actual Survey Performance (Contd.)

Design Feature	Air Force Criteria/Objective	Actual Survey Performance
Identification of potential source(s) of musculoskeletal discomfort.	The Survey should provide a means for employees to identify specific work processes, activities, and tasks which they believe are related to their reported musculoskeletal discomfort and/or WMD.	**Objective met or exceeded**. • Parts II (Work Content) and III (Process Improvement Opportunities) enable employees to comment directly on the tasks, tools, equipment, materials, etc., that they believe most relate to their discomfort, fatigue, or exposure to ergonomic risk factors. • In addition, employees can provide ideas on improvements that they believe may result in a decrease in discomfort, fatigue, and/or future WMDs. This information saves time for Public Health and the EWG since it may help identify initial targets for effective intervention.
Determination of Ergonomic Problem Area (EPRA) status.	Results of the Survey should help the base EWG members determine if a PEPA should be classified as an EPRA.	**Objective met**. • Completion of the Survey process for a shop provides a Survey Priority Rank which enables Public Health to make an initial recommendation for EPRA status. • The Survey Priority Rank, in combination with other considerations such as past reported WMDs, organizational factors, etc., enables the EWG to make the final determination of EPRA status based on interpretation of the Survey's most common indicators.
Prioritization of EPRA classified work areas.	Results of the Survey should prioritize EPRA-classified work areas for "task-specific" analyses and/or problem-solving efforts.	**Objective met or exceeded**. • The numerical Survey Priority Rank can be used to prioritize EPRA-classified work areas for "task specific" analyses and/or problem-solving work. • In addition, information from the Work Content and Process Improvement Opportunities sections suggests "task-specific" targets for further analysis or initial problem-solving efforts.

Table 1. Survey Development Criteria Compared to Actual Survey Performance (Contd.)

Design Feature	Air Force Criteria/Objective	Actual Survey Performance
Interpretation of ergonomic, psychosocial, and individual factors.	Results of the Survey should provide an indication of and the relative importance of ergonomic, psychosocial, and individual factors which may be present in the work area.	**Objective met**. • Ergonomic factors (e.g., risk factors, discomfort reports) are of primary importance in determining the Survey Priority Rank for a shop. • Results from the Organizational (i.e., psychosocial) Factors section can be used by the EWG to determine, for example, high levels of "job stress" that may be causing an increase in the experience of discomfort and fatigue. • Results from the Contributing Factors section can also be used to interpret the risk factors/discomfort factors-based Survey Priority Rank. For example, if the Contributing Factors score is above 20%, the discomfort rating may have been impacted by a high percentage of employees with conditions that may increase the prevalence of WMDs.
Calculation of employee-reported discomfort prevalence rates.	Data from the Survey should enable Public Health to calculate employee-reported discomfort prevalence rates.	**Objective exceeded**. • Information from the Discomfort Factors section enables Public Health to calculate, by body zone (e.g., shoulder/neck, hands/wrists/arms, back/torso, legs/feet, and head/eyes), the percentage of employees within a shop who are experiencing or who have experienced discomfort in the previous 12 months. • While not a primary objective of the Survey, this data may be used by Public Health to determine whether or not it is likely that employees are under-reporting their musculoskeletal discomfort or symptoms of WMD.

The Survey Methodology provides the Air Force with a tool that is ***unique*** to the field of ergonomics. It is the first survey tool for which reproducibility has been reported to allow for the following: (1) enables a massive organization to systematically and quickly, with a minimum of resources, assess employee exposure to ergonomic factors in all types of work environments; (2) results (Survey Priority Rank) can be used to establish overall priorities for further investigation on the shop level, (3) functions and results closely reflect that which would be provided by an experienced ergonomist; (4) results (Work Content and Process Improvement Opportunities) can be used to establish a plan for specific follow-up within the higher priority shops; and (5) can be used to measure the potential impact of problem-solving efforts that have been completed within a shop and for all shops throughout a larger organization.

THE JOB REQUIREMENTS AND PHYSICAL DEMANDS SURVEY METHODOLOGY GUIDE

ACKNOWLEDGMENTS

The Job Requirements and Physical Demands Survey, on which this Methodology Guide and Research Report is based, was developed as the result of a cooperative effort between USAF Headquarters Space Command, Armstrong Laboratory Occupational and Environmental Health Directorate, EARTH TECH, Inc., and The Joyce Institute/A Unit of Arthur D. Little, Inc. Sound research-based and practical applications-based technical information, in conjunction with knowledge of Air Force operations, has been directed at improving the health, safety, and overall performance of Air Force personnel by preventing work-related musculoskeletal disorders. The Survey is a key step in the process used to identify and recognize ergonomic risk factors and to establish priorities for corrective action. The following personnel contributed to this development effort:

Col. Donald Coates	HQ AFSPC/SGPM, Peterson AFB, CO
Lt. Col. Gene Killan	HQ AFSPC/SGPB, Peterson AFB, CO
Capt. Jay Vietas	21 AMDS/SGPB, Peterson AFB, CO
Regina White	21 AMDS/SGPB, Peterson AFB, CO
Jeanne Hawkins	45 AMDS/SGPB, Patrick AFB, FL
Capt. Alvis Headen	341 MDGP/SGPB, Malmstrom AFB, MT
Capt. Von Busch	341 AMDS/SGPM, Malmstrom AFB, MT
Capt. Steph Earle	6 SWS, Cape Cod AS, MA
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Jeffrey Nelson	The Joyce Institute/A Unit of Arthur D. Little, Inc.
Marilyn Ward	The Joyce Institute/A Unit of Arthur D. Little, Inc.

LIST OF ACRONYMS

AFB	Air Force Base
EPRA	Ergonomic Problem Area
PEPA	Potential Ergonomic Problem Area
PV	Predictive Value
EWG	Ergonomics Working Group
WMD	Work-Related Musculoskeletal Disorder

ADMINISTRATOR'S GUIDE

The Administrator's Guide serves as the "How To" Guide for using the Job Requirements and Physical Demands Survey. The Guide is divided into three sections which provide an overview of the Survey purpose, instructions for administering the Survey, and instructions for scoring the Survey.

1. 0 OVERVIEW FOR THE PUBLIC HEALTH OFFICER AND TECHNICIAN

This section provides an overview of the Survey and describes its intended usage. It also provides logistical information necessary for successful administration of the Survey.

1.1 Purpose of the Job Requirements and Physical Demands Survey

The Job Requirements and Physical Demands Survey (**Appendix A**) has been designed to assist the Ergonomics Working Group (EWG) at your base in determining if a shop, which has been previously classified as a Potential Ergonomic Problem Area (PEPA), should be classified as an Ergonomic Problem Area (EPRA). An EPRA is defined as "a work area where an association can be shown between ergonomic risk factors, employee-reported musculoskeletal discomfort, and employee-reported work-related musculoskeletal disorders (WMDs)."

The Survey allows you to make decisions at the shop level.

Base-wide completion of the Survey by PEPA employees will also enable you to specifically:

- prioritize EPRA-designated work areas for more detailed task-specific analysis and/or problem-solving;
- calculate the prevalence rate of employee-reported discomfort;
- identify the relative importance of ergonomic, psychosocial, and individual factors which may be present in a work area;
- identify work processes, activities, and/or tasks that may be related to employee-reported musculoskeletal discomfort and/or WMDs; and
- identify the possible influence of ergonomic risk factors as you complete AF Form 190 investigations.

The primary purpose of the Survey is not to judge the effectiveness of the Air Force injury and illness reporting system. However, completing the Survey process for a particular work area provides information that should enable the EWG to determine whether it is likely that employees are under-reporting their musculoskeletal discomfort or symptoms of WMDs.

1.2 Survey Design and Method for Completion

The Survey is designed for you to administer to an assembled group of employees. One approach is to administer the survey during a scheduled safety meeting. The Survey Administration Script (**Appendix B**) includes a five-minute overview for you to provide to the participants prior to administering the Survey. You should allow a minimum of 45 minutes for the overview and Survey administration.

Employees need to respond to Survey questions based only on their own personal experience. There is not necessarily a "right" or "wrong" answer to any of the Survey questions.

1.3 Preparation and Logistics

The following sections contain answers to questions you may have regarding planning the Survey administration.

1.3.1 Who is required to complete the survey?

Ideally, every employee in a PEPA shop should complete the survey. However, since the survey is optional and there will likely be some people absent, a response rate of at least 80 percent (%) is suggested as a representative sample of the shop. If an 80% response rate cannot be obtained, then the survey results should be interpreted with caution due to possible selection bias.

1.3.2 Can I administer the survey to more than one shop at a time?

Everyone at a session does not have to be from the same shop, although it is often easier to administer the survey to one or two shops at a time. If everyone in a survey session is from one shop, you can write some of the shop identification information on the survey forms before copying. This makes the administration time of the survey a little shorter and insures that you have the right information on each of the forms.

1.3.3 How many people can complete the survey at one time?

The number of people that can take the survey at the same time is only limited by your scheduling constraints and the size of the meeting room.

1.3.4 What should I have in the meeting room?

The meeting room should have sufficient seating, desk space, and pencils.

1.3.5 What should I tell people before they come to the session?

When scheduling people to participate in this survey, it is recommended that you refer to the survey as an **"occupational health survey."** Placing an emphasis on "ergonomics" in reference to the survey may unintentionally influence people's responses as they try to give you what they

think you are looking for. On the other hand, it is not a secret that this will be used by the EWG. A sample announcement would be "All members of the *(PEPA shop name)* shop are requested to participate in a survey of job requirements and physical demands. Public Health will be conducting this survey on *(date and time and place).* This survey will take between 30 and 45 minutes to complete. Thank you in advance for your participation."

2. 0 PROCESS FOR ADMINISTERING THE SURVEY

This section provides information about the Survey Administration Script (Appendix B). It also contains example questions and suggested answers to those questions you may be asked by Survey participants during administration of the Survey.

2.1 Purpose of Overview

The purpose of your very brief overview is to inform the employees that they will be completing an occupational health survey. Your objectives are to tell them that the survey is used to obtain information about their job requirements and physical demands and to identify opportunities for improving work in shops throughout the base. The overview should be a maximum of five minutes in length.

2.2 Script

A Survey Administration script has been provided in Appendix B. Please follow the script exactly to ensure a consistent message is provided each time the survey is administered.

SPECIAL NOTE: Just as it is important to deliver a consistent message in the overview, it is also important to answer questions in a uniform manner. Casual comments or well-intentioned responses to employee questions may actually bias the results and later impact the conclusions that you make during analysis. The following are commonly asked questions and the appropriate responses.

2.3 Answers to Commonly Asked Questions

The following sections contain the answers to questions that Survey participants may ask.

2.3.1 Survey Part I

This section contains questions that may be asked pertaining to Part I of the Survey.

2.3.1.1 Is it 2 to 4 hours each day or an average of 2 to 4 hours per day?

The answers are based on approximate time frames. If, during the course of a week, some days you spend more than 2 hours and other days you spend less than 2 hours, base your response on what you think is the average amount of time.

2.3.1.2 I only reach my arms a little forward, does that count?

Yes, if you are reaching forward, with your arms away from your body, mark the amount of time spent each day in that position.

2.3.1.3 What does "cradle" a phone mean?

Holding the phone in place by squeezing the phone between your shoulder and ear.

2.3.2 Survey Part II

No questions are expected on Survey Part II.

2.3.3 Survey Part III

This section contains a question that may be asked pertaining to Part III of the Survey.

2.3.3.1 What if I do some things that are not on this list?

Please write in a brief description of the activity and place a mark in the appropriate work frequency box.

2.3.4 Survey Part IV

This section contains a question pertaining to Part IV of the Survey.

2.3.4.1 How specific should I be in describing the tasks?

Please be as specific as possible. This information will be used by Public Health and Bioenvironmental Engineering Services to identify tasks, tools, equipment, etc., for further investigation. For example, one type of description could be "removing and replacing files on lower level shelves in the medical records area." Another could be "use of the crimping tool when splicing cable." Still another could be "replacing fuel line on (specific) aircraft." Any information that you can provide that will help clarify the tasks you have in mind will be useful.

3. 0 INSTRUCTIONS FOR COMPLETING THE SURVEY ANALYSIS PROCESS

This section contains instructions for scoring the Surveys. It also contains helpful tips which will make the scoring process easier.

3.1 Overview for the Administrator

The purpose of this section is to guide you through the process for scoring the surveys and to determine an assessment priority list for potential EPRA shops. The scoring process involves

tabulating individual responses from the completed surveys, using decision matrices to determine the priority ratings and potential EPRA status, and using examples and/or descriptions in the Guide to help you interpret the overall results. Your results will be used by the EWG to determine EPRA status and/or priorities for ergonomic intervention throughout the base.

3.2 Planning and Logistics

You will need approximately two hours to complete the scoring process for each shop. The process may be faster or slower depending on the number of employees/Surveys that you must process for a particular shop.

Before you begin scoring, you will need:

- all of the completed surveys for each shop;
- a pen or pencil;
- a calculator;
- desk space to spread out the surveys; and
- one copy of the Scoring Sheets and Scoring Summary for each shop to be scored.

3.3 Overview of Scoring Procedures - Preparation

Tally scores for only one shop at a time. You will need to have all of the completed surveys for the shop before proceeding with scoring. Compile all of the tallying before you begin calculating any scores. Points 1 through 7 below provide an overview of the scoring process. The actual step-by-step instructions that you will use during scoring are provided in section 3.4.

Point 1: Count the total number of surveys. You will need this number for calculating scores.

Point 2: Work on one survey at a time. Complete the tallying on all five scoring sheets (Pages 1 to 5) for that survey before continuing to tally with the next survey. Instructions for tallying each section are provided on the respective scoring sheets.

Point 3: After all tallying is completed, follow the instructions on each form to calculate the ratings, percentages, and scores. Ratings will always be verbal descriptors “High, Medium, or Low.” Percentages and scores will always be numeric.

Point 4: Transfer the ratings, percentages, and scores from the individual scoring sheets (**Appendix C**) to the Summary Report (**Appendix D**). Each item is labeled with a

section letter (A, B, C, etc.) and an item number (1, 2, 3, etc.) on both the scoring sheets and the summary sheets to assist you in transferring the scores.

Point 5: Follow the instructions on the Summary Report to establish the Survey Priority Rank. A Survey Priority Rank score of 5 or higher indicates that a shop should be given EPRA status. The higher the Survey Priority Rank score, the greater the recommended priority for intervention. Only the EWG, however, can determine whether or not a shop should be upgraded to EPRA status.

Point 6: For each of the Other Considerations, examine the results, summarize the impacts, and comment as necessary in the space provided. Focus your comments on the potential impact of the item on the overall ergonomic risk interpretation or strategy for intervention.

Point 7: The EWG determines an intervention strategy based on the Survey Priority Rank and the Other Considerations. Provide a summary of the intervention strategy in the space labeled "Conclusion and Recommendation Summary."

3.4 Specific Scoring Procedures

The specific instructions for scoring each part are presented on the scoring sheets for that part in a step-by-step manner. The information provided in the following section is intended to supplement these instructions with explanations and suggestions.

3.4.1 Part I. A. - Job Factors: Risk Factor Ratings (Appendix C, Scoring Sheets, Page 1)

This section contains the instructions for scoring Part I. A. of the Survey.

3.4.1.1 Step 1 (Questions 1-38)

For the Risk Factor Ratings, **make only one tally mark per survey in each body area tally box**. Make your tally marks small enough to allow room for the entire shop. Grouping your tallies in sets of five will make counting easier.

Score each survey completely before proceeding to the next survey. For each body area, count the responses that are either 2-4 or 4-8 hours. If that number exceeds the criteria number in the right-hand corner of the tally box for that body area, place a tally mark. For example, suppose on the first survey, you counted four responses for shoulder/neck that were either 2-4 or 4-8 hours. Since four is greater than two, place a single tally mark in the box. The tally marks will indicate the number of people with concerns in the shop. **CAUTION: The criteria number you are comparing against is different for each body area.**

3.4.1.2 Step 2 and Step 3

These two steps lead you through the process of converting the number of people with concerns into a percentage of people with concerns. This conversion to percentages allows you to easily compare the responses from shops with varying numbers of employees. In Step 4 you will convert these percentages into a Risk Factor Rating.

3.4.1.3 Step 4

Step 4 converts the percentage scores into Risk Factor Ratings for each body area. The Risk Factor Ratings are based on how many of the people within a shop are exposed to risk factors for each body area. Compare the percentage to the scale provided to determine the rating (Low, Medium, or High). Write the rating in the box for the appropriate body area.

3.4.2 Part I. B. - Job Factors: Organizational Factor Rating (Appendix C, Scoring Sheets, Page 2)

This section contains the instructions for scoring Part I. B. of the Survey.

3.4.2.1 Step 1

For the Organizational Factor Ratings, make one tally mark for **each** response of agree or strongly agree. For example, since there are six questions, if an individual responds to agree or strongly agree for all six questions, make six tally marks. Keep your tally marks small and in groups.

3.4.2.2 Step 2

The scoring for the Organizational Factors contains one additional step not present in the Risk Factor scoring. Divide the total number of responses by six in order to compensate for marking up to six tallies for each survey.

3.4.2.3 Step 3, Step 4, and Step 5

These three steps lead you through the process of converting the scores into a percentage of people and finally to a rating. Compare the percentage to the scale provided to determine the rating (Low, Medium, or High). Write the rating in the box for the appropriate body area.

3.4.3 Part I. C. - Job Factors: Physical Effort (Appendix C, Scoring Sheets, Page 2)

This section contains the instructions for scoring Part I. C. of the Survey.

3.4.3.1 Step 1

For the Physical Effort score, write the score from each survey into the tally box. Write the numbers small, but legible, to allow room for all the responses. Placing the numbers in distinct rows or columns will make the totaling process easier. A calculator is recommended for totaling these numbers.

3.4.3.2 Step 2 and Step 3

The Physical Effort score is based on the average score for the shop. Steps 2 and 3 lead you through the calculation of the average. The average score is written in the box.

3.4.4 Part II. D. - Discomfort Ratings (Appendix C, Scoring Sheets, Page 3)

This section contains the instructions for scoring Part II. D. of the Survey.

3.4.4.1 Step 1

For the Discomfort Ratings, **make only one tally mark per survey in each body area tally box**. Look at the second and third question for each body area. Match the response to "how often" with the row in the Criteria Table. Match the response to "how severe" with the column in the Criteria Table. If the box that matches the combination of "how often" and "how severe" is shaded, place one mark in the tally box for that area.

For example: You are tallying the shoulder/neck discomfort section for one person's survey. The person has responded that on a "weekly" basis they have "moderate" discomfort. Since this combination corresponds to a shaded area, place one mark in the tally box.

3.4.4.2 Step 2, Step 3, and Step 4

These three steps lead you through the process of converting the scores into a percentage of people and finally to a rating. Compare the percentage to the scale provided to determine the rating (Low, Medium, or High). Write the rating in the box for the appropriate body area.

3.4.5 Part II. E. - General Question E1. (Appendix C, Scoring Sheets, Page 4)

This section contains the instructions for scoring Part II. E. - General Question E1. of the Survey.

3.4.5.1 Step 1

Place a mark in the tally box for each "yes" response to question 61.

3.4.5.2 Step 2

Write the number of "yes" responses for the shop in the E.1 score box. This number is not converted to a percentage or rating because it will be compared with reported injuries and illnesses for the shop in order to identify potential under-reporting.

3.4.6 Part II. E. - General Questions E.2. to E.5. (Appendix C, Scoring Sheets, Page 4)

This section contains the instructions for scoring Part II. E. - General Questions E.2. to E. 5. of the Survey.

3.4.6.1 Step 1

For each of the remaining general questions (question 62-65), place a mark in the corresponding tally box for a "yes" response to any of the questions.

3.4.6.2 Step 2, Step 3, and Step 4

These three steps lead you through the process of converting the scores into a percentage of people. Unlike the Risk Factors, Organizational Factors, and Discomfort Factors sections, do not convert this score to a rating.

3.4.7 Part III. - Work Content (Appendix C, Scoring Sheets, Page 5)

This section contains the instructions for transferring data from Part III. of the Survey to the Scoring Sheets.

3.4.7.1 Step 1

You will need to review Part III of each of the Surveys. For the first Survey, write down any "Types of Work" that the employee marked as "Routine." Go through the remainder of the Surveys to identify other "Routine" tasks that were not identified on the first Survey.

3.4.7.2 Step 2

Go back through the Surveys and make a tally for each employee that identified the same "Type of Work" as "Routine." Count the tallies and write the total in the total box.

3.4.7.3 Step 3, Step 4, and Step 5

These three steps lead you through the process of converting the totals into a percentage of people. All ratings, percentages, and scores will be transferred from the individual scoring sheets to the Summary Report.

3.4.8 Summary Report (Appendix D, Summary Report Sheets, Pages 1-3)

This section contains the instructions for preparing the Summary Report.

3.4.8.1 Step 1 and Step 2

Transfer the Risk Factor and Discomfort Ratings from pages 1 and 3 of the Scoring Sheets to the appropriate boxes on the Summary Report.

3.4.8.2 Step 3

Use the Ranking Matrix table to find Priority Scores for each body zone and write the scores in the corresponding boxes. Select the highest score of all body parts from Step 3 and enter the score into the Survey Priority Rank box. This score is the Survey Priority Rank.

3.4.8.3 Step 4 and Step 5

Write in the Organizational Factor Rating and Physical Effect Factor Score from page 2 of the Scoring Sheets. Comment as appropriate.

3.4.8.4 Step 6

Enter the General Question percentages from page 4 of the Scoring Sheets. Comment as appropriate.

3.4.8.5 Step 7

From page 5 of the Scoring Sheets, enter each of the routine types of work which had shop percentage scores over 20%.

3.4.8.6 Step 8

This step requires a review of Part IV of the Survey in order to identify tasks, tools, equipment, etc., listed by employees as potential concerns, as well as potential improvement opportunities. Comments should be noted as appropriate.

3.4.8.7 Step 9

Review the injury/illness history from this shop, attach applicable information, and provide comments as appropriate.

3.4.8.8 Step 10

Enter the Shop Status in the box, and write your follow-up recommendations in the space provided.

3.5 Interpretation of Results

3.5.1 Survey Priority Rank

The Survey Priority Rank provides you with a numeric indication of the **prevalence** of ergonomic risk factors and WMDs within a shop. The Survey Priority Rank is not an indicator of the severity of the risk. Additional analyses are required to make that determination.

If the Survey Priority Rank score is 5 or above, it indicates the presence of both ergonomic risk factors and discomfort for a majority of the people within a shop. Shops with a score in this range may be designated as EPRA shops by the EWG. Intervention priority is determined by the Survey Priority Rank score, a higher score indicates a higher intervention priority.

If the Survey Priority Rank score is less than 5, it indicates that the majority of the people in the shop do not have work-related discomfort combined with recognized risk factors. A shop could score in this range even if a small portion of the shop personnel are intermittently exposed to conditions with considerable ergonomic hazards. A review of the job frequencies in Part III, the comments in Part IV, and the shop injury history may be useful when searching for hazardous conditions with lower overall prevalence.

3.5.2 Other Considerations (Appendix D, Summary Report Page 2)

3.5.2.1 Organizational Factor Rating (B)

A rating of High in the Organizational Factors section indicates many of the people in the shop experience situations at work that can lead to a higher than normal level of job stress. High levels of job stress can decrease job performance, increase the potential for heart disease, and increase the experience of pain and discomfort. **If the Organizational Factor Rating is High**, it suggests consideration for follow-up job stress evaluation regardless of EPRA status. **If the Organizational Factor Rating is Medium**, the EWG should consider job stress factors when reviewing an EPRA shop. **If the Organizational Factor Rating is Low**, it suggests minimal concerns for job-related stress factors in that shop.

3.5.2.2 Physical Effort Factor Score (C)

The numeric score indicates the average level of perceived exertion. The higher the score the greater the level of physiological exertion present within a shop. **If the Physical Effort Factor score is 15 or higher** this could explain the presence of a high discomfort rating for a shop, in spite of a low ergonomic risk factor rating. A score in this range suggests consideration for follow-up evaluation regardless of Survey Priority Rank. The 15 corresponds to "hard" on the

physical effort scale. This rating was selected as a threshold since workers who perceive their work to be "hard" may be more likely to report discomfort or to seek a need for follow-up. **If the score is below 15**, these numbers can be compared between shops to assess the relative physiological stress within each shop. Caution: a score in this range does not indicate low ergonomic risk.

3.5.2.3 Health Care Provider Visits (E.1)

This score indicates the number of people within the shop who indicate that they have sought medical attention during the previous year for work-related discomfort. This number can be compared to injury and illness rates for the shop to identify potential under-reporting.

3.5.2.4 Recovery Time Score (E.2)

This percentage provides a comparison with the Discomfort Rating. **If the Recovery Time score is above 30%**, this shop has likely been classified as an EPRA by the Survey Priority Rank. If the shop was not classified as an EPRA, the scoring of the Discomfort Factor section could be reviewed to verify accuracy. Since this is an alternate measure of discomfort severity, a shop with a percentage in this range should receive further investigation by the EWG, regardless of EPRA status. The 30% threshold was selected as a conservative starting point for further evaluation. **If the percentage is below 30%,** verification of Discomfort Factor section scoring is not necessary. A shop with a percentage in this range may be either an EPRA or a non-EPRA shop depending upon other factors.

3.5.2.5 Activity Interruption Score (E.3)

This percentage provides an additional comparison with the Discomfort Ratings. **If the Activity Interruption score is above 50%**, this shop has likely been classified as an EPRA by the Survey Priority Rank. If the shop was not classified as an EPRA, the scoring of the Discomfort section could be reviewed to verify accuracy. Since this is an alternate measure of discomfort severity, a shop with a percentage in this range should receive further investigation by the EWG, regardless of EPRA status. The 50% threshold was selected as a conservative starting point for further evaluation. **If the percentage is below 50%,** verification of the Discomfort Factor section scoring is not necessary. A shop with a percentage in this range may be either an EPRA or a non-EPRA shop depending upon other factors.

3.5.2.6 Previous Diagnosis Score (E.4)

This percentage provides a mitigating factor to compare with the Discomfort Rating. **If the Previous Diagnosis score is above 20%**, the discomfort ratings could have been impacted by a high degree of people with previous conditions. If a shop has more than 20% of the people with previous conditions, the shop could have a false positive EPRA determination based on the Survey Priority Rank. This would be most likely in cases where body areas in the shop had a High rating for discomfort with either Medium or Low ratings for risk factors. If you suspect that a shop may have a false positive EPRA status, you can re-evaluate the shop by removing the

discomfort scores for people with previous diagnoses and re-scoring the Discomfort section and Survey Priority Rank. This new score may provide a better indication of the current ergonomic hazard level within the shop. The 20% threshold was selected as a conservative starting point for further evaluation. **If the percentage is below 20%,** it can be assumed that the prevalence of previous diagnosis within a shop had a minimal impact on the scoring for that shop.

3.5.2.7 Contributing Factors Score (E.5)

This percentage provides another mitigating factor to compare with the Discomfort Rating. **If the Contributing Factors score is above 20%**, the discomfort ratings could have been impacted by a high degree of people with conditions that increase the prevalence of cumulative trauma disorders. A shop which was ranked an EPRA on the basis of high discomfort, with either medium or low risk factor ratings, may represent a false positive ranking. This shop could be re-evaluated by removing the discomfort scores for people with contributing factors and re-scoring the Discomfort section and Survey Priority Rank. This new score may provide a better indication of the current ergonomic hazard level within the shop. The 20% threshold was selected as a conservative starting point for further evaluation. **If the percentage is below 20%,** it can be assumed that the prevalence of contributing factors within a shop had a minimal impact on the scoring for that shop.

3.5.2.8 Routine Types of Work

The Type(s) of Work that were identified by at least 20% of shop employees is/are included here. This information may be used by Public Health to identify
homogeneous groups.

APPENDIX A

Job Requirements and Physical Demands Survey

JOB REQUIREMENTS AND PHYSICAL DEMANDS SURVEY

Job Requirements and Physical Demands Survey	Date (YYMMDD)	**Workplace Identifier:**	
(*use this space for mechanical imprint)*		Base	Organization
		Workplace	
		Bldg. No/Location	Room/Area
		AFSC/Job Series	

Gender:	Female ❍	Male ❍		
Work Group:	Civilian ❍ Grade:_____	Military ❍ Rank:_____		
Age Category:	20 and under ❍	21-30 ❍	31-40 ❍	over 40 ❍
Length of service at this base:	less than one year ❍	more than one year ❍		
Length of time in current shop:	less than one year ❍	more than one year ❍		
Have you completed this questionnaire before?	Yes ❍	No ❍		

Part I - Job Factors

This section enables you to describe what is involved in your job. Indicate how long you do this work on approximately a daily basis.

A. DESCRIPTION OF WORK

SHOULDER / NECK

	Never	0-2 hrs.	2-4 hrs.	4-8 hrs.
1. I work with my hands at or above chest level. ***(Figure A.)***	❍	❍	❍	❍

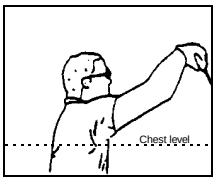


Figure A.

2. To get to or to do my work, I must lay on my back or side and work with my arms up.	❍	❍	❍	❍
3. I must hold or carry materials (or large stacks of files) during the course of my work.	❍	❍	❍	❍
4. I force or yank components or work objects in order to complete a task.	❍	❍	❍	❍
5. I reach or hold my arms in front of or behind my body (e.g., using a keyboard, filing, handling parts, performing inspection tasks, pushing or pulling carts, etc.). ***(Figures B.)***	❍	❍	❍	❍

Figure B.

6. My neck is tipped forward or backward when I work. (***Figure C.)***	❍	❍	❍	❍

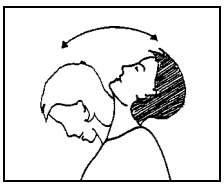


Figure C.

7. I cradle a phone or other device between my neck and shoulder. ***(Figure D.)***	❍	❍	❍	❍

Figure D.

Part I - Job Factors (continued)

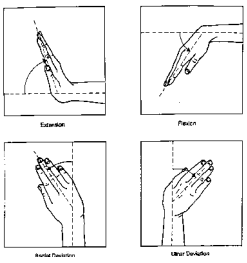


Figure E.

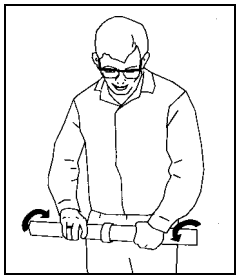


Figure F.

	Never	0-2 hrs.	2-4 hrs.	4-8 hrs.
8. My wrists are bent (up, down, to the thumb or little finger side) while I work. ***(Figure E.)***	❍	❍	❍	❍
9. I apply pressure or hold an item/material/tool (e.g., screw driver, spray gun, mouse, etc.) in my hand for longer than 10 seconds at a time.	❍	❍	❍	❍
10. My work requires me to use my hands in a way that is similar to wringing out clothes. ***(Figure F.)***	❍	❍	❍	❍
11. I perform a series of repetitive tasks or movements during the normal course of my work (e.g., using a keyboard, tightening fasteners, cutting meat, etc.).	❍	❍	❍	❍
12. The work surface (e.g., desk, bench, etc.) or tool(s) that I use presses into my palm(s), wrist(s), or against the sides of my fingers leaving red marks on or beneath the skin.	❍	❍	❍	❍
13. I use my hand/palm like a hammer to do certain aspects of my work.	❍	❍	❍	❍
14. My hands and fingers are cold when I work.	❍	❍	❍	❍
15. I work at a fast pace to keep up with a machine production quota or performance incentive.	❍	❍	❍	❍
16. The tool(s) that I use vibrates and/or jerks my hand(s) and arms(s).	❍	❍	❍	❍
17. My work requires that I repeatedly throw or toss items.	❍	❍	❍	❍
18. My work requires me to twist my forearms, such as turning a screwdriver.	❍	❍	❍	❍
19. I wear gloves that are bulky, or reduce my ability to grip.	❍	❍	❍	❍
20. I squeeze or pinch work objects with a force similar to that which is required to open a lid on a new jar.	❍	❍	❍	❍
21. I grip work objects or tools as if I am gripping tightly onto a pencil.	❍	❍	❍	❍

Part I - Job Factors (continued)

BACK/TORSO

	Never	0-2 hrs.	2-4 hrs.	4-8 hrs.
22. When I lift, move components, or do other aspects of my work, my hands are lower than my knees. ***(Figure G.)***	❍	❍	❍	❍

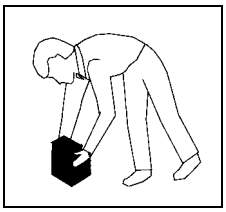


Figure G.

23. I lean forward continually when I work (e.g., when sitting, when standing, when pushing carts, etc.).	❍	❍	❍	❍
24. The personal protective equipment or clothing that I wear limits or restricts my movement.	❍	❍	❍	❍
25. I repeatedly bend my back (e.g., forward, backward, to the side, or twist) in the course of my work.	❍	❍	❍	❍
26. When I lift, my body is twisted and/or I lift quickly. ***(Figure H.)***	❍	❍	❍	❍

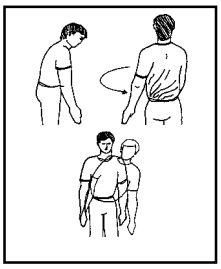


Figure H.

27. I can feel vibration through the surface that I stand on or through my seat.	❍	❍	❍	❍
28. I lift and/or carry items with one hand. ***(Figure I.)***	❍	❍	❍	❍

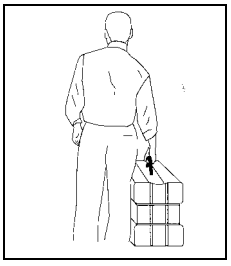


Figure I.

29. I lift or handle bulky items.	❍	❍	❍	❍
30. I lift materials that weigh more than 25 pounds.	❍	❍	❍	❍

Part I - Job Factors (continued)

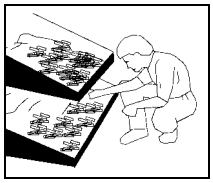


Figure J.

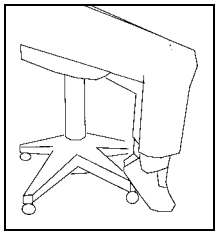


Figure K

LEGS / FEET

	Never	0-2 hrs.	2-4 hrs.	4-8 hrs.
31. My work requires that I kneel or squat. ***(Figure J.)***	❍	❍	❍	❍
32. I must constantly move or apply pressure with one or both feet (e.g., using foot pedals, driving, etc.).	❍	❍	❍	❍
33. When I'm sitting, I cannot rest both feet flat on the floor. ***(Figure K.)***	❍	❍	❍	❍
34. I stand on hard surfaces.	❍	❍	❍	❍

HEAD / EYES

35. I can see glare on my computer screen or work surface.	❍	❍	❍	❍
36. It is difficult to hear a person on the phone or to concentrate because of other activity, voices, or noise in/near my work area. ...	❍	❍	❍	❍
37. I must look at the monitor screen constantly so that I do not miss important information (radar scope).	❍	❍	❍	❍
38. It is difficult to see what I am working with (monitor, paper, parts, etc.).	❍	❍	❍	❍

Part I - Job Factors (continued)

B. ORGANIZATIONAL FACTORS

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	**2**	**3**	**4**	**5**
39. I often feel unclear on what the scope and responsibilities of my job are.	❍	❍	❍	❍	❍
40. I often feel that I have too heavy of a workload, one that I could not possibly finish during an ordinary workday.	❍	❍	❍	❍	❍
41. I often feel that I will not be able to satisfy the conflicting demands of various people around me.	❍	❍	❍	❍	❍
42. I often find myself unable to get information needed to carry out my job.	❍	❍	❍	❍	❍
43. I often do not know what my supervisor thinks of me, how he/she evaluates my performance.	❍	❍	❍	❍	❍
44. I often think that the amount of work I have to do interferes with how well it's done.	❍	❍	❍	❍	❍

C. PHYSICAL EFFORT

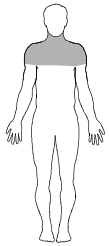
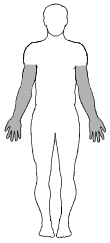
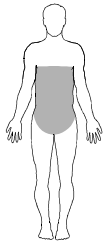
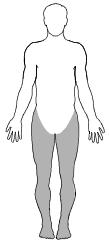
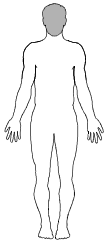
45. How would you describe the physical effort required of your job?

6	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
No exertion at all	Extremely light		Very light		Light		Somewhat hard		Hard		Very hard		Extremely hard	Maximal exertion
❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

Part II - Your Body's Response to Work Demands

D. DISCOMFORT FACTORS

This section enables you to identify how your body responds to the demands of ***your job***. In each section, answer the first question. If the answer is "no" go to the next column.

Question	 **Shoulder/Neck**	 **Hands/Wrists/Arms**	 **Back/Torso**	 **Legs/Feet**	 **Head/Eyes**
• In the past 12 months, have you experienced <u>any</u> discomfort, fatigue, numbness, or pain that ***relates to your job***?	46. Yes ❍ No ❍ ***If "no", go to question 49***	49. Yes ❍ No ❍ ***If "no", go to question 52***	52. Yes ❍ No ❍ ***If "no", go to question 55***	55. Yes ❍ No ❍ ***If "no", go to question 58***	58. Yes ❍ No ❍ ***If "no", go to question 61***
• How often do you experience discomfort, fatigue, numbness, or pain in this region of the body?	47. Daily ❍ Weekly ❍ Monthly ❍	50. Daily ❍ Weekly ❍ Monthly ❍	53. Daily ❍ Weekly ❍ Monthly ❍	56. Daily ❍ Weekly ❍ Monthly ❍	59. Daily ❍ Weekly ❍ Monthly ❍
• On average, how severe is the discomfort, fatigue, numbness, or pain in this region of the body?	48. Mild ❍ Moderate ❍ Severe ❍	51. Mild ❍ Moderate ❍ Severe ❍	54. Mild ❍ Moderate ❍ Severe ❍	57. Mild ❍ Moderate ❍ Severe ❍	60. Mild ❍ Moderate ❍ Severe ❍

Part II - Your Body's Response to Work Demands (continued)

E. GENERAL QUESTIONS

61. In the past 12 months, have you seen a health care provider for any pain or discomfort that you think **relates to your job**? Yes ❍ No ❍

62. Do you experience any work-related pain or discomfort that does not improve when you are away from work overnight or over the weekend? Yes ❍ No ❍

63. In the past 12 months, has any work-related pain or discomfort caused you difficulty in carrying out normal activities (e.g., job, hobby, leisure, etc.)? Yes ❍ No ❍

64. Has a health care provider ever told you that you have any of the following conditions which you think might be **related to your work**? Yes ❍ No ❍

- Tendonitis/Tenosynovitis
- Epicondylitis (Tennis Elbow)
- Thoracic Outlet Syndrome
- Ganglion Cyst
- Bursitis
- Back Strain
- Trigger Finger
- Carpal Tunnel Syndrome
- Knee or Ankle Strain
- Overuse Syndrome

65. Do you have or have you ever had one or more of the following conditions? Yes ❍ No ❍

- Wrist Fracture
- Thyroid Disorder
- Rheumatoid Arthritis
- Hypertension
- Diabetes
- Kidney Disorders
- Gout

Part III - Work Content

The section below will enable you to describe the content of the work that you do in your current shop.

Fill in the box that describes how frequently you do the task listed, based on the following definitions:

- **Routine:** Performed on three or more days per week.
- **Non-routine:** Performed two days a week or less.
- **Seasonal:** Performed only during certain times of the year
- **Never/NA:** You do not perform this type of work.

No.	Type of Work	Work Frequency (Check one)			
		Routine	**Non-Routine**	**Seasonal**	**Never/NA**
66.	abrading	❍	❍	❍	❍
67.	baking	❍	❍	❍	❍
68.	bolting/screwing	❍	❍	❍	❍
69.	calling (telephone use)	❍	❍	❍	❍
70.	chipping	❍	❍	❍	❍
71.	cleaning by hand	❍	❍	❍	❍
72.	cleaning with high pressure equipment	❍	❍	❍	❍
73.	coating/immersing	❍	❍	❍	❍
74.	cooking	❍	❍	❍	❍
75.	copying	❍	❍	❍	❍
76.	crimping	❍	❍	❍	❍
77.	cutting/shearing	❍	❍	❍	❍
78.	drafting/CAD system use	❍	❍	❍	❍
79.	drilling	❍	❍	❍	❍
80.	driving (vehicles)	❍	❍	❍	❍
81.	excavating	❍	❍	❍	❍
82.	filing/general administrative	❍	❍	❍	❍
83.	flame cutting/arc cutting	❍	❍	❍	❍
84.	folding/fitting	❍	❍	❍	❍
85.	gluing/laminating	❍	❍	❍	❍
86.	grinding/buffing/polishing	❍	❍	❍	❍
87.	hammering	❍	❍	❍	❍
88.	lifting	❍	❍	❍	❍
89.	loading (pallets, trucks, carts, aircraft)	❍	❍	❍	❍
90.	lubricating	❍	❍	❍	❍

Part III - Work Content (Continued)

No.	Type of Work	Work Frequency (Check one)			
		Routine	Non-Routine	Seasonal	Never/NA
91.	machining	❍	❍	❍	❍
92.	masoning	❍	❍	❍	❍
93.	melting	❍	❍	❍	❍
94.	molding	❍	❍	❍	❍
95.	monitoring (visual displays)	❍	❍	❍	❍
96.	mousing (for computer work)	❍	❍	❍	❍
97.	nailing	❍	❍	❍	❍
98.	opening/closing heavy doors	❍	❍	❍	❍
99.	packing/packaging	❍	❍	❍	❍
100.	painting/spray painting	❍	❍	❍	❍
101.	paving	❍	❍	❍	❍
102.	pumping (by hand)	❍	❍	❍	❍
103.	riveting/bucking	❍	❍	❍	❍
104.	sanding	❍	❍	❍	❍
105.	sawing	❍	❍	❍	❍
106.	scanning (using bar code readers)	❍	❍	❍	❍
107.	sewing	❍	❍	❍	❍
108.	soldering/brazing	❍	❍	❍	❍
109.	stapling	❍	❍	❍	❍
110.	stripping/depainting by hand	❍	❍	❍	❍
111.	stripping/depainting mechanically	❍	❍	❍	❍
112.	transporting loads on non-powered carts	❍	❍	❍	❍
113.	turning valves	❍	❍	❍	❍
114.	tying/twisting/wrapping	❍	❍	❍	❍
115.	typing/keying	❍	❍	❍	❍
116.	welding	❍	❍	❍	❍
117.	wheeling loads	❍	❍	❍	❍
118.	wiring	❍	❍	❍	❍
119.	wrenching/ratcheting	❍	❍	❍	❍
120.	writing/illustrating	❍	❍	❍	❍
	(Write in others)				
121.	_____	❍	❍	❍	❍
122.	_____	❍	❍	❍	❍

Part IV - Process Improvement Opportunities

Think about your job as a whole, including routine, non-routine or seasonal work.

Read the questions listed below and **describe the activities** that you or your co-workers think place the greatest demands on your body.

1. Which tasks are the most awkward or require you to work in the most uncomfortable positions?

2. Which tasks take the most effort?

3. Are there any tools or pieces of equipment that are notoriously hard to work with? (If so, list them below)

4. If you could make any suggestions that would help you do your job more easily or faster or better, what would you suggest?

APPENDIX B

Job Requirements and Physical Demands Survey

Administration Script

(WELCOME AND INTRODUCTION)

Welcome and thank you for taking the time to complete this occupational health survey. The survey will assess your job requirements and physical demands.

The purpose of the Survey is to enable the Air Force to better understand and identify opportunities for improving work in shops throughout the base.

After you complete the Survey, we will:

- analyze the results for the entire shop;
- determine a Priority Score for the shop;
- provide information to the Ergonomics Working Group.

We will then decide on priorities for follow-up and shop improvement.

This is an anonymous Survey. You will notice that we do not ask you to provide your name and there is no coding system. The Survey is also voluntary; you are not required to take the Survey; however, your participation is appreciated.

We are using the Survey to get an overall assessment of the experiences in your shop as a whole.

We are not looking at each person and your individual responses.

However, if you wish to request a follow-up visit by Public Health, you may do so.

(OVERVIEW OF THE SURVEY)

The Survey is divided into a cover page and four parts.

I will give you a quick overview of each section so follow along with me as I go through the form.

The Cover Page asks for general information about yourself. Please fill out all of the information on this page with the exception of the "workplace identifier" section.

Turn to Page 2.

Part I is called "Job Factors."

For this section, please provide a response to <u>all</u> questions.

This section allows you to describe certain job factors related to your work that occur on an approximately daily basis.

In Part III of the Survey, you will have a chance to tell us about the work that you do less often, like seasonal work.

Turn to Page 7.

Part II is called "Your Body's Response to Work Demands."

This section enables you to describe how your body has reacted in the past to physical job demands.

For example, describing whether you are comfortable or experience fatigue or discomfort, is one of the purposes of this part of the survey.

Again, we will making conclusions about the entire shop based on how all of you respond to the Survey questions.

We do not intend to focus on any one individual.

Turn to Page 9.

Part III is called “Work Content.”
This section allows you to list the tasks you perform in your work and how often you do them.

You will be able to tell us which types of tasks you do and approximately how often you do the tasks over a given period of time.

We will use this information to determine:

- what the typical/routine tasks are for your shop; and

- the variety of tasks that are done by your shop, even if they are not done very often.

Turn to page 11.

Part IV is called “Process Improvement Opportunities.”

The purpose of this section is to identify the tasks that you think place the greatest demands on your body.

For this section consider your routine, non-routine, and seasonal tasks and describe the tasks that you think are a problem.

We will need to know this information in order to help the Ergonomics Working Group decide which tasks may be good candidates for improvement.

(START THE SURVEY PROCESS)

Turn back to Page 1 and begin.

We expect that it will take you about 30 minutes to complete the Survey.

When you are finished with the entire survey, please turn it in to me.

Thank you again for your participation.

(END OF INSTRUCTIONS)

APPENDIX C

Job Requirements and Physical Demands Survey

Scoring Sheets

SCORING SHEET

Although there are many ways to score the survey, we recommend that you work through one survey at a time, completing the parts as indicated. Make sure your tally marks are small enough so you have room for the entire shop.

Part I - Job Factors
A - Risk Factor Ratings (Questions 1 - 38)

Step 1	Step 2	Step 3	Step 4
For each body area, count the number of responses in the 2-4 hour column and in the 4-8 hour column. **If that number exceeds the criteria number in the box in the upper right,** make one tally mark. Place only one mark per survey in each box. Write the total of the tallies in the Total box.	Divide the Total tallies by the number of surveys from one shop.	Multiply that number by 100 to get the percentage.	Write the Risk Factor Rating (Low, Med, High) in the box for each body part using the scale below. **Low** ≤30% **Med** 31 - 60% **High** 61+%

Shoulder/Neck Tally Box Questions 1-7	2	number of surveys ÷ _____ = _____ x 100 = _____%	**A.1** Shoulder/Neck Risk Factor Rating
Total			
Hand/Wrist/Arm Tally Box Questions 8-21	4	number of surveys ÷ _____ = _____ x 100 = _____%	**A. 2** Hand/Wrist/Arm Risk Factor Rating
Total			
Back/Torso Tally Box Questions 22-30	2	number of surveys ÷ _____ = _____ x 100 = _____%	**A.3** Back/Torso Risk Factor Rating
Total			
Legs/Feet Tally Box Questions 31-34	1	number of surveys ÷ _____ = _____ x 100 = _____%	**A.4** Legs/Feet Risk Factor Rating
Total			
Head/Eyes Tally Box Questions 35-38	1	number of surveys ÷ _____ = _____ x 100 = _____%	**A.5** Head/Eyes Risk Factor Rating
Total			

SCORING SHEET

Part I - Job Factors
B - Organizational Factors (Questions 39-44)

Step 1	Step 2	Step 3	Step 4	Step 5
For each question that has a response of a 4-Agree or 5-Strongly Agree, make a tally in the tally box. Write the total tallies in the Total box.	Divide by 6	Divide by the number of surveys from one shop.	Multiply that number by 100 to get the percentage.	Write the Organizational Factor Rating (Low, Med, High) in the box based on the scale below: **Low** ≤30% **Med** 31-60% **High** 61+%

Tally Box 1

Total

÷ 6 = _____ ÷ _____ = _____ x 100 = _____%
(number of surveys)

B. Organizational Factor Rating

Part I - Job Factors
C - Physical Effort Score (Question 45)

Step 1	Step 2	Step 3
Write the numeric score (6-20) for each survey in the tally box. Add the numbers and write the total in the total box.	Divide that total by the number of surveys.	Write the average in the Physical Effort box.

Tally Box

Total

÷ _____ = (number of surveys)

C. Physical Effort Factor Score

SCORING SHEET

Part II - The Body's Response to Work Demands
D - Discomfort Rating (Questions 46 - 60)

Step 1	Step 2	Step 3	Step 4
For each body part, look at the responses to the second and third questions (47 & 48, 50&51, 53&54, 56&57, 59&60). If participants have answered them, then look at the Criteria Table. If the combination of answers fits one of the categories, then make a tally mark in the tally box for each body part. For example: if 47 is "weekly" and 48 is "moderate" then make a tally mark. Count and put total in Total box.	Divide the total tallies by the number of surveys from one shop.	Multiply that number by 100 to get the percentage.	Write the Discomfort Rating (Low, Med, High) in the box for each body part using the scale below. **Low** ≤30% **Med** 31 - 60% **High** 61+%

Criteria Table

	Mild	Moderate	Severe
Daily			
Weekly			
Monthly			

Shoulder/Neck Tally Box Question 46-48 **Total**	number of surveys ÷ _____ = _____ x 100 = _____%	**D.1** Shoulder/Neck Discomfort Rating
Hand/Wrist Arm Tally Box Question 49-51 **Total**	number of surveys ÷ _____ = _____ x 100 = _____%	**D.2** Hand/Wrist/Arm Discomfort Rating
Back/Torso Tally Box Question 52-54 **Total**	number of surveys ÷ _____ = _____ x 100 = _____%	**D.3** Back/Torso Discomfort Rating
Legs/Feet Tally Box Question 55-57 **Total**	number of surveys ÷ _____ = _____ x 100 = _____%	**D.4** Legs/Feet Discomfort Rating
Head/Eyes Tally Box Question 58-60 **Total**	number of surveys ÷ _____ = _____ x 100 = _____%	**D.5** Head/Eyes Discomfort Rating

SCORING SHEET

Part II - The Body's Response
E - General Questions (Questions 61 - 65)

Step 1	Step 2
Look at question 61 and tally only the "yes" answers in the tally box for that question. Count and write the total in the total box.	Write the total in the Health Care Provider Visit score box.

Question 61 Tally Box

Total

E.1 Health Care Provider Visit Score

Step 1	Step 2	Step 3	Step 4
Look at each question and tally only the "yes" answers in the tally box for that question. Count and write the total in the Total box.	Divide the total tallies for that question by the number of surveys.	Multiply that number by 100 to get the percentage.	Write the shop percentage in the box provided.

Question 62 Tally Box

Total

number of surveys

÷ _____ = _____ x 100 = **%**

E.2 Recovery Time Score

Question 63 Tally Box

Total

number of surveys

÷ _____ = _____ x 100 = **%**

E.3 Activity Interruption Score

Question 64 Tally Box

Total

number of surveys

÷ _____ = _____ x 100 = **%**

E.4 Previous Diagnosis

Question 65 Tally Box

Total

number of surveys

÷ _____ = _____ x 100 = **%**

E.5 Contributing Factors Score

SCORING SHEET

Part III
F - Work Content (Items 66-122)

Step 1		Step 2	Step 3	Step 4	Step 5
In the space below, list item number(s) and corresponding type(s) of work that are performed on a "Routine" basis.		For each Routine Type of Work, tally the number of responses. Count and write the total in the total box.	Divide the total tallies for each type of work by the number of surveys.	Multiply that number by 100 to get the percentage.	Write in the shop percentile in the box provided.
Item #	**Type of Work**				
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %
		Tally Box Total	÷ _______ = _______	X 100	F %

APPENDIX D

Job Requirements and Physical Demands Survey

Summary Report

SUMMARY REPORT

ERPA Status:	**Priority Ranking:**	**Date:**
Date:	Workplace Identifier:	Base:
Organization:	Workplace:	Bldg./Location:
Room/Area	AFSC:	Civilian Job Series:
Shop Supervisor:	Duty Phone:	Office Symbol:

Step 1	**Step 2**	**Step 3**
Write in the **Risk Factor Rating** for Part I, (questions 1-38, Scoring Sheet pg.1)	Write in the **Discomfort Rating** for Part II, (questions 46-60, Scoring Sheet pg.3)	Look at the "Ranking Matrix" below and enter the **Priority Score** in it's corresponding box.
A.1	D.1	**Shoulder/Neck =**
A.2	D.2	**Hands/Wrist/Arms =**
A.3	D.3	**Back/Torso =**
A.4	D.4	**Legs/Feet =**
A.5	D.5	**Head/Eye =**

Ranking Matrix

Ranking Matrix for **Priority Score**	Discomfort High	Discomfort Medium	Discomfort Low
Risk Factor High	9	7	4
Risk Factor Medium	8	5	2
Risk Factor Low	6	3	1

Select the HIGHEST score for any body part from Step 3 and enter →

Survey Priority Rank:

SUMMARY REPORT

Step 4	
B. Enter **Organizational Factor Rating:** (Questions 39-44, Scoring Sheet pg. 2) ____ %	**Comments:**
Step 5	
C. Enter **Physical Effort Factor Score**: (Question 45, Scoring Sheet pg.2) ____	**Comments:**
Step 6	
E. Enter the score for each of the **General Questions**: (Questions 61-65, Scoring Sheet pg. 4)	
E.1 Health Care Provider Score _____	**Comments:**
E.2 Recovery Time Score _____ %	**Comments:**
E.3 Activity Interruption Score _____ %	**Comments:**
E.4 Previous Diagnosis Score _____ %	**Comments:**
E.5 Contributing Factors Score _____ %	**Comments:**
Step 7	
F. List below each of the routine types of work which had shop percentage scores over 20%. (Items 66-122, scoring sheet page 5)	

Type of Work	**%**	**Type of Work**	**%**
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SUMMARY REPORT

Step 8	
Review Part IV (Questions 1-3) to identify tasks, tools, equipment, etc., that employees listed as potential concerns. Comment as appropriate.	**Comments:**
Review Part IV (Question 4) to identify potential improvement opportunities. Comment as appropriate.	**Comments:**
Step 9	
Injury/Illness Data: Review the injury/illness history from this shop. Attach information and comment as appropriate.	**Comments:**

Step 10
Conclusions / Recommendations Summary

Shop Status

Recommendations for follow-up: